City of Ramsey
Agenda
Public Works Committee
Tuesday March 20, 2012
5:00 pm
Lake Itasca Room, 7550 Sunwood Drive NW

1. Call to Order

2. Citizen Input

3. Approve Agenda

4. Approve Minutes

1. Approve Public Works Committee meeting minutes dated February 21, 2012

5. Committee Business

1. Consider Storm Sewer Improvements on Sodium Street - A Continuation of Discussions Related to 2011 Flooding Concerns

2. Consider Storm Sewer Improvements on 163rd Lane - A Continuation of Discussions Related to 2011 Flooding Concerns

3. Consider Revisions to the City's Minnesota State Aid (MSA) Street System

4. Consider Project Scope for Phase 2 of the Alpine Drive Overlay Project

6. Committee/Staff Input

7. Adjournment

Public Works Committee **4. 1.**

Meeting Date: 03/20/2012

Submitted For: MaryJo Warner By: MaryJo Warner, Engineering/Public Works

Title:

Approve Public Works Committee meeting minutes dated February 21, 2012

Background:

The Public Works Committee held its regular meeting on February 21, 2012

Notification:

Observations:

Funding Source:

N/A

Staff Recommendation:

Staff recommends approving Public Works Committee meeting minutes dated February 21, 2012

Committee Action:

Motion to approve Public Works Committee meeting minutes dated February 21, 2012

Attachments

Minutes 02.21.12

Form Review

Inbox	Reviewed By	Date
Brian Olson	MaryJo Warner	03/15/2012 03:00 PM
Kurt Ulrich	Kurt Ulrich	03/15/2012 03:23 PM

Form Started By: MaryJo Warner Started On: 03/12/2012 03:00 PM

Final Approval Date: 03/15/2012

PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Public Works Committee conducted a regular meeting on Tuesday, February 21, 2012 at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Chairperson Randy Backous Councilmember David Elvig Councilmember Colin McGlone
Also Present:	City Administrator Kurtis G. Ulrich Deputy City Administrator Heidi Nelson Public Works Director Brian Olson City Engineer Tim Himmer Street Supervisor Grant Reimer Civil Engineer Leonard Linton Development Manager Darren Lazan

CALL TO ORDER

Chairperson Backous called the regular meeting of the Public Works Committee to order at 6:06 p.m.

CITIZEN INPUT

There was none.

APPROVE AGENDA

Motion by Councilmember Elvig, seconded by Councilmember McGlone, to approve the agenda, as presented.

Motion carried. Voting Yes: Chairperson Backous and Councilmembers Elvig and McGlone. Voting No: None.

APPROVE MINUTES

Motion by Councilmember McGlone, seconded by Councilmember Elvig, to approve the minutes from the January 17, 2012 Public Works Meeting.

Motion carried. Voting Yes: Chairperson Backous and Councilmembers McGlone and Elvig. Voting No: None.

COMMITTEE BUSINESS

Case #1: Discuss Trail Easement at 15620 Krypton Street NW

City Engineer Himmer reviewed the staff report that an individual is considering purchasing the property at 15620 Krypton Street NW. The main topic of conversation is an existing bituminous trail that extends down the east property line and into the property's backyard. After reviewing property files, it was discovered the trail has an intended dual purpose of maintenance access to the City's sanitary sewer system and a pedestrian connection. The prospective buyer is asking the Public Works Committee for a trail easement to move the trail to the property line.

Josh Dvorak, prospective property buyer of 15620 Krypton Street NW, stated he and his wife are looking into purchasing the property at 15620 Krypton Street NW. He asked if the trail could be moved out of the center of the property's backyard. He stated if the trail could not be moved to the property line it could be a deal breaker. He stated they have kids and a dog and would like to put up a fence in the future.

Councilmember McGlone asked where the pipe ends.

City Engineer Himmer replied the sewer does run through the back yard.

Councilmember McGlone asked if the City is within the easement.

City Engineer Himmer replied the sewer line is within the easement and have the right to access the utility.

Public Works Director Olson replied a manhole could be put in to create an access at the property line. If the pipe is extended, a manhole could be put at the end. A manhole does not need to be placed in the middle of the yard. He stated Mr. Dvorak has a reasonable request. He stated staff recommends removing a portion of the trail in the middle of the back yard and relocating the trail to the property line.

Councilmember McGlone stated the current property owner has lived with this situation.

City Engineer Himmer replied the sewer was built before the house was built. He did not know if the current owner is the original property owner.

Councilmember McGlone stated he is inclined to not do anything because the request is not coming from the current home owner.

Chairperson Backous stated he agreed with Councilmember McGlone and commented what happens when Mr. Dvorak sells the property.

Public Works Director Olson asked would the Public Works Committee allow the property owner at his own expense to remove the trail in the backyard except the portion that is on the property line. He stated there would be no cost to the City. He stated if the trail is built in the future it would alleviate some concern of going back to the property owner to obtain the rights.

Councilmember McGlone asked where is the current property owner.

City Engineer Himmer replied the current property owner is absent. He is in the military and located in Hawaii. Mr. Dvorak stated the home is in short sale and vacant.

City Engineer Himmer stated the City could continue to use the easement and place a manhole on the property line. He stated it will be a long time before all of the land behind the property is developed. He stated what is important is preserve the trail for pedestrian.

Councilmember Elvig confirmed that the sewer is on a utility easement.

Public Works Director Olson replied the City has the right to be there for utility purposes that is why the trail was built.

Councilmember Elvig stated the trail is an asphalt surface over the utilities.

Public Works Director Olson replied the City does pave over utilities. He stated this trail was not intended for pedestrian use.

Councilmember Elvig stated this will be a recreational trail, but the City cannot build a recreation trail over utilities.

Public Works Director Olson replied the City can build the trail but not list it as a recreational trail because there is not a trail easement. His concern is that the trail has to go somewhere and if the home owner puts in a fence. He recommended the trail be straightened out and put on the lot lines.

City Engineer Himmer stated Mr. Dvorak is looking for an agreement tonight and he believes Mr. Dvorak has made a reasonable request.

Councilmember McGlone stated the corner of the lot is wetland. He asked if the City would have to replace the wetland at a rate of two to one.

City Engineer Himmer stated the City can pave a trail into a wetland for maintenance access to a utility.

Public Works Director Olson stated the trail easement is to the corner of the property, not constructing the trail to the corner of the property. He stated the proposal is contingent upon the easement. The City would help Mr. Dvorak with the easement documents and the City would retain the rights for drainage and utilities.

Councilmember Elvig proposed the following contingencies:
1. The City has trail easements for both properties.
2. The City retains and reemphases the utility across the properties in the deed.
3. The City has access granted at any time for any reason to the trail and utility.

Councilmember McGlone asked if the neighboring property is willing to have the trail on the property line.

Chairperson Backous replied the City needs to have a contingency.

Public Works Director Olson stated if the contingency is not obtained the trail will remain where it is.

Councilmember Elvig stated the trail should be listed as a recreation trail.

City Engineer Himmer replied once the recreation trail is recorded the City has the right to be there.

Mr. Dvorak stated he has not talked to the neighboring property owner about an easement. He stated he could not guarantee the owner would sign the easement.

Councilmember McGlone commented that Mr. Dvorak is getting a deal on the house because of the situation.

Public Works Director Olson stated he believed the neighboring property owner was in favor of the trail.

Mr. Dvorak stated the neighbor uses the trail to back his trailer into the backyard.

Chairperson Backus stated he agreed with Councilmember Elvig's contingencies.

Councilmember Elvig recommended that Mr. Dvorak talk to the neighbor.

Shawna Dvorak, prospective property buyer of 15620 Krypton Street NW, asked why they would have to get permission from the neighboring property owner if the trail is put in.

Councilmember Elvig replied the City would have to purchase the rights to put in a recreational trail from both property owners.

Public Works Director Olson stated the City would benefit by not having to purchase easements for a recreational trail.

City Administrator Ulrich stated the property is private property and the owners can post a sign as such. He stated there is no guarantee the City would purchase trail easements.

Councilmember Elvig asked if the landowner could take out the trail themselves.

Public Works Director Olson stated the property owner could take it out, but the City could put it back in and charge the property owner.

Councilmember McGlone stated the City could put up a gate to block off the trail.

Ms. Dvorak stated she is okay with residents walking back to the wetlands.

Councilmember McGlone stated the City cannot make a deal with the prospective property owner. He stated if Mr. Dvorak obtains the property, he could come back to the City and make his request. He stated he is inclined to table the matter.

Mr. Dvorak stated he is looking for a solution tonight.

Ms. Dvorak asked why they should buy the property with something that is not wanted in the yard.

Chairperson Backous stated if the Dvoraks were the property owners, the City could give them an easement for the back of the property.

Councilmember Elvig stated the Dvoraks could come back when they have purchased the property.

Chairperson Backous asked if the neighbor's consent is needed if the trail is kept on the proposed property.

Public Works Director Olson replied no if a trail easement is over the existing section and take out the section of trail that curves into the property. He stated it would be okay as long as there is no cost to the City.

City Engineer Himmer stated currently there are a 15 foot drainage utility easement and an 8-10 foot trail easement over the utilities.

Councilmember McGlone stated the City has the same issue with the current owner and the potential owner.

Motion by Councilmember McGlone, seconded by Councilmember Elvig, to table the issue until a formal request is made.

Public Works Director Olson pointed out that tabling the issue will not help the Dvoraks and the Dvoraks will withdraw their purchase agreement if a decision is not made tonight.

Councilmembers McGlone and Elvig withdrew their motion and second to table the issue.

Motion by Councilmember McGlone, seconded by Councilmember Elvig, to recommend the City Council leave the trail as it is until a trail easement is signed along the lot line to create a recreational trail which is either shared with the neighboring property or singular on the property.

Motion by Councilmember McGlone, seconded by Councilmember Elvig, to amend the motion to include that the trail easement would be dedicated and acceptable to the City Engineer for recreational trail purposes.

Motion to amend carried. Voting Yes: Chairperson Backous and Councilmembers McGlone and Elvig. Voting No: None.

Motion as amended carried. Voting Yes: Chairperson Backous and Councilmembers McGlone and Elvig. Voting No: None.

Chairperson Backous indicated the action still has to be approved by the City Council.

City Administrator Ulrich stated staff would write a letter of intent for the Dvoraks to take to closing.

Councilmember Elvig requested the Public Works Committee receive a copy of the letter of intent.

Case #2: Discuss Investigations Related to 2011 Flooding Concerns

City Engineer Himmer reviewed the staff report that significant rainfall in 2011 lead to elevated groundwater levels which caused localized flooding and resident complaints. He stated some of the issues have been resolved, but there are some issues that still need resolution. He stated a claim was filed by the Rum River Golf Course with the League of Minnesota Cities and a petition from the residents in the neighborhood near 149th Lane NW was received and accepted by the City. He stated that during the planning of the CIP, flooding corrections were anticipated and additional funding was added to the Storm Water Utility Fund. Staff is looking for feedback from the Public Works Committee and the City Council comments to develop a program for 2012-2013.

Mathew Maul, 5590 148th Lane NW, stated his concern is with the standing water, the smell and the bugs in his backyard. He stated he was unable to use his backyard because of the flooding and asked if there is a way for the water to be drained.

City Engineer Himmer replied there is an outlet on the west property line and by lowering the outlet and installing larger piping, the water would drop in inches. He stated the water outlet could be placed to the southeast corner or the east corner, although easements would need to be secured.

Councilmember Elvig asked about the water line and the outlet's easement.

City Engineer Himmer replied the water line is contained within the easement. He stated the water sits and then infiltrates into the outlet and the pipe that goes down the lot line to take the water out.

Mr. Maul stated when he digs in his yard it fills up with water.

City Engineer Himmer replied that is ground water. He stated the area was a wetland mitigation area that was filled.

Councilmember Elvig commented as each property is worked on, the next property may have a new flooding issue.

Mr. Maul stated his neighbor has filled in their backyard with compost and debris. He stated the neighbors should be required to clean up their yards.

Councilmember Elvig clarified the neighbors have back filled their own properties.

City Engineer Himmer stated if the neighbors have back filled their yards, this may be causing Mr. Maul's yard to flood.

Mr. Maul confirmed his neighbors are filling their yards with grass clippings, etc.

Councilmember Elvig replied the City needs to follow up with the neighboring properties.

Chairperson Backous asked Mr. Maul how long he has lived on the property.

Mr. Maul replied six years and the standing water has gotten very high.

Chairperson Backous stated he would prefer to discuss only the cases that relate to the residents that are present tonight and not go through all of the flooding cases at this time.

Public Works Director Olson replied the cases that are the highest priority will be brought to the Public Works Committee, two at a time, and staff will follow-up with the abatement coordinator about debris and brush in backyards.

City Engineer Himmer stated there is a City ordinance on the building of retaining walls in wetlands which creates a dam.

Public Works Director Olson stated there are funds in the Storm Water Utility Fund to be used to correct the high priority flooding issues. He gave an example of 163rd Lane and the drainage pond that is not contained within the drainage and utilities easements. He stated now that the drain is clean; the City could put a pipe in the ground to correct the situation. He commented there is not good drainage on the north or south side of the road.

City Engineer Himmer stated the Rum River Golf Course's claim has amounted to $60,000. The League of Minnesota Cities responded to the claim with an offer of $8,500. He stated there are several areas within the golf course that need fixing.

Public Works Director Olson stated this is a legal matter so he cautioned the Public Works Committee against addressing this issue in the absence of the City's attorneys.

Bob Gorr, Rum River Golf Course Trustee, stated he is one of three trustees for the golf course. He stated the trustees feel they should receive more than $8,500. He stated Tom Anderson is spear heading the claim for the corporation. He stated the project is big and there is a lot to talk about. He asked for a date when the issue could be resolved.

Councilmember Elvig asked if the City has any obligations on the infrastructure within the golf course to the river.

Public Works Director Olson replied there is water runoff from the public roads that runs through the golf course and a few years ago the City partnered with the golf course on drainage to the river. He stated a pipe was installed that was not cleaned quickly enough upon notice due to the water soaked land and the weight of the equipment used to clean the pipe would have caused turf damage. He stated the golf course hired a private contractor to clean the pipe which was blocked due to debris and dead animals. He stated the City does have rights to drain through the golf course and have some maintenance responsibility.

City Engineer Himmer stated the City has a 15-20 foot linear easement within the golf course. He stated the City has installed piping through the golf course and during the construction there were areas that experienced flooding so a larger pipe was installed by the City. The golf course wanted the drainage as an amenity.

Public Works Director Olson stated the League has responded to the claim on behalf of the City with a dollar amount. He stated the golf course needs to write a letter rebutting the Leagues response.

Councilmember Elvig questioned what the Public Works Committee is being asked to do tonight.

Chairperson Backous replied the Public Works Committee cannot do anything tonight because the League has responded on behalf of the City.

Councilmember Elvig asked if the City should meet about the issue. City Administrator Ulrich replied the issue is in the hands of the insurance adjuster.

City Administrator Ulrich asked about future engineering improvements for the golf course.

City Engineer Himmer replied there are six areas where improvements have been identified by the City for the golf course. He stated a meeting could be held to discuss these future improvements.

Mr. Gorr commented a neighbor has built a pond in their yard which may have altered the golf course's wetland.

Public Works Director Olson stated this issue should be resolved shortly. He stated the basis for the claim is the City has to be deficient. He stated staff with keep the Public Works Committee up to date on the claim.

Councilmember McGlone stated the Public Works Committee has to deal with each of the flooding cases.

Councilmember Elvig stated it will depend on who shows up at each meeting.

Jason Obermaier, 5220 156th Lane, stated he received an email from the City and wanted to hear what will happen in the future with the pond behind his house. He stated there are some trees down and there is debris in the pond's outlet. He stated the City resolved the flooding on his property last year.

City Engineer Himmer suggested Mr. Obermaier use the link in the email that was sent to him to review Section 5.

Case #3: Consider Entrance into a Statewide Mutual Aid Agreement - MnWARN

Public Works Director Olson reviewed the staff report on Minnesota Water/Wastewater Agency Response Network (MnWARN) a statewide mutual aid system comprised of cities and municipalities prepared to supply response to utility emergencies. He stated participation is voluntary and membership is free. MnWARN does not cost the City unless the City is called upon and then staff time and equipment would be paid at standard FEMA rates. He stated there is a clause that the City will not sue if there is damaged to equipment or staff gets hurt.

Councilmember McGlone asked if the City is at risk if an employee gets hurt.

Public Works Director Olson stated the staff would make a claim through their own City as normal.

Chairperson Backous stated he read through the material and did not have a problem with the MnWARN program.

Councilmember Elvig stated he did not see a down side to the program.

Chairperson Backous stated the City would receive extra help.

Motion by Councilmember Elvig, seconded by Chairperson Backous, to recommend that the City Council approve the Statewide Mutual Aid Agreement/MnWARN naming the City Administrator as the Authorizing Official.

Motion carried. Voting Yes: Chairperson Backous and Councilmembers Elvig and McGlone. Voting No: None.

Case #4: Review City of Ramsey Snowplowing Policy and Possible Cost Reductions

Street Supervisor Reimer reviewed the staff report stating the current policy is to plow when the snow is over two inches and makes a judgment call for snow falls under two inches. He stated a

full plowing operation requires 18 staff members. Mr. Reimer has developed three options for the Public Works Committee to review.

Councilmember McGlone stated he received a complaint from a resident that does snow plowing for a living. He stated there needs to be a judgment call when it snows under two inches and the temperature is above freezing.

Chairperson Backous stated he agreed with Councilmember McGlone with judgment calls and favored Option 3. He stated he receives about one complaint per year. He noted there is a plowing hotline listed on the City's website and staff has done a great job.

Councilmember Elvig agreed with Chairperson Backous and Councilmember McGlone. He stated the hotline needs more publicity and Mr. Reimer looks at the road conditions before sending the plows out.

Chairperson Backous asked how many miles are plowed.

Street Supervisor Reimer replied 180 center line miles that need 4 to 6 passes.

Chairperson Backous stated with that many miles there is bound to be complaints.

Councilmember Elvig played a voicemail for the Public Works Committee.

Chairperson Backous and Councilmember McGlone replied they received the same voicemail message.

Public Works Director Olson stated last year was the third snowiest winter in Minnesota. He stated he tries to keep complaints down to two per inch of snow. He stated it is a sensitive subject for the residents. He stated last year it snowed every holiday and weekend, which equaled a lot of overtime, but there is no overtime on the weekdays.

Councilmember Elvig commented cul-de-sacs are plowed in a certain way which leaves a lip that is frozen to the road and remains there until warmer temperatures melts it away.

Motion by Councilmember Elvig, seconded by Chairperson Backous, to recommend that the City Council approve Option 3, to continue to allow the Public Works Department to use its best judgment on deciding what course of action is best to improve safety and winter driving conditions for the traveling public based on snow type, amount, time of year, current temperature, and expected weather conditions after the snow ends, and past experience.

Motion carried. Voting Yes: Chairperson Backous and Councilmembers Elvig and McGlone. Voting No: None.

Case #5: Consider 2012 Street Maintenance Program

City Engineer Himmer reviewed the staff report on the 2012 Street Maintenance Program. He stated the program has $495,000, 74 miles of roadway need work and staff recommends seal coating 47 miles. He stated neighborhood meetings and a public hearing will be scheduled in March.

Chairperson Backous clarified the roads to be seal coated compared to the map's legend.

Public Works Director Olson stated the seal coats could be reduced by 15 percent.

Councilmember Elvig asked if street repairs will be done as needed. He questioned if seal coats should be considered as maintenance and asked City Administrator Ulrich about the 2012 budget.

City Administrator Ulrich replied the biggest impact to the 2012 budget is the refinancing of the municipal center.

Public Works Director Olson stated the program would be tailored to use the funds available.

Chairperson Backous asked how much is in the budget.

City Engineer Himmer stated $495,000 is budgeted and seal coat assessments range from $95-$175 for a cost of $30,000 per mile. He indicated an alternative would be the City respond to neighborhoods who petition.

Councilmember Elvig asked what precedence would be set if the 15% assessment is dropped.

Chairperson Backous stated he is not a fan of the assessment process due to cost and effort.

Motion by Councilmember Elvig, seconded by Councilmember McGlone, to only do seal coats this year and to reduce the budget so the cost would be contained within the budget without assessments.

Amendment motion by Councilmember Elvig, seconded by Councilmember McGlone, that the Public Works Committee recommends to the City Council to only do seal coats this year and to reduce the budget so the cost would be contained within the budget without assessments.

Motion to amend carried. Voting Yes: Chairperson Backous and Councilmembers Elvig and Backous. Voting No: None.

Motion as amended carried. Voting Yes: Chairperson Backous and Councilmembers Elvig and Backous. Voting No: None.

COMMITTEE INPUT

None.

ADJOURNMENT

Motion by Councilmember Elvig, seconded by Chairperson Backous, to adjourn the Public Works meeting.

Motion carried.

The regular meeting of the Public Works Committee adjourned at 8:03 p.m.

Respectfully submitted,

_____

Brian Olson
Public Works Director

Drafted by Linda Dahlquist
TimeSaver Off Site Secretarial, Inc.

Public Works Committee **5. 1.**

Meeting Date: 03/20/2012

Submitted For: Tim Himmer By: Tim Himmer, Engineering/Public Works

Title:

Consider Storm Sewer Improvements on Sodium Street - A Continuation of Discussions Related to 2011 Flooding Concerns

Background:

Last summer the City experienced several significant rainfall events that lead to many localized flooding concerns, and resident complaints. The large volumes of precipitation that occurred over a short period of time appears to have elevated the groundwater within areas of the City, and prohibited the generous rate of infiltration that typically takes place in the Anoka sandplain. Throughout the summer and fall staff worked hard at registering and responding to the calls, and evaluating the situations on an individual basis to determine whether quick fixes could be implemented (culvert obstructions, re-ditching, etc.) to alleviate the immediate concerns.

This item was discussed at the Public Works Committee on August 15, 2011, and at that time staff summarized the areas of concern that were being investigated based upon citizen complaints received. The attached summary was presented at the meeting; which outlines the concern identified, actions steps to evaluate the concern, additional investigations that would be necessary to fully understand the situation, and recommendations for specific projects that could be implemented rather quickly and inexpensively. At that time we classified the issues into 3 categories:

1. Those that required no further action. They were evaluated and corrected, or did not need correcting because the water was fully contained within a dedicated drainage & utility easement (functioning as designed).
2. Those that required additional investigation and evaluation before deciding on a long term solution, and implementing corrective actions.
3. Those that had an identified recommendation for immediate action.

At that meeting the Committee briefly discussed the areas of concern, and directed staff to prepare plans and specifications for the items identified in category 3. Once this direction was ratified by the City Council on September 13, 2011, and the plans completed, it was too late in the season to secure bids and complete the improvements in 2011. It was then decided to delay construction until 2012, where some of the improvements could be completed by inclusion in the street maintenance program. Staff is in the process of finalizing plans for these items and intends to solicit quotes for the improvements this spring/summer. Depending on the direction staff receives for potential improvements to alleviate some of the outstanding concerns identified over the next couple of months, additional plans can be incorporated into one plan set for bidding.

Notification:

The resident has been provided with a copy of the agenda and invited to attend the meeting.

Observations:

Staff prepared a brief RFP in the fall of 2011, to investigate the areas of concern, and distributed it to members of the City's consultant pool in the fall of 2011. The goal of this project was to have an independent third party evaluate the areas, provide options for corrective actions, and associated estimates to implement the work. Hakanson Anderson was awarded the project to undertake these investigations, and they have since completed their analysis and compiled a report that references potential solutions for each area identified. Attached to this case is the final report.

This item was introduced in general terms at the February Public Works Committee meeting, with the direction being that staff would come back before the committee over the next several months to discuss the merits of each potential improvement in more detail. Staff received information this March 13 that Rum River Hills Golf Course submitted information to the League of Minnesota Cities regarding their claim, and that the League will be be issuing a response around March 16.

Tonight we would like to focus on a couple of the projects that are located in neighborhoods that are proposed to receive street maintenance activities this summer. I would like to draw your attention to section 6 related to Sodium Street.

The house at 16756 Sodium Street (Lot 5, Block 2, Klemish Addition) experiened water in the basement during the heavy rain. The existing ditch on the west side of Sodium has minimal grade and there is minimal grade between the house and the ditch. This may have allowed infiltration to raise the groundwater level in this area.

The report recommend installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain south and a culvert would be installed along the south property line to drain the water to the west. Klemish Addition was platted with 10 foot drainage and utility easements along the front, sides and back lot lines. The estimated cost for these improvements is $12,225.

Additional temporary and permanent easments may be required to complete the work. These will need to be negotiated with the owner.

This neighborhood is included in the proposed 2012 seal coating program. The pipe could be installed in advance of the seal coating.

Funding Source:

In the fall of 2011, while staff was in the process of updating the City's Capital Improvement Program (CIP), we budgeted additional funds to stormwater improvement projects over the next two years in an effort to address some of these concerns. The Capital Improvement Program (CIP) lists a $75,000 annual expenditure for the next 5 years to address city wide drainage enhancements.

Staff Recommendation:

Staff recommends installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain to the south and a culvert would be installed near the south property line to drain the water to the west. The estimated cost of these improvements is $12,225.

Committee Action:

Motion to recommend the City Council include the work at 16756 Sodium Street (Installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain to the south and a culvert would be installed near the south property line to drain the water to the west.) in the proposed 2012 Sealcoating Program.

Attachments

Final Report
Klemish Plat

Form Review

Inbox	Reviewed By	Date
Brian Olson	MaryJo Warner	03/15/2012 03:01 PM
Kurt Ulrich	Kurt Ulrich	03/15/2012 03:23 PM

Form Started By: Tim Himmer Started On: 03/13/2012 11:43 AM

Final Approval Date: 03/15/2012

INVESTIGATION OF 2011 FLOODING CONCERNS

FOR THE

City of Ramsey
Anoka County, Minnesota

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Tim Eggerichs, P.E.	43362 License No.	February 14, 2012 Date
Ronald J. Wagner, P.E.	26052 License No.	February 14, 2012 Date

TABLE OF CONTENTS

SUMMARIES AND RECOMMENDATIONS

148th Lane

There is an existing low area on the south side of 148th Lane. During the wet spring of 2011, stormwater would pond for extended periods in this low area. A 15" outlet exists approximately 2.5 feet above the bottom of the low area that drains the area to the east. The stormwater below the outlet pipe infiltrates into the soil. A drainage easement exists over this low area.

Different sized outlet pipes at different elevations were analyzed. These different sized outlets did not have a significant impact on the high water level in the area. Since the low area is within an existing drainage easement, it is our recommendation that nothing be changed in the area.

149th Lane

There is an existing low area on the east side of Lot 3, Block 1 of Ramsey Meadows 4th Addition (5410 149th Lane NW). This low area is connected to the large DNR Wetland to the east with a drain tile. During the wet spring of 2011, stormwater would back up through this drain tile and flooded the low area. It appears that this low area may have been constructed as part of a wetland mitigation plan and may be controlled by Wetland Conservation Act rules. A drainage easement exists over this low area.

The outlet from the DNR Wetland, which drains east under Trunk Highway 47 (TH 47), was analyzed. The current outlet has a weir structure that is approximately 0.8 feet above the invert of the 15" pipe that crosses TH 47. Additional culverts under TH 47 were analyzed, but the additional outlets did not have a significant impact on the high water levels in the DNR Wetland. Removing the weir structure was also analyzed.

It is our recommendation that the weir structure be removed from the outlet. This will not have a significant impact on the high water level of the wetland; however, the wetland will drain down to an elevation near the elevation of the bottom of the low area at 5410 149th Lane. The estimated cost to remove the weir structure is $1,265.

Rum River Hills Golf Club

Rum River Hills Golf Club has been experiencing flooding issues throughout the golf course. The large ponds near the clubhouse drain to the east through an existing outlet structure and 12" pipe. This stormwater then drains over an existing steel weir structure and over a rock dam prior to discharging to the Rum River.

Area 1

The ponds near the clubhouse have been flooding and the outlet does not seem to drain the ponds effectively. The existing 12" outlet from the large ponds near the clubhouse has several sags in it and several joints have been compromised.

It is our recommendation to replace this pipe and install a new outlet structure with removable planks that will give the golf course more flexibility in controlling the water

elevation in the ponds. This includes an 18" HDPE outlet and precast concrete outlet structure with a removable grate for access to the planks. It is proposed to leave the overflow at the same elevation as existing, which will have minimal impacts on the elevation of the standing water and the high water levels of the ponds. The estimated cost to install this new outlet is $29,853.

Area 2

Based on the high water levels in the ponds near the clubhouse, it appears flooding of the cart paths near Hole #1 may be an issue during large storm events. The existing culverts consist of a 12" CMP and 15" HDPE.

To reduce the frequency of the flooding, we recommend installing 24" diameter culverts under the two existing cart paths. The paths would continue to be inundated during storm events greater than 3.5", but would not be inundated during storm events less than 3.5". The estimated cost to replace the culverts is $6,642. If the golf course does not feel that the cart path flooding is a concern, replacing the culverts is not a necessity.

Area 3

The soil in the fairway of Hole #15 has become saturated. There is an existing rock dam southeast of this fairway and it appears that water being contained by the rock dam may be infiltrating into the soil and saturating the fairway.

We recommend lining the creek upstream of the rock dam with an impermeable liner and replacing and/or installing new drain tile in the fairway of Hole #15. Lining the creek will eliminate the infiltration into the soil and the drain tile will keep the soil from becoming saturated. The estimated cost for these improvements is $13,530.

Area 4

Holes #3 and #17 have had flooding issues. The ponds and swales near the two holes are drained through three 15" CMP culverts.

Different sized culverts at different elevations were analyzed. These different sized culverts did not have a significant impact on the high water levels in the area. Without lowering the entire swale and creating more storage, it does not appear that replacing the culverts would have a significant impact. It is our recommendation that the three culverts not be replaced.

163rd Lane

There is an existing, landlocked low area south of 163rd Lane and east of Wolfram Street. During a majority of the year, stormwater runoff infiltrates into the soil. However, during early spring when the ground is frozen and during periods of heavy rainfall, water levels have risen to levels that cause flooding of adjacent properties.

Different sized outlet pipes were analyzed to drain the low area. Installing an outlet will have a significant impact on the high water levels in the area and, most importantly, the length of inundation will be greatly reduced. We recommend directionally drilling an

18" HDPE pipe south to County Ditch #3 with an invert elevation of 872.0. Installing the pipe at an elevation of 872.0 will continue to allow 3" storm events to infiltrate into the soil. The estimated cost to install this outlet is $80,795.

156th Lane

During large storm events, the wetland in Woodland Green Park ponds water in the backyard of 5220 156th Lane. The area where water ponds was platted with a 75-foot drainage and utility easement, however, this easement has been vacated. The wetland discharges east through an existing storm sewer system to a low area and then north through another storm sewer system to the Rum River.

Different sized ponds and outlet configurations were analyzed. One alternative to reduce the high water level of the wetland in Woodland Green Park included constructing a new outlet pipe from the wetland to the low area to the east. This alternative would also require constructing a new outlet at a lower elevation from the low area directly to the Rum River. This would require the approval of the Minnesota Department of Natural Resources and does not appear viable at this time.

We recommend filling the backyard of 5220 156th Lane to an elevation equal to the 100-year high water level. Stormwater would then be contained within Woodland Green Park and would not impact this homeowner. Filling the backyard would require grading in the Woodland Green Park site to create storage to compensate for the lost volume. The estimated cost to complete the grading is $21,175.

Sodium Street

The house at 16756 Sodium Street has been experiencing water in the basement. One reason for having water in the basement could be caused by the road ditch in front of the house filling and then overflowing toward the house. The water then seeps along the basement wall and eventually into the basement. Another reason for water in the basement could be caused by a high groundwater elevation in the area.

We recommend installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain south and a culvert would be installed near the south property line to drain the water to the west. The estimated cost to complete this project is $12,225.

Section 1
148th Lane

148th Lane

Description

As shown on Exhibit 1, a low area exists south of 148th Lane. A 15" outlet pipe drains the low area north and then east to DNR Wetland 658W. The invert of the outlet pipe is at elevation 862.3 and the bottom of the low area is at elevation 859.8. Water in the low area has to rise 2.5 feet prior to discharging. The water below the outlet infiltrates into the soil, which may take days depending on the condition of the soil.

The existing 100-year high water level (HWL) for the low area is 865.5. As shown on Exhibit 2, a drainage easement exists in the rear of Lots 2 through 5, Block 2 of Ramsey Commons 2nd Addition.

Alternatives

The following alternatives address the water elevation in the existing low area.

Alternative 1
In this alternative, a new outlet pipe would be installed between Lot 1 of Ramsey Commons 2nd Addition and Lot 2 of Sunny Ponds, as shown on Exhibit 3. It was assumed that the existing outlet pipe to the north would be removed. By installing an outlet pipe in this location, the invert of the outlet pipe can be lowered from 862.3 to 861.6. The following table summarizes the 100-year HWL's and estimated costs for each outlet pipe:

Outlet Pipe Size	100-Year HWL	Estimated Cost
Existing	865.5	N/A
15"	865.4	$16,264
18"	865.1	$31,566 *
24"	864.3	$45,381 *

* The existing pipe being connected to in Germanium Street is a 15" diamter. Installing the 18" and 24" outlets will require the removal and replacement of this pipe to match the size of the pipe being installed.

Tables 1 through 3 include the individual costs for this alternative.

Alternative 2
In this alternative, a new outlet pipe would be installed between Lots 2 and 3 of Sunny Ponds, as shown on Exhibit 4. It was assumed that the existing outlet pipe to the north would be removed. By installing an outlet pipe in this location, the invert of the outlet pipe can be lowered from 862.3 to 861.4. This alternative would require additional grading and the acquisition of a permanent easement on the property south of Ramsey Commons 2nd Addition and west of Sunny Ponds. The following table summarizes the 100-year HWL's and estimated costs for each outlet pipe:

Outlet Pipe Size	100-Year HWL	Estimated Cost
Existing	865.5	N/A
15"	865.3	$13,098
18"	865.0	$18,846 *
24"	864.3	$32,543 *

* The existing pipe being connected to in Germanium Street is a 15" diameter. Installing the 18" and 24" outlets will require the removal and replacement of this pipe to match the size of the pipe being installed.

Tables 4 through 6 include the individual costs for this alternative.

Alternative 3

In this alternative, the bottom of the low area would be filled to the same elevation as the outlet pipe invert. The pond would then drain dry and would not be sitting with water until it infiltrated. By filling the bottom of th e low area, the resultant 100-year HWL will be 866.2, 0.7 feet higher than the existing HWL. This higher HWL would end up outside the existing drainage and utility easement, creating the need for additional drainage easement.

The estimated cost to fill the low area is $15,321. Table 7 includes the individual costs for this alternative.

Further research is required to determine if this low area was designed to treat a water quality volume. The volume required would dictate if Alternatives 1 and 2 are viable options. Alternative 3 would not be viable, because the water quality volume is being eliminated in this alternative.

870

RAMSEY COMMONS
2ND ADDITION

148TH LANE

15" RCP

15" RCP

15" RCP

18" RCP

18" RCP

Landscaping

INV=862.3
HEADWALL

BLOCK WALL

WOOD WALL

FENCE

860

862

864

866

868

NOWTHEN BOULEVARD

SUNNY PONDS

GERMANIUM STREET

DNR
WETLAND
658W

860

1
2
3
4
5

2
3
4
5

N

30 0 30 60
SCALE IN FEET

EXHIBIT 1
148TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

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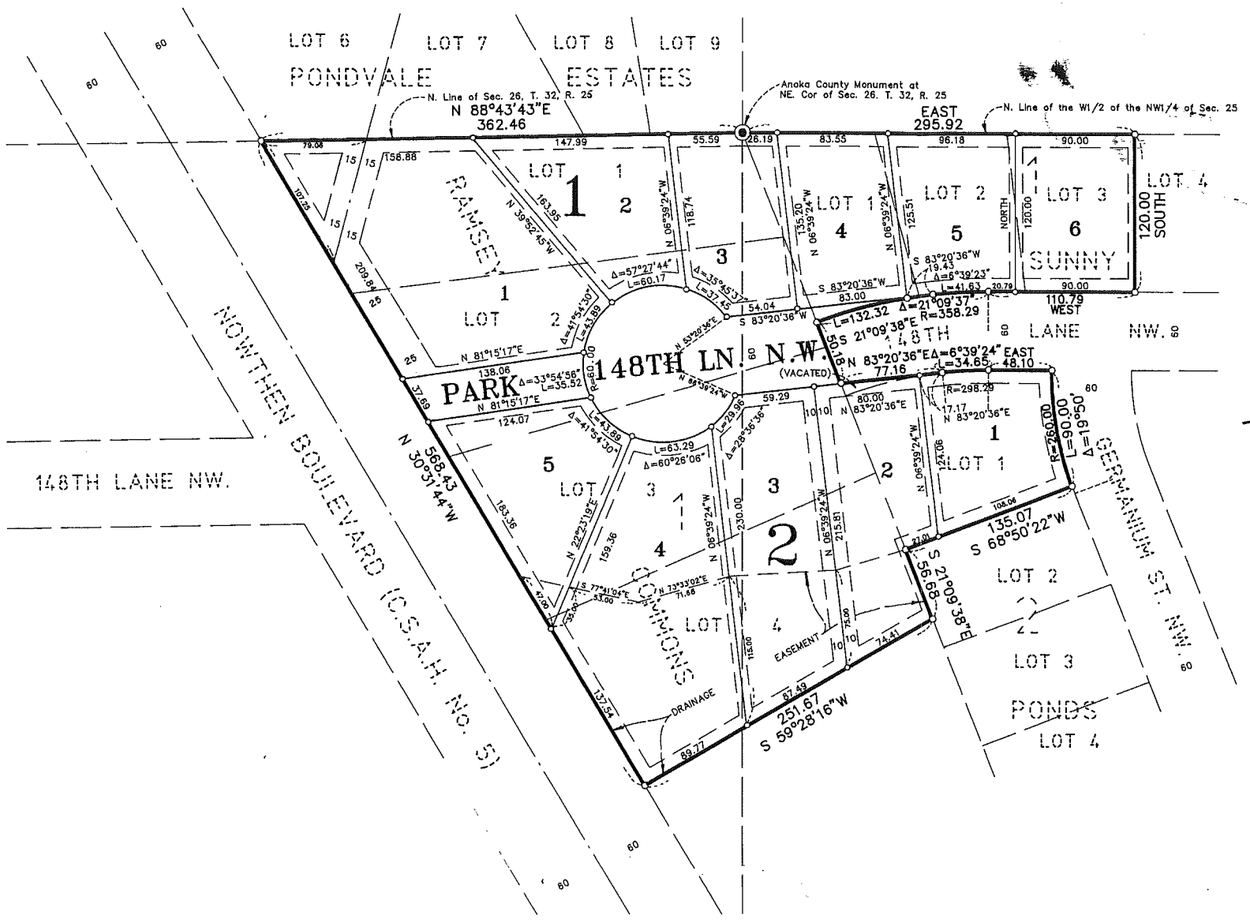
OFFICIAL PLAT

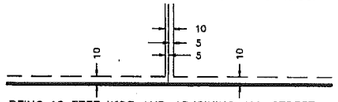
41.

RAMSEY COMMONS 2ND ADDITION

CITY OF RAMSEY — COUNTY OF ANOKA



DRAINAGE AND UTILITY EASEMENTS SHOWN THUS:



BEING 10 FEET WIDE AND ADJOINING ALL STREET RIGHT-OF-WAY LINES AND REAR LOT LINES AND 5 FEET WIDE AND ADJOINING ALL SIDE LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

○ DENOTES 1/2 INCH IRON PIPE SET.
◉ DENOTES ANOKA COUNTY MONUMENT.
NOTE: FOR THE PURPOSES OF THIS PLAT, THE NORTH LINE OF THE W1/2 OF THE NW1/4 OF SEC. 25, T. 32, R. 25 IS ASSUMED TO HAVE A BEARING OF EAST.

1049281

OFFICE OF COUNTY RECORDER
STATE OF MINNESOTA, COUNTY OF ANOKA
I hereby certify that the within instrument was filed in this office for record on the JUNE 29 A.D., 1993
4:15 o'clock P.M., and was duly recorded in book 416 of Plats page 41
Edward M Trooka
County Recorder
By D Swanson
Deputy

CAINE & ASSOCIATES LAND SURVEYORS, INC.

KNOW ALL PERSONS BY THESE PRESENTS: That North Suburban Development, Inc., a Minnesota Corporation, owner and proprietor, and Doloras S. Fleischer, single, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

Lots 1, 2 and 3, Block 1, and Lot 1, Block 2, all in SUNNY PONDS, according to the recorded plat thereof, Anoka County, Minnesota,

And that part of vacated 148th Lane N.W., as dedicated in the plat of SUNNY PONDS, according to the recorded plat thereof, Anoka County, Minnesota, lying north of the north line of Lot 1, Block 2, in said SUNNY PONDS and lying south of the following described line:

Commencing at the northeast corner of said Lot 1, Block 2; thence on an assumed bearing of West, along the north line of said Lot 1, Block 2, a distance of 48.10 feet; thence westerly continuing along said north line and along a tangential curve, concave to the south having a radius of 298.29 feet and a central angle of 6 degrees 39 minutes 24 seconds, a distance of 34.65 feet to the point of beginning of the line to be described; thence South 83 degrees 20 minutes 36 seconds West, a distance of 77.16 feet to the intersection with the northerly extension of the west line of said Lot 1, Block 2, and said line there terminating.

AND that North Suburban Development, Inc., a Minnesota Corporation, owner and proprietor, and Delano Skeim, single, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

Lots 1, 2, 3 and 4, Block 1, RAMSEY COMMONS, according to the recorded plat thereof, Anoka County, Minnesota.

Have caused the same to be surveyed and platted as RAMSEY COMMONS 2ND ADDITION and do hereby donate and dedicate to the public for public use forever the lanes as shown on the plat. Also dedicating the drainage and/or utility easements as shown on the plat. Also dedicating to the County of Anoka the right of access onto County State Aid Highway No. 5 from Lot 1, Block 1 and from Lots 4 and 5, Block 2. In witness whereof said North Suburban Development, Inc. has caused these presents to be signed by its proper officer this 26TH day of MAY, 1993. Also in witness whereof said Doloras S. Fleischer has hereunto set her hand this 26TH day of MAY, 1993. Also in witness whereof said Delano Skeim has hereunto set his hand this 21ST day of MAY, 1993.

NORTH SUBURBAN DEVELOPMENT, INC.

J. A. Henkveld, as President

SIGNED:

Doloras S. Fleischer
Doloras S. Fleischer

SIGNED:

Delano Skeim
Delano Skeim

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 26TH day of MAY, 1993, by J. A.
COUNTY OF ANOKA) Henkveld, President of North Suburban Development, Inc., a Minnesota corporation, on behalf of the corporation.

SHIRLEY D. CHENOWETH NOTARY PUBLIC-MINNESOTA ANOKA COUNTY My Commission Expires 6-24-96

Shirley D. Chenoweth
Notary Public, ANOKA County, Minnesota
My Commission expires 6-24-96

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 26TH day of MAY, 1993, by Doloras
COUNTY OF ANOKA) S. Fleischer, single.

SHIRLEY D. CHENOWETH NOTARY PUBLIC-MINNESOTA ANOKA COUNTY My Commission Expires 6-24-96

Shirley D. Chenoweth
Notary Public, ANOKA County, Minnesota
My Commission expires 6-24-96

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 21ST day of May, 1993, by Delano
COUNTY OF Anoka) Skeim, single.

MARGARET A. McINERNY NOTARY PUBLIC—MINNESOTA ANOKA COUNTY My Commission Expires FEB. 22, 1996

Margaret A. McInerny
Notary Public, Anoka County, Minnesota
My Commission expires 2/22/96

I hereby certify that I have surveyed and platted the land described in the dedication on this plat as RAMSEY COMMONS 2ND ADDITION; that the plat is a correct representation of said survey; that all distances are correctly shown on said plat in feet and hundredths of a foot; that the monuments have been correctly placed in the ground as shown; that the outside boundaries are correctly designated on said plat; and that there are no wet lands or public highways to be designated on said plat other than as shown thereon.

Jeffrey N. Caine
Jeffrey N. Caine, Registered Land Surveyor
Minnesota Registration No. 12251

STATE OF MINNESOTA) The surveyors certificate was acknowledged before me a Notary Public, this 19TH day of May, 1993,
COUNTY OF ANOKA) by Jeffrey N. Caine, Land Surveyor.

MOLLY W. CAINE Notary Public-Minnesota Anoka County My Comm. Exp. 6-13-96

Molly W. Caine
Notary Public, Anoka County, Minnesota
My Commission expires 6-13-96

CITY OF RAMSEY

We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY COMMONS 2ND ADDITION at a regular meeting held this 11TH day of May, 1993. If applicable, the written comments and recommendations of the Commissioner of Transportation and the County Highway Engineer have been received by the city or the prescribed 30 day period has elapsed without receipt of such comments and recommendations, as provided by Hinn. Statutes, Section 505.03, Subd. 2.

By Mayor By Clerk

Checked and approved this 29TH day of June, 1993

By Anoka County Surveyor

I HEREBY CERTIFY THAT THE CURRENT AND DELINQUENT TAXES ON THE LANDS DESCRIBED WITHIN ARE
ENTERED
BY DEPU

RAMSEY BY 2

EXHIBIT 2.
FINAL PLAT-RAMSEY COMMONS 2ND ADD.
CITY OF RAMSEY, MINNESOTA

001ACRA 6-29-93 # 425 $30.00

870

148TH LANE

15" RCP

15" RCP

PROPOSED
STORM SEWER
LOCATION
FES INV=861.6

Landscaping

INV=862.3
HEATER

15" RCP

18" RCP

18" RCP

860

DNR
WETLAND
658W

BLOCK
WALL

WOOD
WALL

FENCE

860

862

864

866

868

NOWTHEN BOULEVARD

GERMANIUM STREET

1

2

3

4

5

2

3

4

5

N

30 0 30 60
SCALE IN FEET

EXHIBIT 3
148TH LANE ALTERNATIVE 1 STORM SEWER
CITY OF RAMSEY, MINNESOTA

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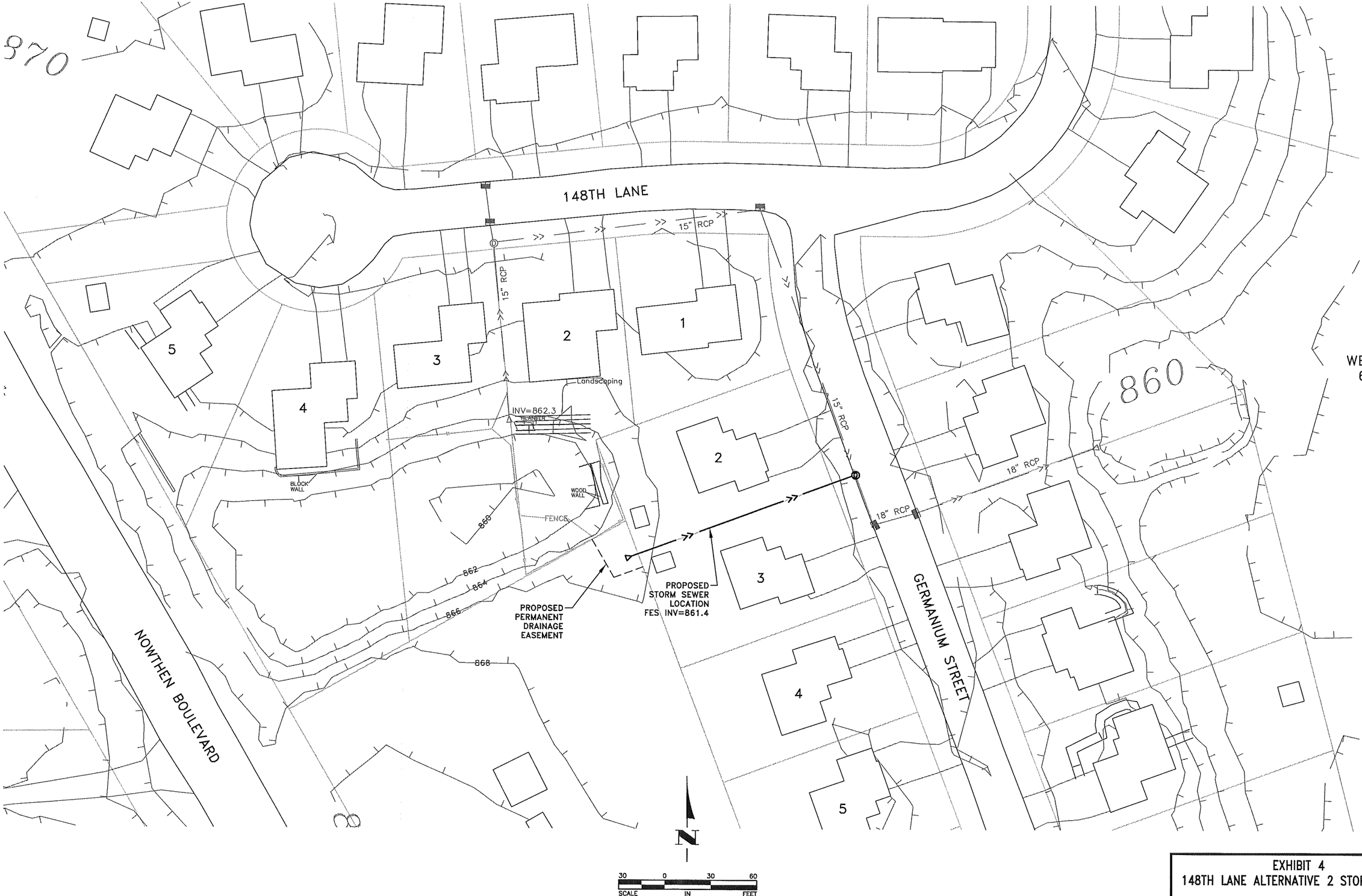

EXHIBIT 4
148TH LANE ALTERNATIVE 2 STORM SEWER
CITY OF RAMSEY, MINNESOTA

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TABLE 1
148TH LANE
ALTERNATIVE 1A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$5.00	118	$590
5	REMOVE CONCRETE CURB	LIN FT	$10.00	20	$200
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	23	$115
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	40	$120
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	23	$173
9	4" BITUMINOUS PATCH	SQ YD	$28.00	23	$644
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	15" RC PIPE APRON	EACH	$300.00	1	$300
12	TRASH GUARD FOR 15" PIPE APRON	EACH	$150.00	1	$150
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
14	15" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	152	$3,344
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	20	$400
17	TRAFFIC CONTROL	LUMP SUM	$300.00	1	$300
18	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
19	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$14,786
Contingency (10%)	$1,479
Total Estimated Construction Cost	$16,264

TABLE 2
148TH LANE
ALTERNATIVE 1B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$5.00	233	$1,165
5	REMOVE CONCRETE CURB	LIN FT	$10.00	135	$1,350
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	150	$750
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	155	$465
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	150	$1,125
9	4" BITUMINOUS PATCH	SQ YD	$28.00	150	$4,200
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	18" RC PIPE APRON	EACH	$350.00	1	$350
12	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
14	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	267	$6,141
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	135	$2,700
17	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
18	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
19	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$28,696
Contingency (10%)	$2,870
Total Estimated Construction Cost	$31,566

TABLE 3
148TH LANE
ALTERNATIVE 1C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,300.00	1	$1,300
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$4.00	388	$1,552
5	REMOVE CONCRETE CURB	LIN FT	$5.00	155	$775
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	195	$975
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	175	$525
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	195	$1,463
9	4" BITUMINOUS PATCH	SQ YD	$28.00	195	$5,460
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	24" RC PIPE APRON	EACH	$450.00	2	$900
12	TRASH GUARD FOR 24" PIPE APRON	EACH	$300.00	2	$600
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
14	24" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$29.00	414	$12,006
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	2	$4,000
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	155	$3,100
18	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$41,256
Contingency (10%)	$4,126
Total Estimated Construction Cost	$45,381

TABLE 4
148TH LANE
ALTERNATIVE 2A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$400.00	1	$400
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$5.00	118	$590
5	REMOVE CONCRETE CURB	LIN FT	$10.00	20	$200
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	23	$115
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	40	$120
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	23	$173
10	4" BITUMINOUS PATCH	SQ YD	$28.00	23	$644
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	15" RC PIPE APRON	EACH	$300.00	1	$300
13	TRASH GUARD FOR 15" PIPE APRON	EACH	$150.00	1	$150
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
15	15" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	152	$3,344
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	20	$400
18	TRAFFIC CONTROL	LUMP SUM	$300.00	1	$300
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$11,186
Contingency (10%)	$1,119
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$13,098

TABLE 5
148TH LANE
ALTERNATIVE 2B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$5.00	153	$765
5	REMOVE CONCRETE CURB	LIN FT	$10.00	55	$550
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	61	$305
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	75	$225
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	61	$458
10	4" BITUMINOUS PATCH	SQ YD	$28.00	61	$1,708
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	18" RC PIPE APRON	EACH	$350.00	1	$350
13	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
15	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	187	$4,301
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	55	$1,100
18	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$16,412
Contingency (10%)	$1,641
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$18,846

TABLE 6
148TH LANE
ALTERNATIVE 2C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$900.00	1	$900
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$4.00	306	$1,224
5	REMOVE CONCRETE CURB	LIN FT	$5.00	75	$375
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	106	$530
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	95	$285
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	106	$795
10	4" BITUMINOUS PATCH	SQ YD	$28.00	106	$2,968
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	24" RC PIPE APRON	EACH	$450.00	2	$900
13	TRASH GUARD FOR 24" PIPE APRON	EACH	$300.00	2	$600
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
15	24" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$29.00	334	$9,686
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	2	$4,000
18	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	75	$1,500
19	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
20	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
21	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$28,863
Contingency (10%)	$2,886
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$32,543

TABLE 7
148TH LANE
ALTERNATIVE 3

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	10	$1,000
3	GRUBBING	TREE	$100.00	10	$1,000
4	COMMON EXCAVATION	CU YD	$5.00	270	$1,350
5	GRANULAR BORROW	CU YD	$8.00	1166	$9,328
6	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$13,928
Contingency (10%)	$1,393
Total Estimated Construction Cost	$15,321

Section 2
149th Lane

149th Lane

Description

As shown on Exhibit 5, a low area exists on Lot 3, Block 1 of Ramsey Meadows 4th Addition. There is a drain tile that drains the low area to DNR Wetland 658W. During large storm events, DNR Wetland 658W backs up through the drain tile and into the low area. DNR Wetland 658W drains east under Trunk Highway 47 (TH 47) through a small weir structure and 15" pipe to DNR Wetland 659W. The weir structure is at an elevation of 860.9 and drains to the 15" pipe at an elevation of 860.0.

The current outlet elevation is approximately two feet above the bottom of Wetland 658W. The existing 100-year high water level (HWL) for DNR Wetland 658W is 862.1 and for DNR Wetland 659W is 860.4. As shown on Exhibit 6, there is an existing drainage and utility easement over a majority of Block 1 of Ramsey Meadows 4th Addition including the low area in question.

Alternatives

The following alternatives address the water elevation in DNR Wetland 658W.

Alternative 1
Alternative 1 will include removing the existing weir structure and leaving only the 15" culvert as the outlet from DNR Wetland 658W. By removing the weir structure, the wetland will begin to discharge at an elevation of 860.0 as opposed to 860.8.

Removing the weir structure, resulting in a lower normal water level in the wetland, will result in a 100-year HWL for DNR Wetland 658W of 862.0. The 100-year HWL for DNR Wetland 659W did not change. The estimated cost to remove the weir structure is $1,265. Table 8 includes the individual costs for this alternative.

It is our understanding that any work proposed below an elevation of 860 will need the approval of the Minnesota Department of Natural Resources (DNR). This alternative will not have any effect below an elevation of 860 and is not anticipated to need the approval of the DNR. It appears the weir structure is part of the TH 47 storm sewer system. Removing the weir structure may require Mn/DOT's approval.

Alternative 2
Alternative 2 will include removing the existing weir structure and constructing an additional outlet from DNR Wetland 658W under TH 47. The proposed additional outlet would be at the same elevation as the existing outlet, 860.0. It was assumed the additional pipe would have to be jacked under TH 47.

Three different sized additional outlet pipes were analyzed. The following table summarizes the 100-year HWL's for DNR Wetlands 658W and 659W and the estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL (658W)	100-Year HWL (659W)	Estimated Cost
Existing	862.1	860.4	N/A
Existing + 15"	861.8	861.2	$15,290
Existing + 18"	861.7	861.3	$18,755
Existing + 24"	861.6	861.4	$29,040

Tables 9 through 11 include the individual costs for this alternative.

As mentioned above, it is our understanding that any work proposed below an elevation of 860 will need the approval of the DNR. This alternative will not have any effect below an elevation of 860 and is not anticipated to need the approval of the DNR. Removing the weir structure and constructing a culvert under TH 47 will require Mn/DOT's approval.

Alternative 3

Alternative 3 will include removing the existing weir structure and constructing an additional outlet from DNR Wetland 658W under TH 47. The proposed additional outlet would be at an elevation of 859.0, one foot lower than the existing outlet. It was assumed the additional pipe would have to be jacked under TH 47.

Two different sized additional outlet pipes were analyzed. The following table summarizes the 100-year HWL's for DNR Wetlands 658W and 659W and the estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL (658W)	100-Year HWL (659W)	Estimated Cost
Existing	862.1	860.4	N/A
Existing + lower 18"	861.6	861.3	$18,755
Existing + lower 24"	861.6	861.5	$29,040

Tables 12 and 13 include the individual costs for this alternative.

As mentioned above, it is our understanding that any work proposed below an elevation of 860 will need the approval of the DNR. This alternative has work proposed below an elevation of 860 and will need the approval of the DNR. Removing the weir structure and constructing a culvert under Trunk Highway 47 will require Mn/DOT's approval.

Alternative 4

Alternative 4 will include filling the low area on Lot 3, Block 1 of Ramsey Meadows 4th Addition. Filling the low area will reduce the frequency of the backyard flooding. During large storm events, the area may be inundated by water, but will likely be less frequently and for a shorter duration than under existing conditions.

The estimated cost to fill the low area is $4,681. Table 14 includes the individual costs for this alternative.

As shown on Exhibits 7 and 8, this low area appears to have been designed as wetland mitigation area. Further research may be necessary to determine if this area is protected by the Wetland Conservation Act (WCA). If the area is protected by the WCA, filling this low area will not be a viable alternative.

RAMSEY MEADOWS
4TH ADDITION

4
WO
ELEV=863.5

3
WO
ELEV=864.8

2
WO
ELEV=863.8

1

149TH LANE

860
861
862
863
864
865
WALL
SHED
FENCE
DRAIN TILE
9.75

DNR
WETLAND
658W

DNR
WETLAND
659W

INV=860.0
INV=859.3
15" RCP
OUTLET/WEIR
STRUCTURE
ELEV=860.8

TRUNK HIGHWAY 47

N

SCALE 30 0 30 60 IN FEET

EXHIBIT 5
149TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 2:51pm
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OFFICIAL PLAT

RAMSEY MEADOWS 4TH ADDITION

CITY OF RAMSEY   COUNTY OF ANOKA

pg 25

KNOW ALL PERSONS BY THESE PRESENTS: That J. A. Menkveld & Associates, Inc., a Minnesota corporation, owner and proprietor and Builders Mortgage Corporation, a Minnesota corporation, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

That part of the Southwest Quarter of Section 24, Township 32, Range 25, Anoka County, Minnesota, described as follows:

Beginning at the northeast corner of Outlot A, RAMSEY MEADOWS 3RD ADDITION, according to the recorded plat thereof, Anoka County, Minnesota; thence South 89 degrees 07 minutes 51 seconds East, assumed bearing, parallel with the south line of said Southwest Quarter, a distance of 208.50 feet to the center line of State Trunk Highway No. 47, per the plat of AMBER RIDGE, according to the recorded plat thereof, Anoka County, Minnesota; thence northerly along said center line and along the center line of said State Trunk Highway No. 47, per the plat of WILLOW RIDGE, according to the recorded plat thereof, Anoka County, Minnesota, a distance of 789.96 feet to the intersection with the northeasterly extension of the following described line:

Beginning at a point on the center line of State Trunk Highway No. 47, per the plat of GORHAM'S ADDITION, according to the recorded plat thereof, Anoka County, Minnesota, said point being distant 93.00 feet southeasterly of the northeasterly extension of the southeasterly line of Block 3, said GORHAM'S ADDITION, as measured along said center line; thence South 64 degrees 18 minutes West, parallel with the southeasterly line of Block 3, said GORHAM'S ADDITION, a distance of 376.78 feet, and said line there terminating;

thence South 64 degrees 18 minutes 00 seconds West, along said last described line, a distance of 376.83 feet to the point of termination of said line; thence southwesterly along a tangential curve concave to the southeast, having a radius of 103.25 feet and a central angle of 63 degrees 14 minutes 20 seconds, a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West, tangent to said curve, a distance of 345.42 feet; thence southwesterly along a tangential curve concave to northwest, having a radius of 115.75 feet and a central angle of 60 degrees 08 minutes 15 seconds, a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 seconds West, tangent to said curve, a distance of 53.09 feet to the intersection with the westerly extension of the north line of said Outlot A, RAMSEY MEADOWS 3RD ADDITION; thence South 87 degrees 06 minutes 09 seconds East, along said north line and its westerly extension, a distance of 517.62 feet to the point of beginning.

AND

Outlot A, RAMSEY MEADOWS 3RD ADDITION, according to the recorded plat thereof, Anoka County, Minnesota.

Have caused the same to be surveyed and platted as RAMSEY MEADOWS 4TH ADDITION and do hereby dedicate to the public for public use forever the boulevard, lane and drainage and utility easements as shown on the plat. In witness whereof said J. A. Menkveld & Associates, Inc., a Minnesota corporation, has caused these presents to be signed by its proper officer this 7th day of Oct, 1996 Also in witness whereof said Builders Mortgage Corporation has caused these presents to be signed by its proper officer this 7TH day of Oct., 1996.

SIGNED:

J. A. MENKVELD & ASSOCIATES, INC.:

J. A. Menkveld (signature)
J. A. Menkveld, President

BUILDERS MORTGAGE CORPORATION:

Ronald Stratton (signature)
Ronald Stratton, as President

STATE OF MINNESOTA)
COUNTY OF Anoka)

The foregoing instrument was acknowledged before me this 7th day of October, 1996, by J. A. Menkveld, President of J. A. Menkveld & Associates, Inc., a Minnesota Corporation, on behalf of the Corporation.

TERESA VINJE
NOTARY PUBLIC-MINNESOTA
ANOKA COUNTY
MY COMMISSION EXP. 01/31/2000

Teresa Vinje (signature)
Notary Public, Anoka County, Minnesota
My Commission expires 1-31-00

STATE OF MINNESOTA)
COUNTY OF Anoka)

The foregoing instrument was acknowledged before me this 4th day of October, 1996, by Ronald Stratton, President of Builders Mortgage Corporation, a Minnesota corporation, on behalf of the corporation.

KATHLEEN R CAVEN
NOTARY PUBLIC
MINNESOTA
MY COMMISSION EXPIRES 01-31-00

Kathleen R. Caven (signature)
Notary Public, Ramsey County, Minnesota
My Commission expires 1-31-2000

I hereby certify that I have surveyed and platted the land described in the dedication on this plat as RAMSEY MEADOWS 4TH ADDITION; that the plat is a correct representation of said survey; that all distances are correctly shown on said plat in feet and hundredths of a foot; that the monuments have been correctly placed in the ground as shown; that the outside boundaries are correctly designated on said plat; and that there are no wetlands or public highways to be designated on said plat other than as shown thereon.

Jeffrey N. Caine (signature)
Jeffrey N. Caine, Registered Land Surveyor
Minnesota Registration No. 12251

STATE OF MINNESOTA)
COUNTY OF ANOKA)

The surveyors certificate was acknowledged before me a Notary Public, this 1st day of October, 1996, by Jeffrey N. Caine, Land Surveyor.

JILL M KENT
NOTARY - MINNESOTA
ANOKA COUNTY
MY COMM EXPIRES 1-31-00

Jill M Kent (signature)
Notary Public, Anoka County, Minnesota
My Commission expires 01-31-00

CITY OF RAMSEY

We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY MEADOWS 4TH ADDITION at a regular meeting held this 24th day of September, 1996. If applicable, the written comments and recommendations of the Commissioner of Transportation and the County Highway Engineer have been received by the city or the prescribed 30 day period has elapsed without receipt of such comments and recommendations, as provided by Minn. Statutes, Section 505.03, Subd. 2.

By (signature) Mayor By Ryan R. Schroeder (signature) Clerk

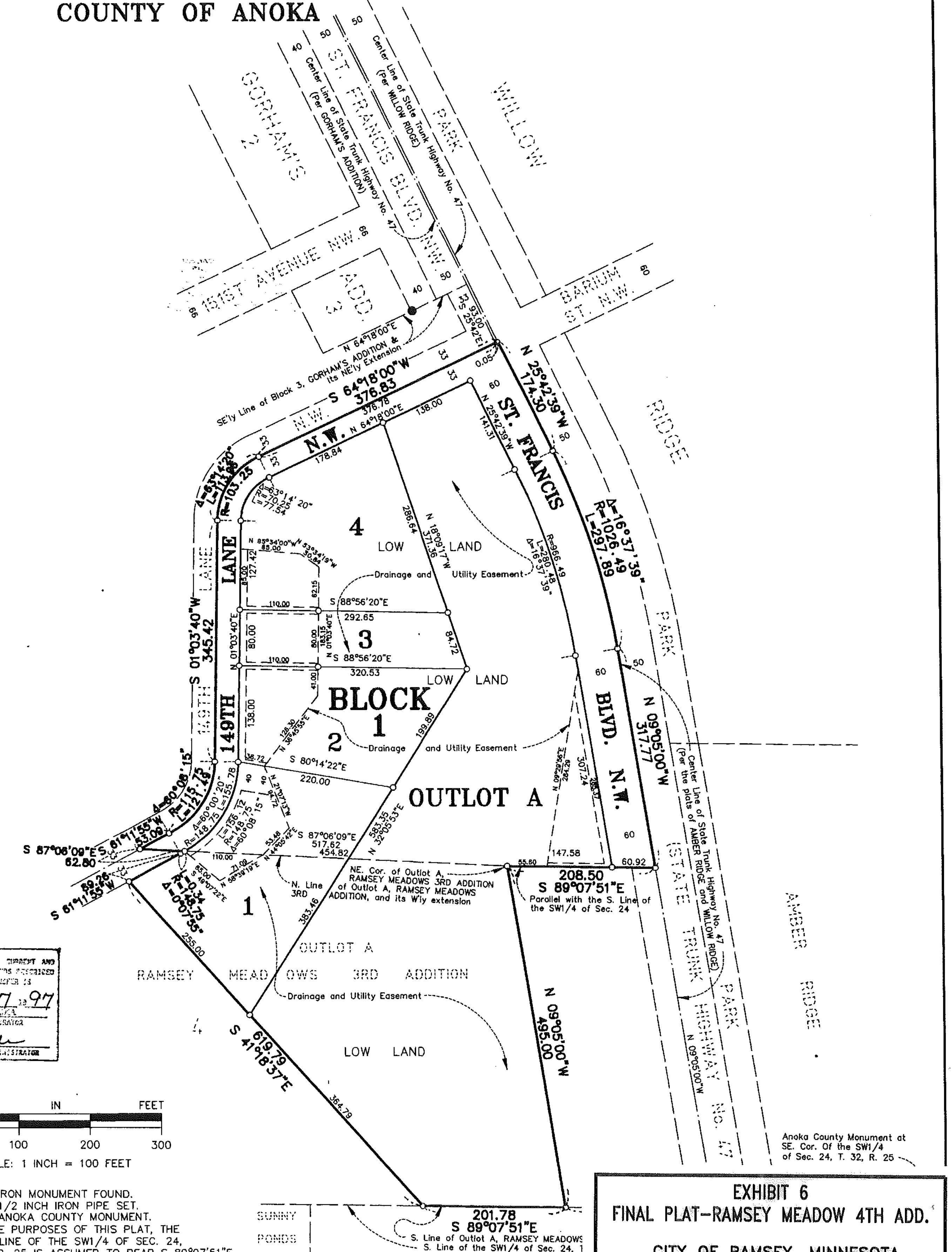
Checked and approved this 7TH day of MAY, 1997.

By MERLYN D. ANDERSON
Anoka County Surveyor
by Larry D. H... (signature) deputy

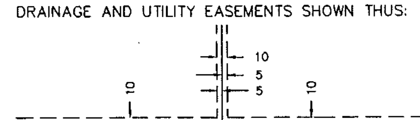
I HEREBY CERTIFY THAT THE CURRENT AND DELINQUENT TAXES ON THE LANDS DESCRIBED WITHIN ARE PAID AND THE TRANSFER IS
ENTERED May 7 1997
EDWARD M. TRESKA
PROPERTY TAX ADMINISTRATOR
BY J. Culver
DEPUTY PROPERTY TAX ADMINISTRATOR

1275655
OFFICE OF COUNTY RECORDER
STATE OF MINNESOTA, COUNTY OF ANOKA
I hereby certify that the within instrument was filed in this office for record on the 7th MAY A.D., 1997 10:00 o'clock A.M., and was duly recorded in book 54 page 25
Edward M. Treska
County Recorder
By KHG
Deputy

CITY OF RAMSEY MUNICIPAL CORP. ANOKA COUNTY MINN.



DRAINAGE AND UTILITY EASEMENTS SHOWN THUS:



BEING 10 FEET WIDE AND ADJOINING ALL STREET RIGHT-OF-WAY LINES AND REAR LOT LINES AND 5 FEET WIDE AND ADJOINING ALL SIDE LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

SCALE IN FEET
0 100 200 300
SCALE: 1 INCH = 100 FEET

● DENOTES IRON MONUMENT FOUND.
○ DENOTES 1/2 INCH IRON PIPE SET.
◉ DENOTES ANOKA COUNTY MONUMENT.
NOTE: FOR THE PURPOSES OF THIS PLAT, THE SOUTH LINE OF THE SW1/4 OF SEC. 24, T. 32, R. 25 IS ASSUMED TO BEAR S 89°07'51"E

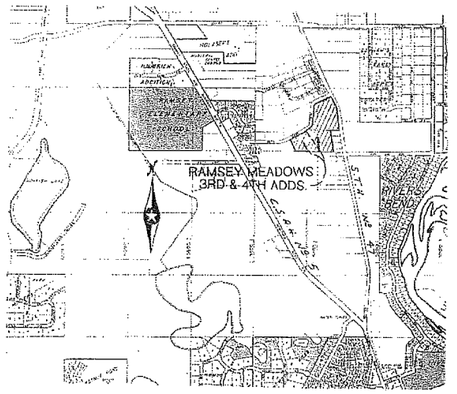
CAINE & ASSOCIATES
LAND SURVEYORS, INC.

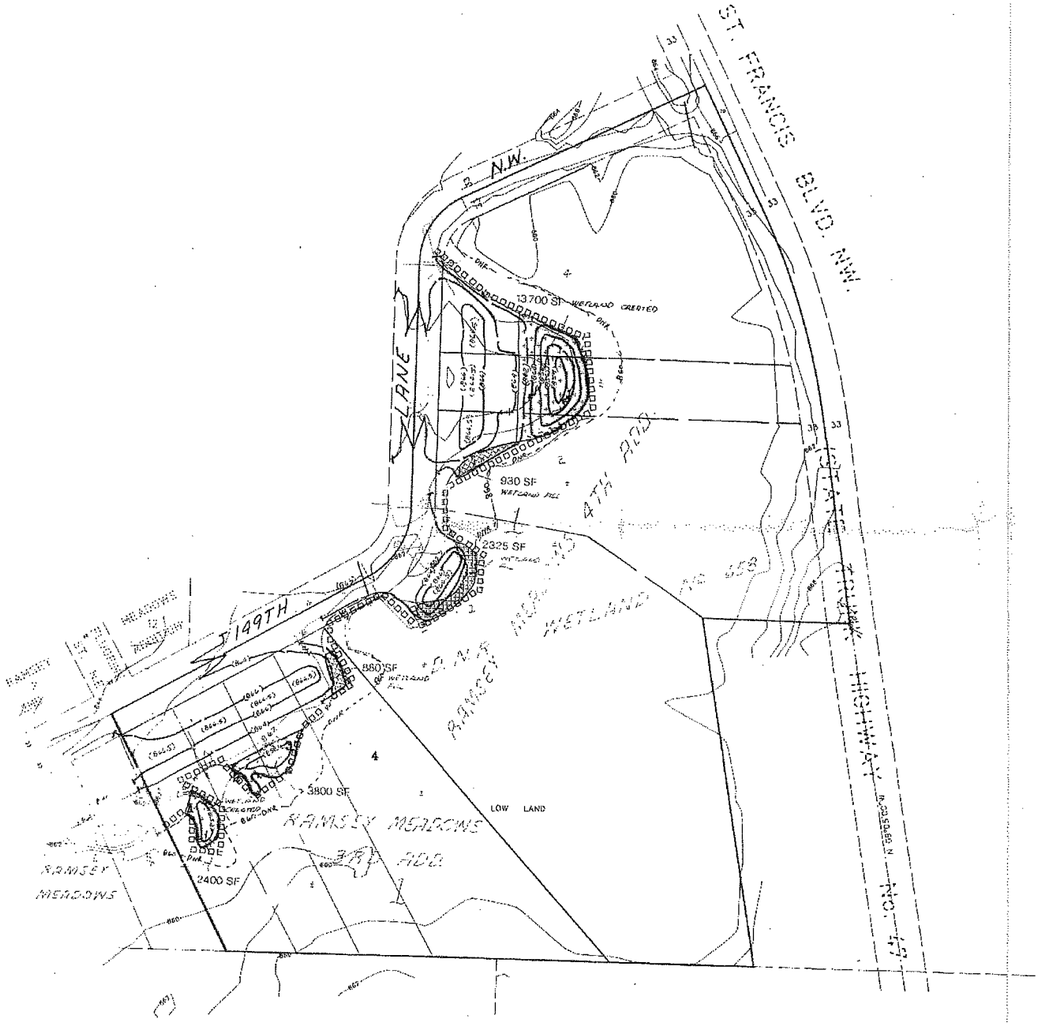
EXHIBIT 6
FINAL PLAT-RAMSEY MEADOW 4TH ADD.
CITY OF RAMSEY, MINNESOTA

30397/$245.00

PRELIMINARY GRADING, DRAINAGE & EROSION CONTROL PLAN FOR:

RAMSEY MEADOWS 3RD & 4TH ADDITIONS





EROSION CONTROL DURING CONSTRUCTION

NOTES:

1. All disturbed soils within 100 lineal feet from wetlands shall be covered with four inches (4") of topsoil and seeded with a minimum of seventy-five (75) pounds per acre of MN/DOT Specification Section 3876, Mixture No. 12, with fertilizer 12-12-12 mixture applied at 600 pounds per acre with Mulch-Type 1. This work shall be constructed in accordance with MN/DOT Specification Section 2575, within the following timeframe:

   Slopes steeper than 3:1 - 7 days
   Slopes 10:1 to 3:1 - 14 days
   Flatter than 10:1 - 21 days

2. Excavate ponding areas before upland grading.

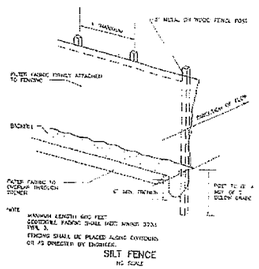
3. The bottom of all drainage ditches shall be stabilized within 100 feet of all wetlands. Stabilization must be initiated within 24 hours of connection to wetlands and be completed within five days. All pipes connecting to drainage swales must be provided with energy dissipation structures prior to connecting to wetland.

4. Sediment control structures must be in place prior to starting of grading and must be maintained until final stabilization has been established.

5. Inspect and maintain after rainfall (as required). The inspector is to be

6. Vehicle tracking onto unpaved surfaces must be minimized.

7. All silt fence shall be removed after the site has undergone final stabilization.



SILT FENCE
NO SCALE

	PROPOSED NON-DNR WETLAND DISTURBED	PROPOSED WETLAND CREATED
Ramsey Meadows 3rd Addition	880 S.F. ±	6,200 S.F. ±
Ramsey Meadows 4th Addition	4,135 S.F. ±	19,900 S.F. ±
TOTALS	5,015 S.F. ±	26,100 S.F. ±

I HEREBY CERTIFY THAT THIS SURVEY, PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

J. Gary M. Caine

DATE Jan. 23, 1995 REG. NO. 12251

x 000.0	DENOTES EXISTING SPOT ELEVATION
(000.0)	" PROPOSED " "
—000—	" EXISTING CONTOUR
—(000)—	" PROPOSED CONTOUR
----DNR----	DENOTES EDGE OF D.N.R. WETLAND NO 6SB.
—W—W—	DENOTES EDGE OF WETLAND AS LOCATED BY JOHN C. ANDERSON OF WETLANDS DATA, INC. & SURVEYED BY CAINE & ASSOC. LAND SURVEYORS, INC.
□□□□□□□□□□□□□□□	DENOTES PROPOSED SILT FENCE

SCALE IN FEET
0 100 200 300
SCALE: 1 INCH = 100 FEET

● DENOTES IRON MONUMENT FOUND
○ DENOTES 1/2 INCH IRON PIPE SET.
BEARINGS SHOWN ARE BASED ON ASSUMED DATUM

CAINE & ASSOCIATES
LAND SURVEYORS, INC.
17720 Highway 65 N.E. – Ham L
434-7646

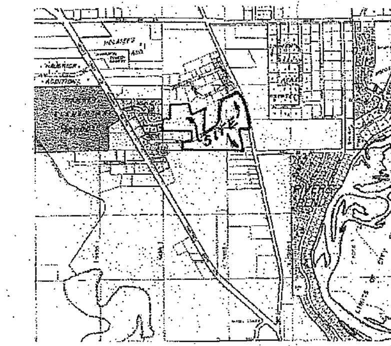
EXHIBIT 7
RAMSEY MEADOWS GRADING PLAN

CITY OF RAMSEY, MINNESOTA

RAMSEY MEADOWS 2ND ADDITION

CITY OF RAMSEY — COUNTY OF ANOKA

PRELIMINARY PLAT AND WETLAND MITIGATION PLAN



OWNER AND SUBDIVIDER: Gilbert A. Henkveld
257 E. Main St.
Box 547
Anoka, MN 55303

LAND SURVEYOR AND DESIGNER: Caine and Associates Land Surveyors, Inc.
17720 Hwy 65 N.E.
Ham Lake, MN 55304
434-7946

TOTAL AREA: 26.5 Acres, more or less

PROPOSED USE: 29 Lots for R-1, U, Single Family Urban Residential, *4 outlots and 1 Park (Walkway) in two phases.*

PROPOSED DENSITY: 1.15 Lots per acre

PROPOSED WATER SOURCE AND SEWAGE DISPOSAL: City water and sewer

EXISTING ZONING: R-1 Residential

MINIMUM BUILDING SET BACKS: Front = 35
Side House = 10
Side Garage = 5
Side Corner = 20 or line up with existing homes
Rear = 35

DRAINAGE AND UTILITY EASEMENTS: 10 feet wide adjoining all street lines and rear lot lines, and 5 feet wide adjoining all side lot lines, unless otherwise indicated on the plat.

DATE OF PREPARATION: 1992

Proposed Legal Description:

That part of the SW1/4 of Section 24, Township 32, Range 25, in Anoka County, Minnesota, described as follows: Beginning at a point on the South line of said SW1/4, said point being a distance of 175 feet, as measured along said South line, Westerly of the West right of way line of State Trunk Highway No. 47 as it is now laid out and travelled; thence North 5 degrees 04 minutes 41 seconds West on a line parallel to said West right of way line a distance of 495 feet; thence North 28 degrees 56 minutes 06 seconds West a distance of 516.99 feet; thence South 61 degrees 11 minutes 55 seconds West a distance of 456.94 feet; thence Southwesterly on a curve to the right having a radius of 434.27 feet a distance of 225.07 feet; thence North 89 degrees 06 minutes 25 seconds West on a line parallel to the South line of said SW1/4 a distance of 55.31 feet; thence Southerly and parallel to the West line of said SW1/4 a distance of 217.00 feet to a point on the South line of said SW1/4, said point being 800 feet East of the Southwest corner of said SW1/4 as measured along its south line; thence Easterly on said South line a distance of 1277.57 feet to the point of beginning;

AND That part of the Southwest Quarter of Section 24, Township 32, Range 25 in Anoka County, Minnesota described as follows: Commencing at the intersection of the South line of said Southwest Quarter and the center line of State Trunk Highway No. 47 as it is now laid out and travelled; thence North 5 degrees 04 minutes 41 seconds West on said center line a distance of 495 feet to the point of beginning of land to be described; thence North 7 degrees 55 minutes 10 seconds West on said center line a distance of 282.37 feet; thence Northwesterly along said center line on a curve to the left having a radius of 1036.48 feet a distance of 320.44 feet; thence North 25 degrees 42 minutes West on said center line a distance of 189.24 feet to a point which is 93 feet Southeasterly as measured along said center line, from the Northeasterly extension of the Southeasterly line of Block 3 in Gorham's Addition; thence South 64 degrees 18 minutes West on a line parallel to the Southeasterly line of said Block 3 a distance of 376.78 feet; thence Southwesterly on a curve to the left having a radius of 103.25 feet a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West a distance of 345.42 feet; thence Southwesterly on a curve to the right having a radius of 115.75 feet a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 seconds West a distance of 53.09 feet; thence South 86 degrees 56 minutes 06 seconds West a distance of 516.09 feet; thence Easterly on a line parallel to the South line of said Southwest Quarter a distance of 208.40 feet to the point of beginning.

And That part of the Southwest Quarter of Section 24, Township 32, Range 25, in Anoka County, Minnesota, described as follows:

Commencing at a point on the center line of State Trunk Highway Number 47 as it is now laid out and travelled, said point being 93 feet Southeasterly as measured along said center line from the Northeasterly extension of the Southeasterly line of Block 3 in GORHAM'S ADDITION; thence South 64 degrees 18 minutes West on a line parallel to the Southeasterly line of said Block 3 a distance of 376.78 feet; thence Southwesterly on a curve to the left having a radius of 103.25 feet a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West a distance of 345.42 feet; thence Southwesterly on a curve to the right having a radius of 115.75 feet a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 Seconds West a distance of 286.99 feet to a point, hereinafter known as Point A; thence North 1 degree 03 minutes 40 seconds East a distance of 534.42 feet to a point which is 160 feet Southeasterly of, as measured at right angles to, the Southwesterly extension of the Northwesterly line of said Block 3, said point being the point of beginning of land to be described; thence returning South 1 degree 30 minutes 40 seconds West a distance 534.42 feet more or less to said point A; thence South 61 degrees 11 minutes 55 seconds West a distance of 233.04 feet; thence Southwesterly on a curve to the right having a radius of 434.27 feet a distance of 77.71 feet to a point 600 feet East of the West line of said Southwest Quarter as measured parallel with the South line of said Southwest Quarter; thence Northerly and parallel with the West line of said Southwest Quarter to a point which is 435.6 feet North of the South line of said Southwest Quarter as measured parallel with the West line of said Southwest Quarter; thence Westerly and parallel with the South line of said Southwest Quarter a distance of 600 feet to the West line of said Southwest Quarter; thence Northerly along the West line of said Southwest Quarter and to a point, said point being 531.65 feet Southerly of the intersection of the Southwesterly extension of the center line of 152nd Avenue Northwest in said GORHAM'S ADDITION with the West line of said Southwest Quarter, said 531.65 feet being measured along the West line of said Southwest Quarter; thence Easterly at right angles to the West line of said Southwest Quarter a distance of 160 feet; thence Northerly at right angles a distance of 272.25 feet; thence Westerly at right angles a distance of 20 feet to a point which is 140 feet East of the West line of said Southwest Quarter, as measured at right angles to said West line; thence Northerly and parallel with said West line to a point, said point being 275.3 feet Southerly of the Southwesterly extension of the Southeasterly line of 152nd Avenue NW. in GORHAM'S ADDITION, as measured parallel with the West line of said Southwest Quarter; thence Easterly at right angles a distance of 240 feet; thence Northerly at right angles to a point, said point being 311 feet Southerly of said Southwesterly extension of the Southeasterly line of 152nd Avenue NW., said 311 feet being measured parallel with the West line of said Southwest Quarter; thence Easterly at right angles to an intersection with a line drawn South 15 degrees 52 minutes 56 seconds East from a point on said Southwesterly extension of the Southeasterly line of 152nd Avenue NW., said point on said Southwesterly extension being distant 431 feet East of, as measured at right angles to the West line of said Southwest Quarter; thence South 15 degrees 52 minutes 56 seconds East to an intersection with line 'A', said line A being described as follows:

Commencing at the Northwest corner of Lot 1, Block 3, GORHAM'S ADDITION; thence South 64 degrees 18 minutes West on the Southeasterly line of 151st Avenue NW. in said GORHAM'S ADDITION extended Southwesterly for a distance of 470 feet; thence Northwesterly on a curve to the right having a radius of 101 feet for a distance of 141.02 feet; thence North 35 degrees 42 minutes West for a distance of 21.98 feet to the actual point of beginning of the line to be described; thence South 49 degrees 18 minutes West for a distance of 240.60 feet, more or less, to the aforementioned point of intersection and there terminating; thence South 15 degrees 51 minutes 49 seconds East to an intersection with a line drawn through the point of beginning parallel with the Southwesterly extension of the Northwesterly line of said Block 3 in GORHAM'S ADDITION; thence to the point of beginning,

Excepting therefrom all that part of the above described tract which lies Southerly of a line drawn parallel with and 33 feet Northerly of the following described line:

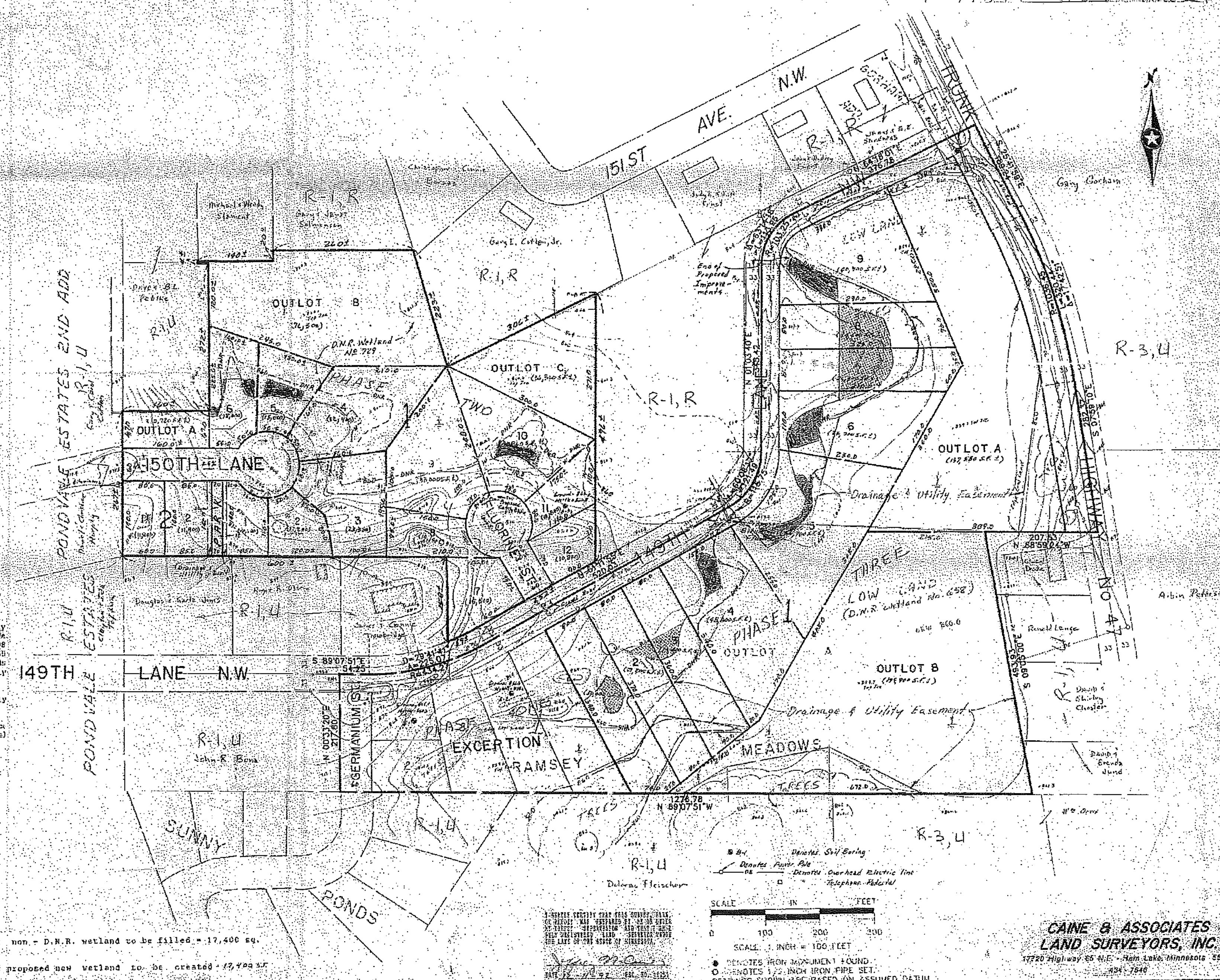
Beginning at the aforementioned point 'A'; thence South 61 degrees 11 minutes 55 seconds West for a distance of 233.04 feet, thence Southwesterly on a curve to the right having a radius of 434.27 feet for a distance of 77.71 feet and there terminating, said parallel line being lengthened or shortened as necessary to intersect the boundaries of the above described tract.

And also except:

Lots 1 through 5, Block 1, RAMSEY MEADOWS, according to the recorded plat thereof, Anoka County, Minnesota;

And also except:

That part of Germanium Street N.W. and 149TH Lane N.W. as dedicated in said plat of RAMSEY MEADOWS.



—DNR—DNR— Denotes edge of D.N.R. Wetland Number 729 or 658.

—W—W—W— Denotes edge of wetland as located by John C. Anderson of Wetlands Data and surveyed by Caine and Associates Land Surveyors, Inc.

Denotes non - D.N.R. wetland proposed to be filled.

Denotes proposed new wetland to be created.

Note: Area of non - D.N.R. wetland to be filled = 17,400 sq. ft.

Area of proposed new wetland to be created = *17,400 S.F.*

CAINE & ASSOCIATES LAND SURVEYORS, INC.
17720 Highway 65 N.E. - Ham Lake, Minnesota 55304
434-7646

EXHIBIT 8
RAMSEY MEADOWS WETLAND MITIGATION PLAN
CITY OF RAMSEY, MINNESOTA

TABLE 8
149TH LANE
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$100.00	1	$100
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
5	TURF ESTABLISHMENT	LUMP SUM	$50.00	1	$50

Estimated Construction Cost	$1,150
Contingency (10%)	$115
Total Estimated Construction Cost	$1,265

TABLE 9
149TH LANE
ALTERNATIVE 2A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$400.00	1	$400
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	3	$900
4	15" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$100.00	118	$11,800
5	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
6	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$13,900
Contingency (10%)	$1,390
Total Estimated Construction Cost	$15,290

TABLE 10
149TH LANE
ALTERNATIVE 2B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	18" RC PIPE APRON	EACH	$350.00	2	$700
5	18" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$125.00	118	$14,750
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$17,050
Contingency (10%)	$1,705
Total Estimated Construction Cost	$18,755

TABLE 11
149TH LANE
ALTERNATIVE 2C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	24" RC PIPE APRON	EACH	$450.00	2	$900
5	24" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$200.00	118	$23,600
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$26,400
Contingency (10%)	$2,640
Total Estimated Construction Cost	$29,040

TABLE 12
149TH LANE
ALTERNATIVE 3A - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	18" RC PIPE APRON	EACH	$350.00	2	$700
5	18" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$125.00	118	$14,750
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$17,050
Contingency (10%)	$1,705
Total Estimated Construction Cost	$18,755

TABLE 13
149TH LANE
ALTERNATIVE 3B - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	24" RC PIPE APRON	EACH	$450.00	2	$900
5	24" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$200.00	118	$23,600
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$26,400
Contingency (10%)	$2,640
Total Estimated Construction Cost	$29,040

TABLE 14
149TH LANE
ALTERNATIVE 4

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$100.00	1	$100
2	COMMON EXCAVATION	CU YD	$5.00	133	$665
3	GRANULAR BORROW	CU YD	$8.00	380	$3,040
4	TURF ESTABLISHMENT	ACRE	$1,500.00	0.3	$450

Estimated Construction Cost	$4,255
Contingency (10%)	$426
Total Estimated Construction Cost	$4,681

Section 3
Rum River Hills Golf Club

Rum River Hills Golf Club

Summary

Rum River Hills Golf Club has recently experienced flooding on some fairways and cart paths. Exhibit 9 shows the discharge points and problem areas throughout the golf course. The following will address the problem areas throughout the golf course.

Flooding along Hole #1

The first area of concern includes flooding of the large pond along Hole #1. This pond discharges through an existing concrete outlet structure and a 12" plastic pipe to the east. The outlet is labeled as Area 1 on Exhibit 9. It is our understanding that after large storm events, the pond remains elevated for long periods of time. The 100-year high water level (HWL) is 870.3.

After reviewing video recordings of the outlet pipe, it appears that the pipe has several sags in it and several joints have been compromised. The outlet pipe is relatively shallow and may have been affected by frost heave. This outlet pipe is likely causing the pond to operate inefficiently.

We believe that the best alternative for this outlet is to remove the existing outlet structure and the 12" outlet pipe and replace them with a new 4-foot diameter concrete outlet structure and 18" high density polyethylene pipe outlet in the same location as the existing pipe. Exhibit 10 shows the proposed outlet structure. The new pipe would be installed at a lower elevation than it exists now, reducing the impact of frost heave on the pipe. The polyethylene pipe is also more rigid and is solid (no air voids) and therefore more resistant to frost heave or buoyancy when soils are saturated. A removable, weir wall would be installed in the new outlet structure. We would propose to leave the weir height at the same elevation as existing. By installing the weir wall, it will allow for greater flexibility in controlling the water elevations of the pond. Installing this outlet structure would result in a 100-year HWL of 870.0.

The estimated cost to construct the new outlet pipe and structure is $29,853. Table 15 includes the individual costs for this alternative.

Cart path flooding near the clubhouse

Based on the HWL of the pond along Hole #1, it appears that there could be an issue with the cart paths flooding near the clubhouse, Areas 2A and 2B on Exhibit 9. The existing culverts under the cart paths are a 15" diameter and 12" diameter. If flooding the cart paths is an issue, the best alternative would be to install larger diameter culverts under the cart paths.

Installing 24" diameter culverts will reduce the flooding during small storm events. However, since the HWL elevation for the area is controlled by the downstream outlet structure discussed above, the paths will still flood during large storm events. To reduce the flooding during the large storm events, the cart paths would have to be raised

approximately 1.5 feet. This would, however, increase the HWL in the pond near the clubhouse, which would appear to adversely affect the fairway for Hole #18.

The estimated cost to replace the two culverts under the carts paths is $6,642. Table 16 includes the individual costs this alternative.

Saturated soil along Hole #15

Another issue is occurring along Hole #15 near the Rum River. The soil in the area is saturated. There is an existing rock dam, Area 3 on Exhibit 19, southeast of the most saturated area of the fairway. Part of the fairway was excavated to help to determine the problem and drain the area.

Based on our review, it appears that the water being contained by the rock dam may be infiltrating into the soil and causing the saturation. There is a dropped of approximately seven feet from the rock dam to the bottom of the downstream channel. We also noticed that the existing drain tile that was excavated along Hole #15 was plugged with roots and soil.

We recommend two alternatives to address the soil saturation along Hole #15. First, the drain tile should be replaced to improve the drainage in the area. Second, the area of the creek that is being contained by the rock dam should be lined with an impermeable material to eliminate the water infiltrating through the soil. Lining the creek will eliminate the infiltration into the soil and the new drain tile will help to keep the existing soil dry.

The estimated cost to replace the drain tile and line the creek bed is $13,530. Table 17 includes individual costs for this alternative.

Flooding of Hole #3 and #17

Flooding of Hole #3 and #17 is also an issue at the golf course. The stormwater drains south through three 15" culverts, labeled Area 4A, Area 4B and Area 4C on Exhibit 9, and then to the Rum River.

One alternative to lower the HWL's in the area would be to install bigger culverts. A 21" culvert was modeled to replace the culverts at Area 4A and 4B and a 24" culvert was modeled to replace the culvert at 4C. The following table summarizes the 100-year HWL's for the three areas:

Existing 100-Year HWL			Proposed 100-Year HWL		
Area 4A	Area 4B	Area 4C	Area 4A	Area 4B	Area 4C
859.3	859.3	858.5	859.1	858.7	858.3

The estimated cost to replace the three culverts is $4,990. Table 18 includes individual costs for this alternative.

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EXHIBIT 9
RUM RIVER HILLS GOLF CLUB
EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

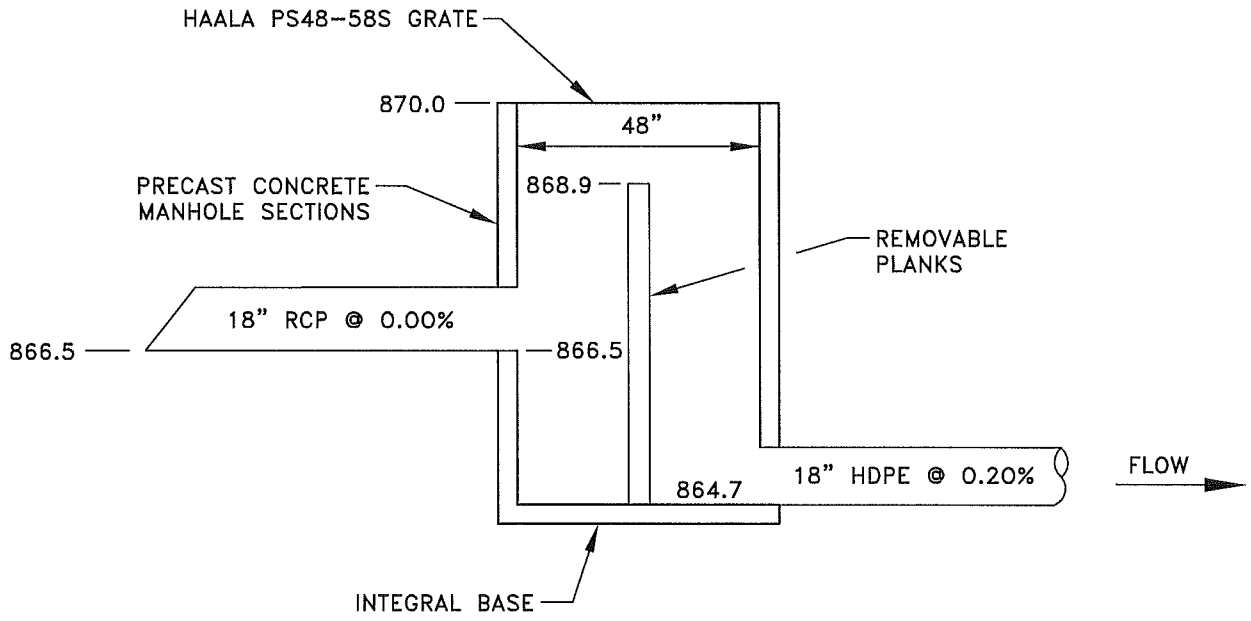

EXHIBIT 10
RUM RIVER HILLS GOLF CLUB
PROPOSED OUTLET STRUCTURE
CITY OF RAMSEY, MINNESOTA

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TABLE 15
RUM RIVER HILLS GOLF CLUB
FLOODING AROUND HOLE #1 - NEW OUTLET STRUCTURE

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	CLEARING	ACRE	$1,500.00	0.2	$300
3	GRUBBING	ACRE	$1,500.00	0.2	$300
4	REMOVE STORM SEWER	LIN FT	$1.50	856	$1,284
5	18" METAL APRON	EACH	$275.00	1	$275
6	18" RC PIPE APRON	EACH	$350.00	1	$350
7	18" HDPE PIPE SEWER	LIN FT	$22.00	850	$18,700
8	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	10	$230
9	OUTLET CONTROL STRUCTURE	EACH	$4,000.00	1	$4,000
10	TURF ESTABLISHMENT	ACRE	$1,500.00	0.6	$900

Estimated Construction Cost	$27,139
Contingency (10%)	$2,714
Total Estimated Construction Cost	$29,853

TABLE 16
RUM RIVER HILLS GOLF CLUB
CART PATH FLOODING NEAR CLUBHOUSE - NEW CULVERTS

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$200.00	1	$200
2	REMOVE STORM SEWER	LIN FT	$4.00	96	$384
3	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	30	$150
4	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	48	$144
5	4" AGGREGATE BASE CLASS 5	SQ YD	$8.00	30	$240
6	4" BITUMINOUS PAVEMENT	SQ YD	$34.00	30	$1,020
7	24" METAL APRON	EACH	$325.00	4	$1,300
8	24" CP PIPE CULVERT	LIN FT	$25.00	96	$2,400
9	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$6,038
Contingency (10%)	$604
Total Estimated Construction Cost	$6,642

TABLE 17
RUM RIVER HILLS GOLF CLUB
HOLE #15 SATURATION - CREEK LINING AND DRAIN TILE

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$350.00	1	$350
2	4" PERF PIPE DRAIN	LIN FT	$15.00	450	$6,750
3	CREEK LINING	LUMP SUM	$5,000.00	1	$5,000
4	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$12,300
Contingency (10%)	$1,230
Total Estimated Construction Cost	$13,530

TABLE 18
RUM RIVER HILLS GOLF CLUB
FLOODING AROUND HOLE #3 AND #17 - NEW CULVERTS

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$200.00	1	$200
2	REMOVE STORM SEWER	LIN FT	$4.00	72	$288
3	21" METAL APRON	EACH	$300.00	4	$1,200
4	24" METAL APRON	EACH	$325.00	2	$650
5	24" CP PIPE CULVERT	LIN FT	$26.00	46	$1,196
6	24" CP PIPE CULVERT	LIN FT	$27.00	26	$702
7	TURF ESTABLISHMENT	LUMP SUM	$300.00	1	$300

Estimated Construction Cost	$4,536
Contingency (10%)	$454
Total Estimated Construction Cost	$4,990

Section 4
163rd Lane

163rd Lane

Description

As shown on Exhibit 11, a low area exists south of 163rd Lane and east of Wolfram Street. The low area does not have a piped outlet to County Ditch #3. During a majority of the year, stormwater runoff infiltrates into the soil. However, during early spring when the ground is frozen and during periods of heavy rainfall, water levels have risen to levels that cause flooding of adjacent properties.

Alternatives

The following alternatives address the water elevation in the low area.

Alternative 1
In this alternative, an outlet pipe would be installed from the low area to County Ditch #3, as shown on Exhibit 12. The outlet pipe will not be installed at the bottom of the low area, rather, it will be installed at an elevation that would allow smaller storm events to continue to infiltrate into the soil. The outlet pipe invert is proposed at an elevation of 872.0, which is the approximate elevation of a 3-inch rainfall event. The following table summarizes the 100-year HWL's, the detention time above an elevation of 873.0 and estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL	Detention Time Above Elevation 873 During a 100-Year Storm Event (hours)	Estimated Cost
Existing	874.8	23.4	N/A
12"	874.3	6.2	$68,640
15"	874.0	2.9	$74,305
18"	873.8	1.5	$80,795

As shown, the area may continue to flood during large storm events; however, the duration of flooding will be much shorter.

Tables 19 through 21 include the individual costs for this alternative. It is proposed to directionally drill the pipe as shown on Exhibit 12 as opposed to open cutting a trench. A trench would require excessive cuts in the surrounding area. The outlet pipe will be approximately 700 feet long. Cleaning the pipe will require access on both ends of the pipe.

Alternative 2
Alternative 2 included draining the low area east to a ditch system in Elmcrest Park. This alternative was reviewed and deemed not feasible. There is not enough difference in elevation from the low area to the ditch in Elmcrest Park.

Alternative 3

Alternative 3 included constructing a pipe west and then south along 163rd Lane and Wolfram Street to County Ditch #3. The length of this alternative is approximately 500 feet longer than Alternative 1, therefore decreasing the pipe slope and increasing the costs. The impact of constructing the pipe along the existing streets would also add to the costs of this alternative. For these reasons, this alternative was deemed not feasible.

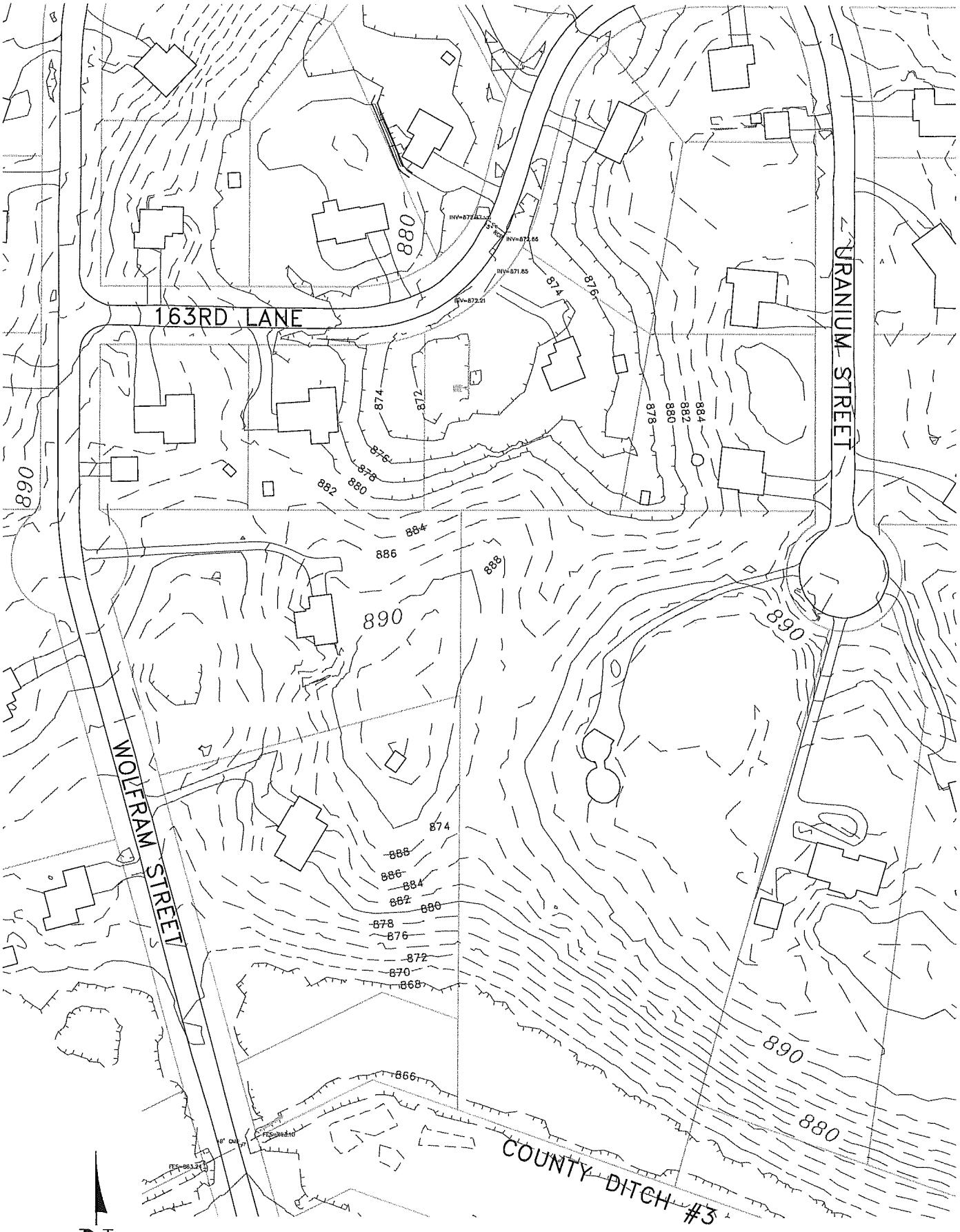

EXHIBIT 11
163RD LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

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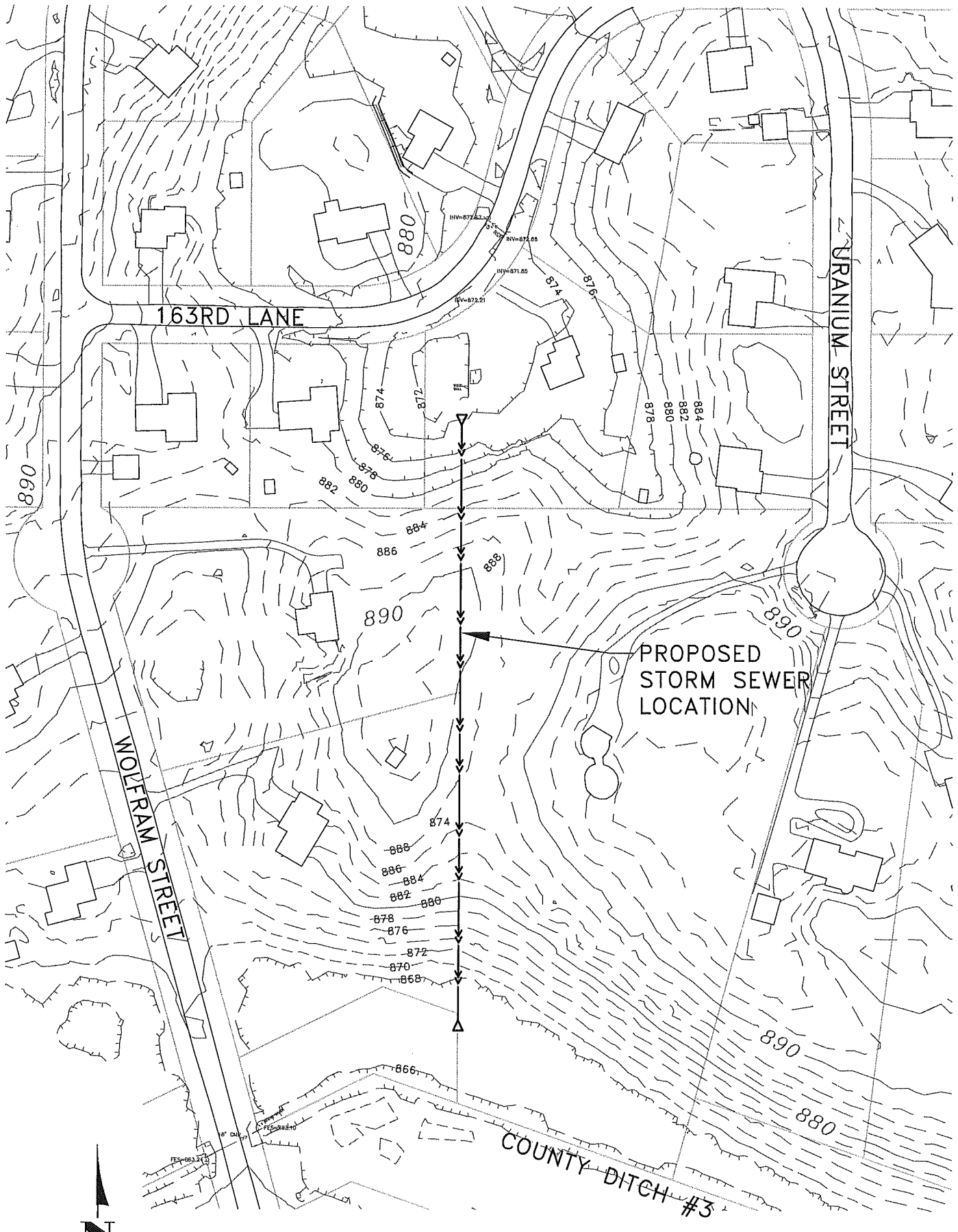

EXHIBIT 12
163RD LANE PROPOSED STORM SEWER

CITY OF RAMSEY, MINNESOTA

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TABLE 19
163RD LANE
ALTERNATIVE 1A - 12" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,800.00	1	$1,800
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	12" METAL APRON	EACH	$200.00	2	$400
4	12" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$85.00	700	$59,500
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$62,400
Contingency (10%)	$6,240
Total Estimated Construction Cost	$68,640

TABLE 20
163RD LANE
ALTERNATIVE 1B - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$2,000.00	1	$2,000
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	15" METAL APRON	EACH	$225.00	2	$450
4	15" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$92.00	700	$64,400
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$67,550
Contingency (10%)	$6,755
Total Estimated Construction Cost	$74,305

TABLE 21
163RD LANE
ALTERNATIVE 1C - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$2,200.00	1	$2,200
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	18" METAL APRON	EACH	$275.00	2	$550
4	18" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$100.00	700	$70,000
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$73,450
Contingency (10%)	$7,345
Total Estimated Construction Cost	$80,795

Section 5
156th Lane

156th Lane

Description

As shown on Exhibit 13, a low area exists south of 156th Lane and west of Yakima Street, referred to Depression 1 on Exhibit 13. Depression 1 drains south and east through an existing storm sewer system to another low area west of Juniper Ridge Drive, referred to as Depression 2 on Exhibit 13. From Depression 2 the stormwater drains north through an existing storm sewer system to the Rum River. The outlet elevations for both Depression 1 and Depression 2 are 859.8.

During storm events, water ponds in the backyard of 5220 156th Lane. The area where water ponds was platted with a 75-foot drainage and utility easement, however, this easement has been vacated. The existing 100-year high water level (HWL) for Depression 1 is 864.7.

Alternatives

The following alternatives address the stormwater in the area.

Alternative 1
Alternative 1 includes filling the backyard of 5220 156th Lane. Excavation would be required in Woodland Green Park to the south to compensate for the storage being lost by filling the backyard. The proposed grading is shown on Exhibit 14. In this alternative the proposed 100-year HWL would remain 864.7, but it would not encroach into the backyard to the extent it does under existing conditions.

The estimated cost for this alternative is $21,175. Table 22 includes the individual costs for this alternative.

Alternative 2
Alternative 2 also includes filling the backyard of 5220 156th Lane and excavating Woodland Green Park to the south to compensate for the storage being lost by filling the backyard. As opposed to Alternative 1, this alternative proposes to over-excavate the area in Woodland Green Park, which will lower the 100-year HWL by adding storage. The proposed grading is shown on Exhibit 15. In this alternative the proposed 100-year HWL would drop to 864.1.

The estimated cost for this alternative is $76,274. Table 23 includes the individual costs for this alternative.

Alternative 3
Alternative 3 includes constructing an additional 12" outlet pipe from Depression 2. As shown on Exhibit 16, the new outlet pipe would run east along 156th Lane and then north along Juniper Ridge Drive to an existing catch basin that drains to the Rum River. The

new outlet would be constructed at an elevation of 857.8, two feet lower than the existing outlet.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.6
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.9

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.0
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.8

As shown, adding this additional outlet pipe has very little effect on the high water levels of the two depressions. One reason for this is that the storm sewer system downstream of Depression 2 is at or above capacity and is flowing back into Depression 2 prior to draining downstream.

The estimated cost to construct this additional outlet pipe is $158,609. Table 24 includes the individual costs for this alternative.

Alternative 4

Alternative 4 includes constructing an additional 18" outlet pipe from Depression 1. As shown on Exhibit 16, the new outlet pipe would run east from Depression 1 to Depression 2. The new outlet would be constructed at an elevation of 858.2; 1.6-feet lower than the existing outlet. This alternative assumes that the new outlet from Depression 2, as discussed in Alternative 3, would also be constructed.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.6
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.5

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	863.8
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.3

As shown, adding this additional outlet pipe has very little effect on the high water levels of the two depressions. After adding the pipe, stormwater actually flows from Depression 2 back to Depression 1 prior to flowing downstream, lowering the HWL in Depression 2.

The estimated cost to construct this additional outlet pipe is $37,697. Table 25 includes the individual costs for this alternative.

Alternative 5

Alternative 5 includes constructing a 36" outlet pipe from Depression 2. As shown on Exhibit 16, the new outlet pipe would run east from Depression 2 to the Rum River. The new outlet would be constructed at an elevation of 857.8. As part of this alternative, the existing outlet pipe from Depression 2 will be eliminated. This alternative also assumes that the new outlet from Depression 1, as discussed in Alternative 4, would also be constructed.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	863.8
Depression 2 – Existing	866.0
Depression 2 – Proposed	859.9

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	862.7
Depression 2 – Existing	866.0
Depression 2 – Proposed	859.8

As shown, adding this outlet pipe has a significant effect on the high water levels of the two depressions. This alternative would have to be approved by the Minnesota Department of Natural Resources.

The estimated cost to construct this additional outlet pipe is $142,772. Table 26 includes the individual costs for this alternative.

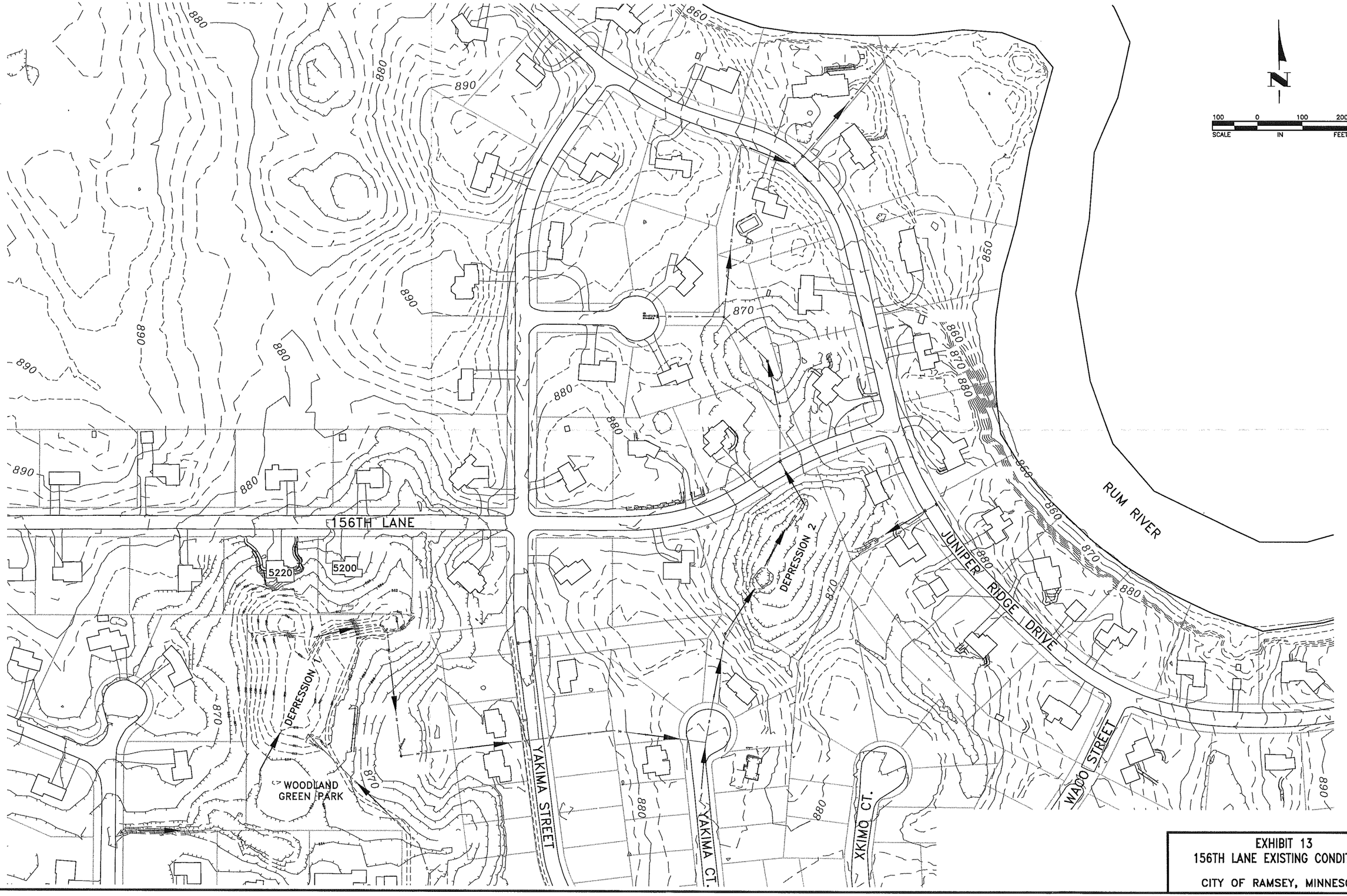

EXHIBIT 13
156TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 5:14pm
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156TH LANE

5220

5200

DEPRESSION 1

WOODLAND GREEN PARK

Fence

FES=857.47

INV=859.23

15" RCP

INV=859.76

SKIMMER
HIGH=863.48
LOW=862.74
BTM=858.89

FES=858.77

FES=859.89

18" PVC

21" RCP

STORM MH
RIM=872.02
INV=859.52

N

30 0 30 60
SCALE IN FEET

EXHIBIT 14
156TH LANE ALTERNATIVE 1 GRADING PLAN
CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 6:14pm
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156TH LANE

5220

5200

DEPRESSION 1

870

COBALT STREET

BARIUM STREET

155TH LANE

YAKIMA STREET

WOODLAND GREEN PARK

STORM MH
RIM=872.02
INV=859.52

CB
RIM=872.65
INV E=868.00

12" RCP

15" RCP

18" RCP

24" RCP

SKIMMER
HIGH=863.49
LOW=862.74
BTM=858.89

INV=859.23

INV=859.76

FES=857.43

FES=858.77

FES=859.89

N

50 0 50 100
SCALE IN FEET

EXHIBIT 15
156TH LANE ALTERNATIVE 2 GRADING PLAN

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 6:14pm
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N

100 0 100 200
SCALE IN FEET

ALTERNATIVE 3 & 4
PROPOSED STORM
SEWER LOCATION

ALTERNATIVE 5
PROPOSED STORM
SEWER LOCATION

ALTERNATIVE 4 & 5
PROPOSED STORM
SEWER LOCATION

156TH LANE

5220

5200

DEPRESSION 1

DEPRESSION 2

WOODLAND
GREEN PARK

YAKIMA STREET

YAKIMA CT.

YKIMO CT.

JUNIPER RIDGE DRIVE

WADO STREET

RUM RIVER

EXHIBIT 16
156TH LANE PROPOSED STORM SEWER

CITY OF RAMSEY, MINNESOTA

Feb 14, 2012 - 10:33am
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TABLE 22
156TH LANE
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$600.00	1	$600
2	CLEARING	ACRE	$1,500.00	0.75	$1,125
3	GRUBBING	ACRE	$1,500.00	0.75	$1,125
4	COMMON EXCAVATION	CU YD	$5.00	1820	$9,100
5	ADJUST SEWER MANHOLES	LUMP SUM	$4,000.00	1	$4,000
6	ADJUST SEWER CLEANOUTS	LUMP SUM	$500.00	1	$500
7	REINSTALL SPRINKLER SYSTEM	LUMP SUM	$1,000.00	1	$1,000
8	TURF ESTABLISHMENT	ACRE	$1,500.00	1.2	$1,800

Estimated Construction Cost	$19,250
Contingency (10%)	$1,925
Total Estimated Construction Cost	$21,175

TABLE 23
156TH LANE
ALTERNATIVE 2

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,900.00	1	$1,900
2	CLEARING	ACRE	$1,500.00	2.35	$3,525
3	GRUBBING	ACRE	$1,500.00	2.35	$3,525
4	COMMON EXCAVATION	CU YD	$5.00	10123	$50,615
5	ADJUST SEWER MANHOLES	LUMP SUM	$4,000.00	1	$4,000
6	ADJUST SEWER CLEANOUTS	LUMP SUM	$500.00	1	$500
7	REINSTALL SPRINKLER SYSTEM	LUMP SUM	$1,000.00	1	$1,000
8	TURF ESTABLISHMENT	ACRE	$1,500.00	2.9	$4,275

Estimated Construction Cost	$69,340
Contingency (10%)	$6,934
Total Estimated Construction Cost	$76,274

TABLE 24
156TH LANE
ALTERNATIVE 3

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$4,200.00	1	$4,200
2	SALVAGE STORM SEWER	LIN FT	$20.00	72	$1,440
3	REMOVE MANHOLE	EACH	$500.00	1	$500
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$2.00	3,290	$6,580
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	100	$300
6	4" AGGREGATE BASE CLASS 5	SQ YD	$7.00	3,290	$23,030
7	4" BITUMINOUS PAVEMENT	SQ YD	$21.00	3,290	$69,090
8	BITUMINOUS CURB	LIN FT	$3.00	1,850	$5,550
9	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
10	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	925	$20,350
11	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$2,000.00	3	$6,000
12	TRAFFIC CONTROL	LUMP SUM	$5,000.00	1	$5,000
13	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$144,190
Contingency (10%)	$14,419
Total Estimated Construction Cost	$158,609

TABLE 25
156TH LANE
ALTERNATIVE 4

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,000.00	1	$1,000
2	SALVAGE STORM SEWER	LIN FT	$20.00	120	$2,400
3	REMOVE CONCRETE CURB	LIN FT	$10.00	60	$600
4	REMOVE MANHOLE	EACH	$500.00	1	$500
5	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	110	$550
6	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	70	$210
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	110	$825
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	110	$3,080
9	18" RC PIPE APRON	EACH	$350.00	1	$350
10	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
11	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
12	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	735	$16,905
13	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	2	$3,000
14	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	$20.00	60	$1,200
15	TRAFFIC CONTROL	LUMP SUM	$2,000.00	1	$2,000
16	TURF ESTABLISHMENT	ACRE	$1,500.00	0.3	$450

Estimated Construction Cost	$34,270
Contingency (10%)	$3,427
Total Estimated Construction Cost	$37,697

TABLE 26
156TH LANE
ALTERNATIVE 5

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$3,750.00	1	$3,750
2	REMOVE STORM SEWER	LIN FT	$4.00	72	$288
3	BULKHEAD MANHOLE	EACH	$500.00	1	$500
4	36" METAL APRON	EACH	$325.00	1	$325
5	36" RC PIPE APRON	EACH	$450.00	1	$450
6	TRASH GUARD FOR 36" PIPE APRON	EACH	$400.00	1	$400
7	36" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$38.00	110	$4,180
8	36" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$280.00	420	$117,600
9	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	1	$2,000
10	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$129,793
Contingency (10%)	$12,979
Total Estimated Construction Cost	$142,772

Section 6
Sodium Street

Sodium Street

Description

The house at 16756 Sodium Street has been experiencing water in the basement. Exhibit 17 shows the existing area. One reason for water in the basement could be that stormwater fills the ditch on the east side of Sodium Street, overtops the road and if the driveway culvert is blocked, the water fills up the ditch on the west side of Sodium Street and drains toward the house. The water then seeps along the basement wall and eventually into the basement. Another reason for water in the basement may be due to a high groundwater elevation in the area.

Alternatives

The following alternatives address the issue of water entering the basement from the road ditch.

Alternative 1

Alternative 1 will include installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain to the south property line of 16756 Sodium Street and a culvert would be installed to drain the stormwater to the swale on the west side of the lot. Exhibit 18 shows the proposed construction. The culvert along the south property line is needed since a ditch cannot be graded without impacting the existing septic drainfield.

To be able to install the pipe along the south property line to the swale on the west side of the lot, a utility pole and a utility pedestal will have to be relocated from the southeast corner of 16756 Sodium Street. Moving the utilities will allow the area to be graded as needed to construct the ditch and the culvert. Regrading the ditch will prevent the stormwater from draining toward the house and reducing the chances of having water in the basement.

The estimated cost for this alternative is $12,225. Table 27 includes the individual costs for this alternative.

Alternative 2

Alternative 2 is similar to Alternative 1, but instead of installing a culvert along the south property line to the swale, a retaining wall would be constructed. This alternative would only be required if the utilities in the southeast corner of the lot were unable to be relocated.

The estimated cost for this alternative is $18,847. Table 28 includes the individual costs for this alternative.

Both alternatives would require that the property owner give an easement along the south property line. Also, temporary easements will likely be required to grade the ditch and construct the berm on the west side of Sodium Street.

SODIUM STREET

N

25 0 25 50
SCALE IN FEET

16756

GFE= 873.38
GFE= 876.96
873.72 WO

INV=876.21
12" CMP
INV=875.99

WOOD WALL
INV=875.02

INV=875.39
12" RCP

BLOCK WALL
CONC
WELL
CONTROL BOX
Septic manhole
FENCE
3' Hedge
SEPTIC MOUND

WOOD WALL
INV=876.45
12" CMP
WOOD WALL
INV=876.33
CONC
FENCE

P-OH

Feb 13, 2012 – 1:42pm
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EXHIBIT 17
SODIUM STREET EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

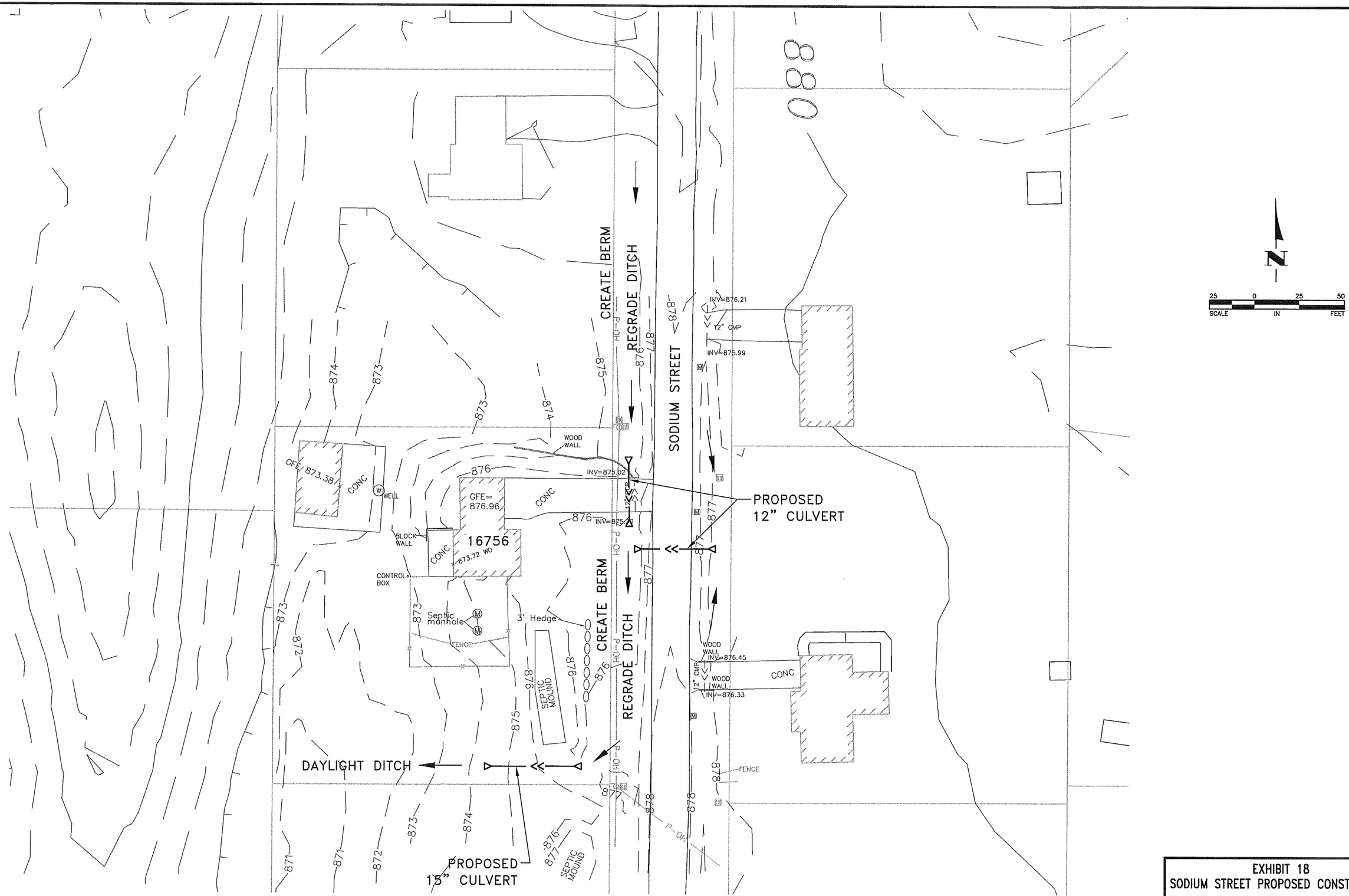

EXHIBIT 18
SODIUM STREET PROPOSED CONSTRUCTION

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 1:53pm
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TABLE 27
SODIUM STREET
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$300.00	1	$300
2	REMMOVE STORM SEWER	LIN FT	$5.00	25	$125
3	REMOVE CONCRETE PAVEMENT	SQ YD	$6.00	45	$270
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	49	$245
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	44	$132
6	COMMON EXCAVATION	CU YD	$6.00	400	$2,400
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	94	$705
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	49	$1,372
9	4" CONCRETE DRIVEWAY PAVEMENT	SQ YD	$13.00	45	$585
10	15" METAL APRON	EACH	$225.00	2	$450
11	12" RC PIPE APRON	EACH	$275.00	4	$1,100
12	15" CP PIPE SEWER	LIN FT	$20.00	44	$880
13	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$20.00	40	$800
14	TRAFFIC CONTROL	LUMP SUM	$1,000.00	1	$1,000
15	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$11,114
Contingency (10%)	$1,111
Total Estimated Construction Cost	$12,225

TABLE 28
SODIUM STREET
ALTERNATIVE 2

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$300.00	1	$300
2	REMMOVE STORM SEWER	LIN FT	$5.00	25	$125
3	REMOVE CONCRETE PAVEMENT	SQ YD	$6.00	45	$270
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	49	$245
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	44	$132
6	COMMON EXCAVATION	CU YD	$6.00	475	$2,850
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	94	$705
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	49	$1,372
9	4" CONCRETE DRIVEWAY PAVEMENT	SQ YD	$13.00	45	$585
10	12" RC PIPE APRON	EACH	$275.00	4	$1,100
11	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$20.00	40	$800
12	MODULAR BLOCK RETAINING WALL	SQ FT	$23.00	300	$6,900
13	TRAFFIC CONTROL	LUMP SUM	$1,000.00	1	$1,000
14	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$17,134
Contingency (10%)	$1,713
Total Estimated Construction Cost	$18,847

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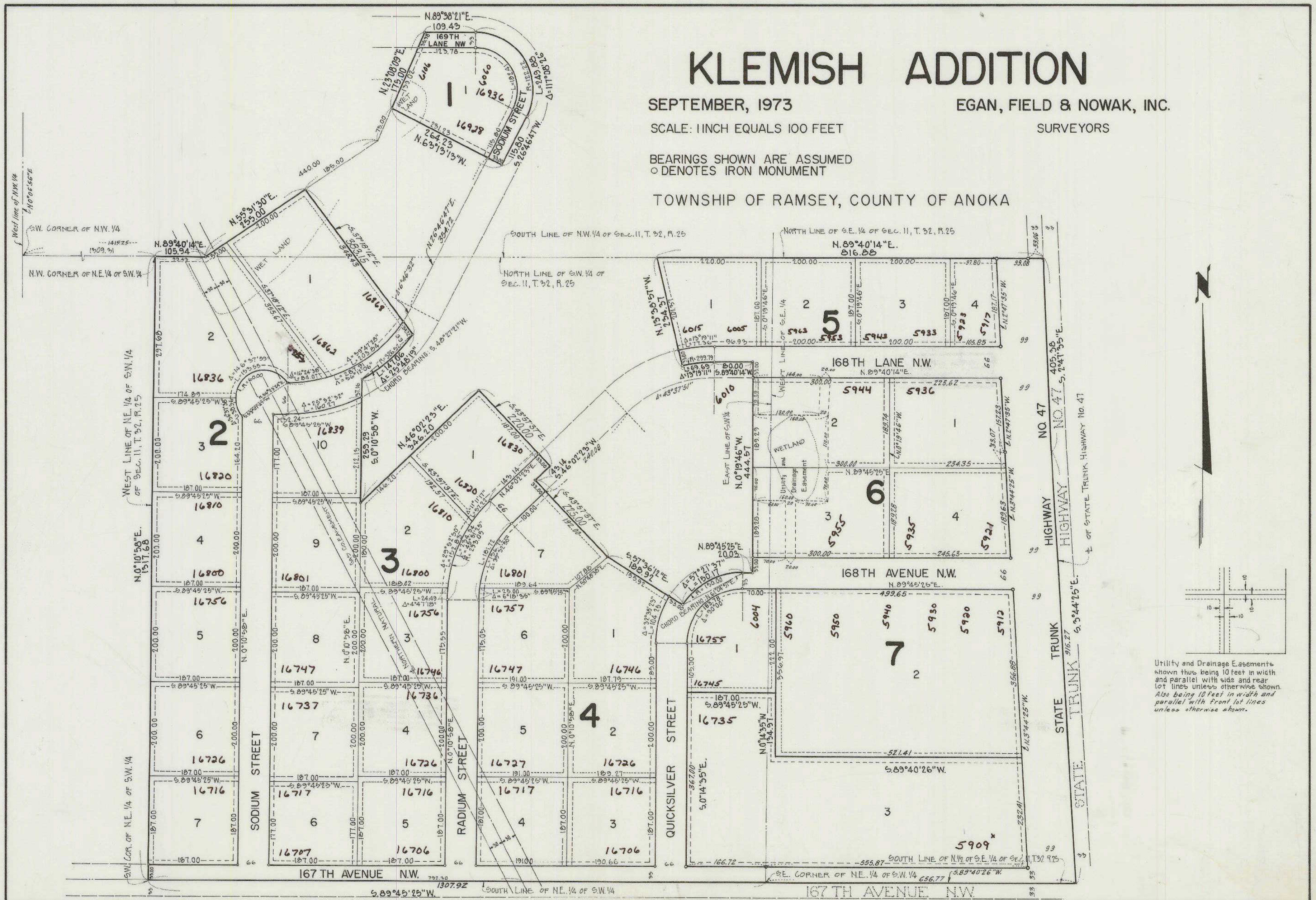

Address Map

Klemish Addition SHEET 2 OF 2 SHEETS

Public Works Committee **5. 2.**

Meeting Date: 03/20/2012

By: Tim Himmer, Engineering/Public Works

Title:

Consider Storm Sewer Improvements on 163rd Lane - A Continuation of Discussions Related to 2011 Flooding Concerns

Background:

Last summer the City experienced several significant rainfall events that lead to many localized flooding concerns, and resident complaints. The large volumes of precipitation that occurred over a short period of time appears to have elevated the groundwater within areas of the City, and prohibited the generous rate of infiltration that typically takes place in the Anoka sandplain. Throughout the summer and fall staff worked hard at registering and responding to the calls, and evaluating the situations on an individual basis to determine whether quick fixes could be implemented (culvert obstructions, re-ditching, etc.) to alleviate the immediate concerns.

This item was discussed at the Public Works Committee on August 15, 2011, and at that time staff summarized the areas of concern that were being investigated based upon citizen complaints received. The attached summary was presented at the meeting; which outlines the concern identified, actions steps to evaluate the concern, additional investigations that would be necessary to fully understand the situation, and recommendations for specific projects that could be implemented rather quickly and inexpensively. At that time we classified the issues into 3 categories:
1. Those that required no further action. They were evaluated and corrected, or did not need correcting because the water was fully contained within a dedicated drainage & utility easement (functioning as designed).
2. Those that required additional investigation and evaluation before deciding on a long term solution, and implementing corrective actions.
3. Those that had an identified recommendation for immediate action.
At that meeting the Committee briefly discussed the areas of concern, and directed staff to prepare plans and specifications for the items identified in category 3. Once this direction was ratified by the City Council on September 13, 2011, and the plans completed, it was too late in the season to secure bids and complete the improvements in 2011. It was then decided to delay construction until 2012, where some of the improvements could be completed by inclusion in the street maintenance program. Staff is in the process of finalizing plans for these items and intends to solicit quotes for the improvements this spring/summer. Depending on the direction staff receives for potential improvements to alleviate some of the outstanding concerns identified over the next couple of months, additional plans can be incorporated into one plan set for bidding.

Notification:

The residents have been provided with a copy of the agenda and notified of the meeting time.

Observations:

Staff prepared a brief RFP in the fall of 2011, to investigate the areas of concern, and distributed it to members of the City's consultant pool in the fall of 2011. The goal of this project was to have an independent third party evaluate the areas, provide options for corrective actions, and associated estimates to implement the work. Hakanson Anderson was awarded the project to undertake these investigations, and they have since completed their analysis and compiled a report that references potential solutions for each area identified. Attached to this case is the final report.

This item was introduced in general terms at the February Public Works Committee meeting, with the direction being that staff would come back before the committee over the next several months to discuss the merits of each potential improvement in more detail.

Tonight we would like to focus on a couple of the projects that are located in neighborhoods that are proposed to receive street maintenance activities this summer. I would like to draw your attention to section 4 related to 163rd Lane.

This area is located west of Elmcrest park. There is an existing landlocked low area south of 163rd Lane and east of Wolfram Street. During a majority of the year, stormwater runoff infiltrates int the soil. However, during early spring when the ground is frozen and during periods of heavy rainfall, water levels have risen to elevations taht cause flooding of adjacent properties.

Different sized outlet pipes were analyzed to drain the low area. Installing an outlet will have a significant impact on the high water levels in the area and, most importantly, the length of inumdation will be greatly reduced. We recommend driectionally drilling an 18" HDPE pipe south to County Ditch #3 with an invert elevation of 872.0 Installing the pipe at an elevation of 872.0 will continue to allow 3" storm events to infiltrate into the soil. The estimated cost to install this outlet is $80,795.

An easement will be required on the lot to cover the maximum ponding area and the route of the outlet pipe from the pond to the south property line. The directional drilling may require acquisiton of additional easments along the route of the pipe which can be time consuming. Construction of the connection to County Ditch #3 may be best done under frozen conditions. The estimated cost of the project exceeds the annually budgeted amount for storm sewer improvements so it may need to be spread over a couple of years.

The plat for this neighborhood, detail of the drainage and utility easement over the low area and the plats between the low point and County Ditch #3 are attached.

Funding Source:

In the fall of 2011, while staff was in the process of updating the City's Capital Improvement Program (CIP), we budgeted additional funds to stormwater improvement projects over the next two years in an effort to address some of these concerns. The Capital Improvement Program (CIP) lists a $75,000 annual expenditure for the next 5 years to address city wide drainage enhancements.

Staff Recommendation:

Staff recommends adding this project to the list to be evaluated when the Capital Improvment Program is updated. Easement acquisition, construction timing and budget considerations require additional investigation.

Committee Action:

Motion to recommend adding this project to the list to be evaluated when the Capital Improvment Program is updated.

Attachments

Final Report
Plat
Easement
Voltins
Rambosek

Form Review

Inbox	Reviewed By	Date
Brian Olson	MaryJo Warner	03/15/2012 03:01 PM
Kurt Ulrich	MaryJo Warner	03/15/2012 04:02 PM

Form Started By: Tim Himmer Started On: 03/14/2012 04:22 PM

Final Approval Date: 03/15/2012

INVESTIGATION OF 2011 FLOODING CONCERNS

FOR THE

City of Ramsey
Anoka County, Minnesota

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Tim Eggerichs, P.E.	43362 License No.	February 14, 2012 Date
Ronald J. Wagner, P.E.	26052 License No.	February 14, 2012 Date

TABLE OF CONTENTS

SUMMARIES AND RECOMMENDATIONS

148th Lane

There is an existing low area on the south side of 148th Lane. During the wet spring of 2011, stormwater would pond for extended periods in this low area. A 15" outlet exists approximately 2.5 feet above the bottom of the low area that drains the area to the east. The stormwater below the outlet pipe infiltrates into the soil. A drainage easement exists over this low area.

Different sized outlet pipes at different elevations were analyzed. These different sized outlets did not have a significant impact on the high water level in the area. Since the low area is within an existing drainage easement, it is our recommendation that nothing be changed in the area.

149th Lane

There is an existing low area on the east side of Lot 3, Block 1 of Ramsey Meadows 4th Addition (5410 149th Lane NW). This low area is connected to the large DNR Wetland to the east with a drain tile. During the wet spring of 2011, stormwater would back up through this drain tile and flooded the low area. It appears that this low area may have been constructed as part of a wetland mitigation plan and may be controlled by Wetland Conservation Act rules. A drainage easement exists over this low area.

The outlet from the DNR Wetland, which drains east under Trunk Highway 47 (TH 47), was analyzed. The current outlet has a weir structure that is approximately 0.8 feet above the invert of the 15" pipe that crosses TH 47. Additional culverts under TH 47 were analyzed, but the additional outlets did not have a significant impact on the high water levels in the DNR Wetland. Removing the weir structure was also analyzed.

It is our recommendation that the weir structure be removed from the outlet. This will not have a significant impact on the high water level of the wetland; however, the wetland will drain down to an elevation near the elevation of the bottom of the low area at 5410 149th Lane. The estimated cost to remove the weir structure is $1,265.

Rum River Hills Golf Club

Rum River Hills Golf Club has been experiencing flooding issues throughout the golf course. The large ponds near the clubhouse drain to the east through an existing outlet structure and 12" pipe. This stormwater then drains over an existing steel weir structure and over a rock dam prior to discharging to the Rum River.

Area 1

The ponds near the clubhouse have been flooding and the outlet does not seem to drain the ponds effectively. The existing 12" outlet from the large ponds near the clubhouse has several sags in it and several joints have been compromised.

It is our recommendation to replace this pipe and install a new outlet structure with removable planks that will give the golf course more flexibility in controlling the water

elevation in the ponds. This includes an 18" HDPE outlet and precast concrete outlet structure with a removable grate for access to the planks. It is proposed to leave the overflow at the same elevation as existing, which will have minimal impacts on the elevation of the standing water and the high water levels of the ponds. The estimated cost to install this new outlet is $29,853.

Area 2

Based on the high water levels in the ponds near the clubhouse, it appears flooding of the cart paths near Hole #1 may be an issue during large storm events. The existing culverts consist of a 12" CMP and 15" HDPE.

To reduce the frequency of the flooding, we recommend installing 24" diameter culverts under the two existing cart paths. The paths would continue to be inundated during storm events greater than 3.5", but would not be inundated during storm events less than 3.5". The estimated cost to replace the culverts is $6,642. If the golf course does not feel that the cart path flooding is a concern, replacing the culverts is not a necessity.

Area 3

The soil in the fairway of Hole #15 has become saturated. There is an existing rock dam southeast of this fairway and it appears that water being contained by the rock dam may be infiltrating into the soil and saturating the fairway.

We recommend lining the creek upstream of the rock dam with an impermeable liner and replacing and/or installing new drain tile in the fairway of Hole #15. Lining the creek will eliminate the infiltration into the soil and the drain tile will keep the soil from becoming saturated. The estimated cost for these improvements is $13,530.

Area 4

Holes #3 and #17 have had flooding issues. The ponds and swales near the two holes are drained through three 15" CMP culverts.

Different sized culverts at different elevations were analyzed. These different sized culverts did not have a significant impact on the high water levels in the area. Without lowering the entire swale and creating more storage, it does not appear that replacing the culverts would have a significant impact. It is our recommendation that the three culverts not be replaced.

163rd Lane

There is an existing, landlocked low area south of 163rd Lane and east of Wolfram Street. During a majority of the year, stormwater runoff infiltrates into the soil. However, during early spring when the ground is frozen and during periods of heavy rainfall, water levels have risen to levels that cause flooding of adjacent properties.

Different sized outlet pipes were analyzed to drain the low area. Installing an outlet will have a significant impact on the high water levels in the area and, most importantly, the length of inundation will be greatly reduced. We recommend directionally drilling an

18" HDPE pipe south to County Ditch #3 with an invert elevation of 872.0. Installing the pipe at an elevation of 872.0 will continue to allow 3" storm events to infiltrate into the soil. The estimated cost to install this outlet is $80,795.

156th Lane

During large storm events, the wetland in Woodland Green Park ponds water in the backyard of 5220 156th Lane. The area where water ponds was platted with a 75-foot drainage and utility easement, however, this easement has been vacated. The wetland discharges east through an existing storm sewer system to a low area and then north through another storm sewer system to the Rum River.

Different sized ponds and outlet configurations were analyzed. One alternative to reduce the high water level of the wetland in Woodland Green Park included constructing a new outlet pipe from the wetland to the low area to the east. This alternative would also require constructing a new outlet at a lower elevation from the low area directly to the Rum River. This would require the approval of the Minnesota Department of Natural Resources and does not appear viable at this time.

We recommend filling the backyard of 5220 156th Lane to an elevation equal to the 100-year high water level. Stormwater would then be contained within Woodland Green Park and would not impact this homeowner. Filling the backyard would require grading in the Woodland Green Park site to create storage to compensate for the lost volume. The estimated cost to complete the grading is $21,175.

Sodium Street

The house at 16756 Sodium Street has been experiencing water in the basement. One reason for having water in the basement could be caused by the road ditch in front of the house filling and then overflowing toward the house. The water then seeps along the basement wall and eventually into the basement. Another reason for water in the basement could be caused by a high groundwater elevation in the area.

We recommend installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain south and a culvert would be installed near the south property line to drain the water to the west. The estimated cost to complete this project is $12,225.

Section 1
148th Lane

148th Lane

Description

As shown on Exhibit 1, a low area exists south of 148th Lane. A 15" outlet pipe drains the low area north and then east to DNR Wetland 658W. The invert of the outlet pipe is at elevation 862.3 and the bottom of the low area is at elevation 859.8. Water in the low area has to rise 2.5 feet prior to discharging. The water below the outlet infiltrates into the soil, which may take days depending on the condition of the soil.

The existing 100-year high water level (HWL) for the low area is 865.5. As shown on Exhibit 2, a drainage easement exists in the rear of Lots 2 through 5, Block 2 of Ramsey Commons 2nd Addition.

Alternatives

The following alternatives address the water elevation in the existing low area.

Alternative 1
In this alternative, a new outlet pipe would be installed between Lot 1 of Ramsey Commons 2nd Addition and Lot 2 of Sunny Ponds, as shown on Exhibit 3. It was assumed that the existing outlet pipe to the north would be removed. By installing an outlet pipe in this location, the invert of the outlet pipe can be lowered from 862.3 to 861.6. The following table summarizes the 100-year HWL's and estimated costs for each outlet pipe:

Outlet Pipe Size	100-Year HWL	Estimated Cost
Existing	865.5	N/A
15"	865.4	$16,264
18"	865.1	$31,566 *
24"	864.3	$45,381 *

* The existing pipe being connected to in Germanium Street is a 15" diamter. Installing the 18" and 24" outlets will require the removal and replacement of this pipe to match the size of the pipe being installed.

Tables 1 through 3 include the individual costs for this alternative.

Alternative 2
In this alternative, a new outlet pipe would be installed between Lots 2 and 3 of Sunny Ponds, as shown on Exhibit 4. It was assumed that the existing outlet pipe to the north would be removed. By installing an outlet pipe in this location, the invert of the outlet pipe can be lowered from 862.3 to 861.4. This alternative would require additional grading and the acquisition of a permanent easement on the property south of Ramsey Commons 2nd Addition and west of Sunny Ponds. The following table summarizes the 100-year HWL's and estimated costs for each outlet pipe:

Outlet Pipe Size	100-Year HWL	Estimated Cost
Existing	865.5	N/A
15"	865.3	$13,098
18"	865.0	$18,846 *
24"	864.3	$32,543 *

* The existing pipe being connected to in Germanium Street is a 15" diameter. Installing the 18" and 24" outlets will require the removal and replacement of this pipe to match the size of the pipe being installed.

Tables 4 through 6 include the individual costs for this alternative.

Alternative 3

In this alternative, the bottom of the low area would be filled to the same elevation as the outlet pipe invert. The pond would then drain dry and would not be sitting with water until it infiltrated. By filling the bottom of th e low area, the resultant 100-year HWL will be 866.2, 0.7 feet higher than the existing HWL. This higher HWL would end up outside the existing drainage and utility easement, creating the need for additional drainage easement.

The estimated cost to fill the low area is $15,321. Table 7 includes the individual costs for this alternative.

Further research is required to determine if this low area was designed to treat a water quality volume. The volume required would dictate if Alternatives 1 and 2 are viable options. Alternative 3 would not be viable, because the water quality volume is being eliminated in this alternative.

870

RAMSEY COMMONS
2ND ADDITION

148TH LANE

15" RCP

15" RCP

15" RCP

18" RCP

18" RCP

Landscaping

INV=862.3
HEADWALL

BLOCK WALL

WOOD WALL

FENCE

860

862

864

866

868

NOWTHEN BOULEVARD

SUNNY PONDS

GERMANIUM STREET

DNR
WETLAND
658W

860

1
2
3
4
5

2
3
4
5

N

30 0 30 60
SCALE IN FEET

EXHIBIT 1
148TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

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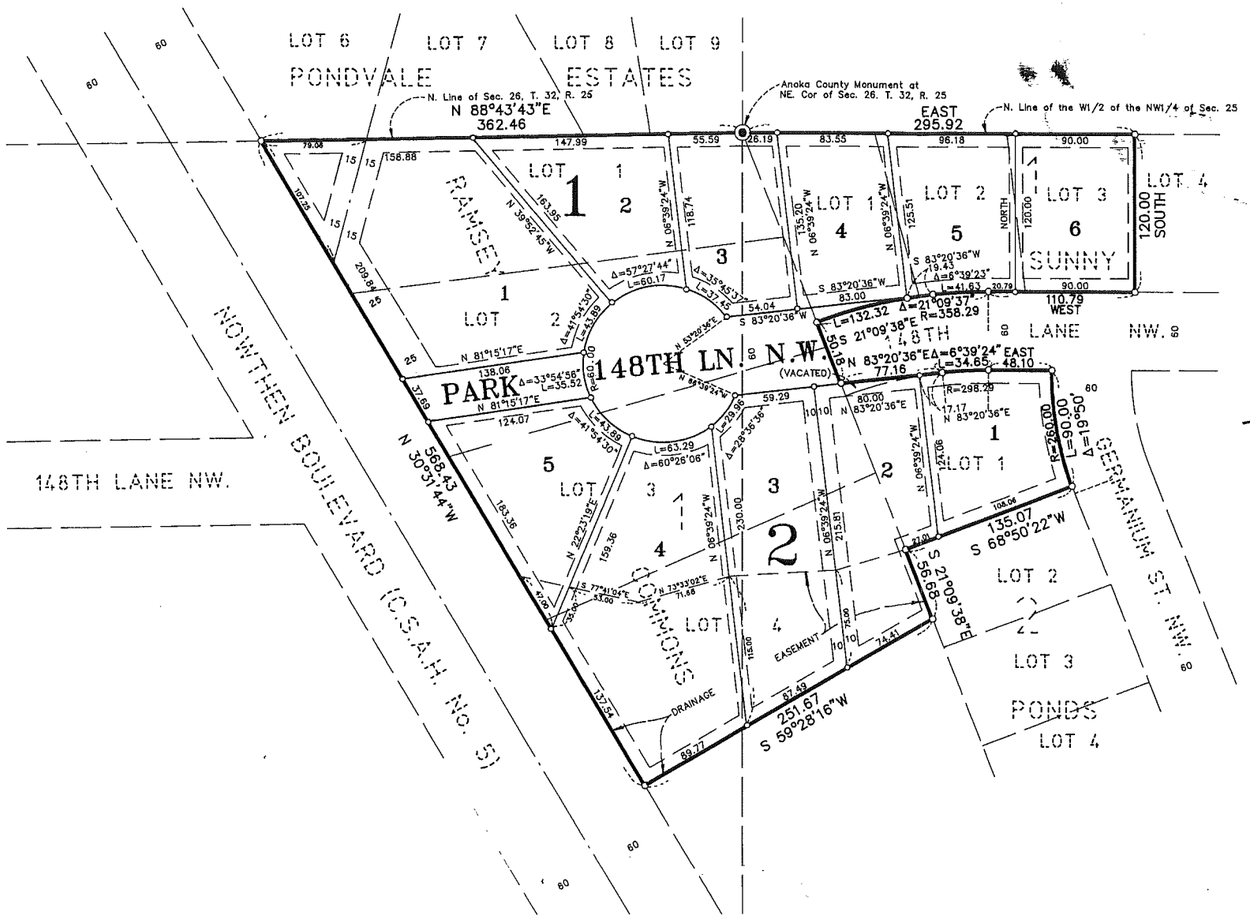
OFFICIAL PLAT

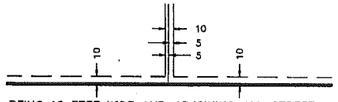
41.

RAMSEY COMMONS 2ND ADDITION

CITY OF RAMSEY — COUNTY OF ANOKA



DRAINAGE AND UTILITY EASEMENTS SHOWN THUS:



BEING 10 FEET WIDE AND ADJOINING ALL STREET RIGHT-OF-WAY LINES AND REAR LOT LINES AND 5 FEET WIDE AND ADJOINING ALL SIDE LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

○ DENOTES 1/2 INCH IRON PIPE SET.
◉ DENOTES ANOKA COUNTY MONUMENT.
NOTE: FOR THE PURPOSES OF THIS PLAT, THE NORTH LINE OF THE W1/2 OF THE NW1/4 OF SEC. 25, T. 32, R. 25 IS ASSUMED TO HAVE A BEARING OF EAST.

1049281

OFFICE OF COUNTY RECORDER
STATE OF MINNESOTA, COUNTY OF ANOKA
I hereby certify that the within instrument was filed in this office for record on the JUNE 29 A.D., 1993
4:15 o'clock P.M., and was duly recorded in book 416 of Plats page 41
Edward M Trooka
County Recorder
By D Swanson
Deputy

CAINE & ASSOCIATES LAND SURVEYORS, INC.

KNOW ALL PERSONS BY THESE PRESENTS: That North Suburban Development, Inc., a Minnesota Corporation, owner and proprietor, and Doloras S. Fleischer, single, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

Lots 1, 2 and 3, Block 1, and Lot 1, Block 2, all in SUNNY PONDS, according to the recorded plat thereof, Anoka County, Minnesota,

And that part of vacated 148th Lane N.W., as dedicated in the plat of SUNNY PONDS, according to the recorded plat thereof, Anoka County, Minnesota, lying north of the north line of Lot 1, Block 2, in said SUNNY PONDS and lying south of the following described line:

Commencing at the northeast corner of said Lot 1, Block 2; thence on an assumed bearing of West, along the north line of said Lot 1, Block 2, a distance of 48.10 feet; thence westerly continuing along said north line and along a tangential curve, concave to the south having a radius of 298.29 feet and a central angle of 6 degrees 39 minutes 24 seconds, a distance of 34.65 feet to the point of beginning of the line to be described; thence South 83 degrees 20 minutes 36 seconds West, a distance of 77.16 feet to the intersection with the northerly extension of the west line of said Lot 1, Block 2, and said line there terminating.

AND that North Suburban Development, Inc., a Minnesota Corporation, owner and proprietor, and Delano Skeim, single, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

Lots 1, 2, 3 and 4, Block 1, RAMSEY COMMONS, according to the recorded plat thereof, Anoka County, Minnesota.

Have caused the same to be surveyed and platted as RAMSEY COMMONS 2ND ADDITION and do hereby donate and dedicate to the public for public use forever the lanes as shown on the plat. Also dedicating the drainage and/or utility easements as shown on the plat. Also dedicating to the County of Anoka the right of access onto County State Aid Highway No. 5 from Lot 1, Block 1 and from Lots 4 and 5, Block 2. In witness whereof said North Suburban Development, Inc. has caused these presents to be signed by its proper officer this 26TH day of MAY, 1993. Also in witness whereof said Doloras S. Fleischer has hereunto set her hand this 26TH day of MAY, 1993. Also in witness whereof said Delano Skeim has hereunto set his hand this 21ST day of MAY, 1993.

NORTH SUBURBAN DEVELOPMENT, INC.

J. A. Henkveld, as President

SIGNED:

Doloras S. Fleischer
Doloras S. Fleischer

SIGNED:

Delano Skeim
Delano Skeim

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 26TH day of MAY, 1993, by J. A.
COUNTY OF ANOKA) Henkveld, President of North Suburban Development, Inc., a Minnesota corporation, on behalf of the corporation.

SHIRLEY D. CHENOWETH NOTARY PUBLIC-MINNESOTA ANOKA COUNTY My Commission Expires 6-24-96

Shirley D. Chenoweth
Notary Public, ANOKA County, Minnesota
My Commission expires 6-24-96

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 26TH day of MAY, 1993, by Doloras
COUNTY OF ANOKA) S. Fleischer, single.

SHIRLEY D. CHENOWETH NOTARY PUBLIC-MINNESOTA ANOKA COUNTY My Commission Expires 6-24-96

Shirley D. Chenoweth
Notary Public, ANOKA County, Minnesota
My Commission expires 6-24-96

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this 21ST day of May, 1993, by Delano
COUNTY OF Anoka) Skeim, single.

MARGARET A. McINERNY NOTARY PUBLIC—MINNESOTA ANOKA COUNTY My Commission Expires FEB. 22, 1996

Margaret A. McInerny
Notary Public, Anoka County, Minnesota
My Commission expires 2/22/96

I hereby certify that I have surveyed and platted the land described in the dedication on this plat as RAMSEY COMMONS 2ND ADDITION; that the plat is a correct representation of said survey; that all distances are correctly shown on said plat in feet and hundredths of a foot; that the monuments have been correctly placed in the ground as shown; that the outside boundaries are correctly designated on said plat; and that there are no wet lands or public highways to be designated on said plat other than as shown thereon.

Jeffrey N. Caine
Jeffrey N. Caine, Registered Land Surveyor
Minnesota Registration No. 12251

STATE OF MINNESOTA) The surveyors certificate was acknowledged before me a Notary Public, this 19TH day of May, 1993,
COUNTY OF ANOKA) by Jeffrey N. Caine, Land Surveyor.

MOLLY W. CAINE Notary Public-Minnesota Anoka County My Comm. Exp. 6-13-96

Molly W. Caine
Notary Public, Anoka County, Minnesota
My Commission expires 6-13-96

CITY OF RAMSEY

We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY COMMONS 2ND ADDITION at a regular meeting held this 11TH day of May, 1993. If applicable, the written comments and recommendations of the Commissioner of Transportation and the County Highway Engineer have been received by the city or the prescribed 30 day period has elapsed without receipt of such comments and recommendations, as provided by Hinn. Statutes, Section 505.03, Subd. 2.

By Mayor By Clerk

Checked and approved this 29TH day of June, 1993

By Anoka County Surveyor

I HEREBY CERTIFY THAT THE CURRENT AND DELINQUENT TAXES ON THE LANDS DESCRIBED WITHIN ARE
ENTERED
BY DEPU

RAMSEY BY 2

EXHIBIT 2.
FINAL PLAT-RAMSEY COMMONS 2ND ADD.
CITY OF RAMSEY, MINNESOTA

001ACRA 6-29-93 # 425 $30.00

870

148TH LANE

15" RCP

15" RCP

PROPOSED
STORM SEWER
LOCATION
FES INV=861.6

Landscaping

INV=862.3
HEATER

15" RCP

18" RCP

18" RCP

860

DNR
WETLAND
658W

BLOCK
WALL

WOOD
WALL

FENCE

860

862

864

866

868

NOWTHEN BOULEVARD

GERMANIUM STREET

1

2

3

4

5

2

3

4

5

N

30 0 30 60
SCALE IN FEET

EXHIBIT 3
148TH LANE ALTERNATIVE 1 STORM SEWER
CITY OF RAMSEY, MINNESOTA

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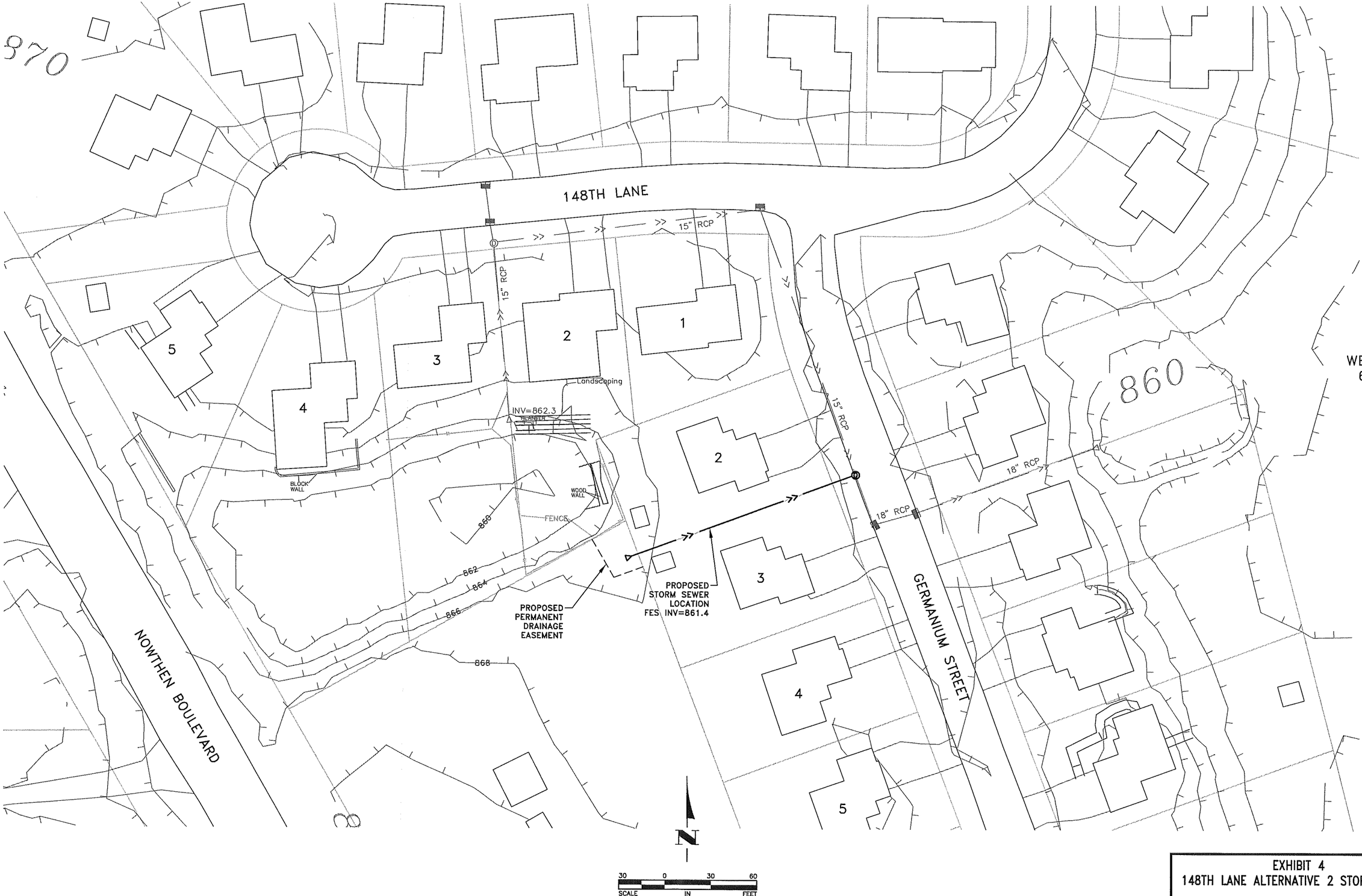

EXHIBIT 4
148TH LANE ALTERNATIVE 2 STORM SEWER
CITY OF RAMSEY, MINNESOTA

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TABLE 1
148TH LANE
ALTERNATIVE 1A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$5.00	118	$590
5	REMOVE CONCRETE CURB	LIN FT	$10.00	20	$200
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	23	$115
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	40	$120
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	23	$173
9	4" BITUMINOUS PATCH	SQ YD	$28.00	23	$644
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	15" RC PIPE APRON	EACH	$300.00	1	$300
12	TRASH GUARD FOR 15" PIPE APRON	EACH	$150.00	1	$150
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
14	15" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	152	$3,344
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	20	$400
17	TRAFFIC CONTROL	LUMP SUM	$300.00	1	$300
18	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
19	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$14,786
Contingency (10%)	$1,479
Total Estimated Construction Cost	$16,264

TABLE 2
148TH LANE
ALTERNATIVE 1B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$5.00	233	$1,165
5	REMOVE CONCRETE CURB	LIN FT	$10.00	135	$1,350
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	150	$750
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	155	$465
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	150	$1,125
9	4" BITUMINOUS PATCH	SQ YD	$28.00	150	$4,200
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	18" RC PIPE APRON	EACH	$350.00	1	$350
12	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
14	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	267	$6,141
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	135	$2,700
17	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
18	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
19	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$28,696
Contingency (10%)	$2,870
Total Estimated Construction Cost	$31,566

TABLE 3
148TH LANE
ALTERNATIVE 1C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,300.00	1	$1,300
2	CLEARING	TREE	$100.00	12	$1,200
3	GRUBBING	TREE	$100.00	12	$1,200
4	REMOVE STORM SEWER	LIN FT	$4.00	388	$1,552
5	REMOVE CONCRETE CURB	LIN FT	$5.00	155	$775
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	195	$975
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	175	$525
8	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	195	$1,463
9	4" BITUMINOUS PATCH	SQ YD	$28.00	195	$5,460
10	BULKHEAD MANHOLE	EACH	$500.00	1	$500
11	24" RC PIPE APRON	EACH	$450.00	2	$900
12	TRASH GUARD FOR 24" PIPE APRON	EACH	$300.00	2	$600
13	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
14	24" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$29.00	414	$12,006
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	2	$4,000
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	155	$3,100
18	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	12	$2,400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$41,256
Contingency (10%)	$4,126
Total Estimated Construction Cost	$45,381

TABLE 4
148TH LANE
ALTERNATIVE 2A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$400.00	1	$400
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$5.00	118	$590
5	REMOVE CONCRETE CURB	LIN FT	$10.00	20	$200
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	23	$115
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	40	$120
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	23	$173
10	4" BITUMINOUS PATCH	SQ YD	$28.00	23	$644
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	15" RC PIPE APRON	EACH	$300.00	1	$300
13	TRASH GUARD FOR 15" PIPE APRON	EACH	$150.00	1	$150
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
15	15" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	152	$3,344
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	20	$400
18	TRAFFIC CONTROL	LUMP SUM	$300.00	1	$300
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$11,186
Contingency (10%)	$1,119
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$13,098

TABLE 5
148TH LANE
ALTERNATIVE 2B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$5.00	153	$765
5	REMOVE CONCRETE CURB	LIN FT	$10.00	55	$550
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	61	$305
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	75	$225
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	61	$458
10	4" BITUMINOUS PATCH	SQ YD	$28.00	61	$1,708
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	18" RC PIPE APRON	EACH	$350.00	1	$350
13	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
15	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	187	$4,301
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	55	$1,100
18	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
19	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
20	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$16,412
Contingency (10%)	$1,641
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$18,846

TABLE 6
148TH LANE
ALTERNATIVE 2C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$900.00	1	$900
2	CLEARING	TREE	$100.00	2	$200
3	GRUBBING	TREE	$100.00	2	$200
4	REMOVE STORM SEWER	LIN FT	$4.00	306	$1,224
5	REMOVE CONCRETE CURB	LIN FT	$5.00	75	$375
6	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	106	$530
7	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	95	$285
8	COMMON EXCAVATION	CU YD	$5.00	100	$500
9	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	106	$795
10	4" BITUMINOUS PATCH	SQ YD	$28.00	106	$2,968
11	BULKHEAD MANHOLE	EACH	$500.00	1	$500
12	24" RC PIPE APRON	EACH	$450.00	2	$900
13	TRASH GUARD FOR 24" PIPE APRON	EACH	$300.00	2	$600
14	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
15	24" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$29.00	334	$9,686
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	1	$1,500
17	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	2	$4,000
18	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$20.00	75	$1,500
19	TRAFFIC CONTROL	LUMP SUM	$500.00	1	$500
20	CONIFEROUS TREE 4' HT B&B	TREE	$200.00	2	$400
21	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$28,863
Contingency (10%)	$2,886
Permanent Easement ($1.15/ sq ft)	$794
Total Estimated Construction Cost	$32,543

TABLE 7
148TH LANE
ALTERNATIVE 3

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	CLEARING	TREE	$100.00	10	$1,000
3	GRUBBING	TREE	$100.00	10	$1,000
4	COMMON EXCAVATION	CU YD	$5.00	270	$1,350
5	GRANULAR BORROW	CU YD	$8.00	1166	$9,328
6	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$13,928
Contingency (10%)	$1,393
Total Estimated Construction Cost	$15,321

Section 2
149th Lane

149th Lane

Description

As shown on Exhibit 5, a low area exists on Lot 3, Block 1 of Ramsey Meadows 4th Addition. There is a drain tile that drains the low area to DNR Wetland 658W. During large storm events, DNR Wetland 658W backs up through the drain tile and into the low area. DNR Wetland 658W drains east under Trunk Highway 47 (TH 47) through a small weir structure and 15" pipe to DNR Wetland 659W. The weir structure is at an elevation of 860.9 and drains to the 15" pipe at an elevation of 860.0.

The current outlet elevation is approximately two feet above the bottom of Wetland 658W. The existing 100-year high water level (HWL) for DNR Wetland 658W is 862.1 and for DNR Wetland 659W is 860.4. As shown on Exhibit 6, there is an existing drainage and utility easement over a majority of Block 1 of Ramsey Meadows 4th Addition including the low area in question.

Alternatives

The following alternatives address the water elevation in DNR Wetland 658W.

Alternative 1
Alternative 1 will include removing the existing weir structure and leaving only the 15" culvert as the outlet from DNR Wetland 658W. By removing the weir structure, the wetland will begin to discharge at an elevation of 860.0 as opposed to 860.8.

Removing the weir structure, resulting in a lower normal water level in the wetland, will result in a 100-year HWL for DNR Wetland 658W of 862.0. The 100-year HWL for DNR Wetland 659W did not change. The estimated cost to remove the weir structure is $1,265. Table 8 includes the individual costs for this alternative.

It is our understanding that any work proposed below an elevation of 860 will need the approval of the Minnesota Department of Natural Resources (DNR). This alternative will not have any effect below an elevation of 860 and is not anticipated to need the approval of the DNR. It appears the weir structure is part of the TH 47 storm sewer system. Removing the weir structure may require Mn/DOT's approval.

Alternative 2
Alternative 2 will include removing the existing weir structure and constructing an additional outlet from DNR Wetland 658W under TH 47. The proposed additional outlet would be at the same elevation as the existing outlet, 860.0. It was assumed the additional pipe would have to be jacked under TH 47.

Three different sized additional outlet pipes were analyzed. The following table summarizes the 100-year HWL's for DNR Wetlands 658W and 659W and the estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL (658W)	100-Year HWL (659W)	Estimated Cost
Existing	862.1	860.4	N/A
Existing + 15"	861.8	861.2	$15,290
Existing + 18"	861.7	861.3	$18,755
Existing + 24"	861.6	861.4	$29,040

Tables 9 through 11 include the individual costs for this alternative.

As mentioned above, it is our understanding that any work proposed below an elevation of 860 will need the approval of the DNR. This alternative will not have any effect below an elevation of 860 and is not anticipated to need the approval of the DNR. Removing the weir structure and constructing a culvert under TH 47 will require Mn/DOT's approval.

Alternative 3

Alternative 3 will include removing the existing weir structure and constructing an additional outlet from DNR Wetland 658W under TH 47. The proposed additional outlet would be at an elevation of 859.0, one foot lower than the existing outlet. It was assumed the additional pipe would have to be jacked under TH 47.

Two different sized additional outlet pipes were analyzed. The following table summarizes the 100-year HWL's for DNR Wetlands 658W and 659W and the estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL (658W)	100-Year HWL (659W)	Estimated Cost
Existing	862.1	860.4	N/A
Existing + lower 18"	861.6	861.3	$18,755
Existing + lower 24"	861.6	861.5	$29,040

Tables 12 and 13 include the individual costs for this alternative.

As mentioned above, it is our understanding that any work proposed below an elevation of 860 will need the approval of the DNR. This alternative has work proposed below an elevation of 860 and will need the approval of the DNR. Removing the weir structure and constructing a culvert under Trunk Highway 47 will require Mn/DOT's approval.

Alternative 4

Alternative 4 will include filling the low area on Lot 3, Block 1 of Ramsey Meadows 4th Addition. Filling the low area will reduce the frequency of the backyard flooding. During large storm events, the area may be inundated by water, but will likely be less frequently and for a shorter duration than under existing conditions.

The estimated cost to fill the low area is $4,681. Table 14 includes the individual costs for this alternative.

As shown on Exhibits 7 and 8, this low area appears to have been designed as wetland mitigation area. Further research may be necessary to determine if this area is protected by the Wetland Conservation Act (WCA). If the area is protected by the WCA, filling this low area will not be a viable alternative.

RAMSEY MEADOWS
4TH ADDITION

4
WO
ELEV=863.5

3
WO
ELEV=864.8

2
WO
ELEV=863.8

1

149TH LANE

860
861
862
863
864
865
WALL
SHED
FENCE
DRAIN TILE
9.75

DNR
WETLAND
658W

DNR
WETLAND
659W

INV=860.0
INV=859.3
15" RCP
OUTLET/WEIR
STRUCTURE
ELEV=860.8

TRUNK HIGHWAY 47

N

SCALE 30 0 30 60 IN FEET

EXHIBIT 5
149TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 2:51pm
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OFFICIAL PLAT

RAMSEY MEADOWS 4TH ADDITION

CITY OF RAMSEY COUNTY OF ANOKA

pg 25

KNOW ALL PERSONS BY THESE PRESENTS: That J. A. Menkveld & Associates, Inc., a Minnesota corporation, owner and proprietor and Builders Mortgage Corporation, a Minnesota corporation, mortgagee of the following described property situated in the County of Anoka, State of Minnesota, to-wit:

That part of the Southwest Quarter of Section 24, Township 32, Range 25, Anoka County, Minnesota, described as follows:

Beginning at the northeast corner of Outlot A, RAMSEY MEADOWS 3RD ADDITION, according to the recorded plat thereof, Anoka County, Minnesota; thence South 89 degrees 07 minutes 51 seconds East, assumed bearing, parallel with the south line of said Southwest Quarter, a distance of 208.50 feet to the center line of State Trunk Highway No. 47, per the plat of AMBER RIDGE, according to the recorded plat thereof, Anoka County, Minnesota; thence northerly along said center line and along the center line of said State Trunk Highway No. 47, per the plat of WILLOW RIDGE, according to the recorded plat thereof, Anoka County, Minnesota, a distance of 789.96 feet to the intersection with the northeasterly extension of the following described line:

Beginning at a point on the center line of State Trunk Highway No. 47, per the plat of GORHAM'S ADDITION, according to the recorded plat thereof, Anoka County, Minnesota, said point being distant 93.00 feet southeasterly of the northeasterly extension of the southeasterly line of Block 3, said GORHAM'S ADDITION, as measured along said center line; thence South 64 degrees 18 minutes West, parallel with the southeasterly line of Block 3, said GORHAM'S ADDITION, a distance of 376.78 feet, and said line there terminating;

thence South 64 degrees 18 minutes 00 seconds West, along said last described line, a distance of 376.83 feet to the point of termination of said line; thence southwesterly along a tangential curve concave to the southeast, having a radius of 103.25 feet and a central angle of 63 degrees 14 minutes 20 seconds, a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West, tangent to said curve, a distance of 345.42 feet; thence southwesterly along a tangential curve concave to northwest, having a radius of 115.75 feet and a central angle of 60 degrees 08 minutes 15 seconds, a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 seconds West, tangent to said curve, a distance of 53.09 feet to the intersection with the westerly extension of the north line of said Outlot A, RAMSEY MEADOWS 3RD ADDITION; thence South 87 degrees 06 minutes 09 seconds East, along said north line and its westerly extension, a distance of 517.62 feet to the point of beginning.

AND

Outlot A, RAMSEY MEADOWS 3RD ADDITION, according to the recorded plat thereof, Anoka County, Minnesota.

Have caused the same to be surveyed and platted as RAMSEY MEADOWS 4TH ADDITION and do hereby dedicate to the public for public use forever the boulevard, lane and drainage and utility easements as shown on the plat. In witness whereof said J. A. Menkveld & Associates, Inc., a Minnesota corporation, has caused these presents to be signed by its proper officer this 7th day of OCT, 1996 Also in witness whereof said Builders Mortgage Corporation has caused these presents to be signed by its proper officer this 7TH day of OCT, 1996.

SIGNED:

J. A. MENKVELD & ASSOCIATES, INC.:

J. A. Menkveld (signature)
J. A. Menkveld, President

BUILDERS MORTGAGE CORPORATION:

Ronald Stratton (signature)
Ronald Stratton, as President

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this
COUNTY OF Anoka) 7th day of October, 1996, by J. A. Menkveld, President of J. A. Menkveld & Associates, Inc., a Minnesota Corporation, on behalf of the Corporation.

TERESA VINJE NOTARY PUBLIC-MINNESOTA ANOKA COUNTY MY COMMISSION EXP. 01/31/2000

Teresa Vinje (signature)
Notary Public, Anoka County, Minnesota
My Commission expires 1-31-00

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this
COUNTY OF Anoka) 4th day of October, 1996, by Ronald Stratton, President of Builders Mortgage Corporation, a Minnesota corporation, on behalf of the corporation.

KATHLEEN R CAVEN NOTARY PUBLIC MINNESOTA MY COMMISSION EXPIRES 01-31-00

Kathleen R. Caven (signature)
Notary Public, Ramsey County, Minnesota
My Commission expires 1-31-2000

I hereby certify that I have surveyed and platted the land described in the dedication on this plat as RAMSEY MEADOWS 4TH ADDITION; that the plat is a correct representation of said survey; that all distances are correctly shown on said plat in feet and hundredths of a foot; that the monuments have been correctly placed in the ground as shown; that the outside boundaries are correctly designated on said plat; and that there are no wetlands or public highways to be designated on said plat other than as shown thereon.

Jeffrey N. Caine (signature)
Jeffrey N. Caine, Registered Land Surveyor
Minnesota Registration No. 12251

STATE OF MINNESOTA) The surveyors certificate was acknowledged before me a Notary
COUNTY OF ANOKA) Public, this 1st day of October, 1996, by Jeffrey N. Caine, Land Surveyor.

JILL M. KENT NOTARY - MINNESOTA ANOKA COUNTY MY COMM EXPIRES 1-31-00

Jill M Kent (signature)
Notary Public, Anoka County, Minnesota
My Commission expires 01-31-00

CITY OF RAMSEY

We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY MEADOWS 4TH ADDITION at a regular meeting held this 24TH day of September, 1996. If applicable, the written comments and recommendations of the Commissioner of Transportation and the County Highway Engineer have been received by the city or the prescribed 30 day period has elapsed without receipt of such comments and recommendations, as provided by Minn. Statutes, Section 505.03, Subd. 2.

By (signature) Mayor By Ryan R Schroeder Clerk

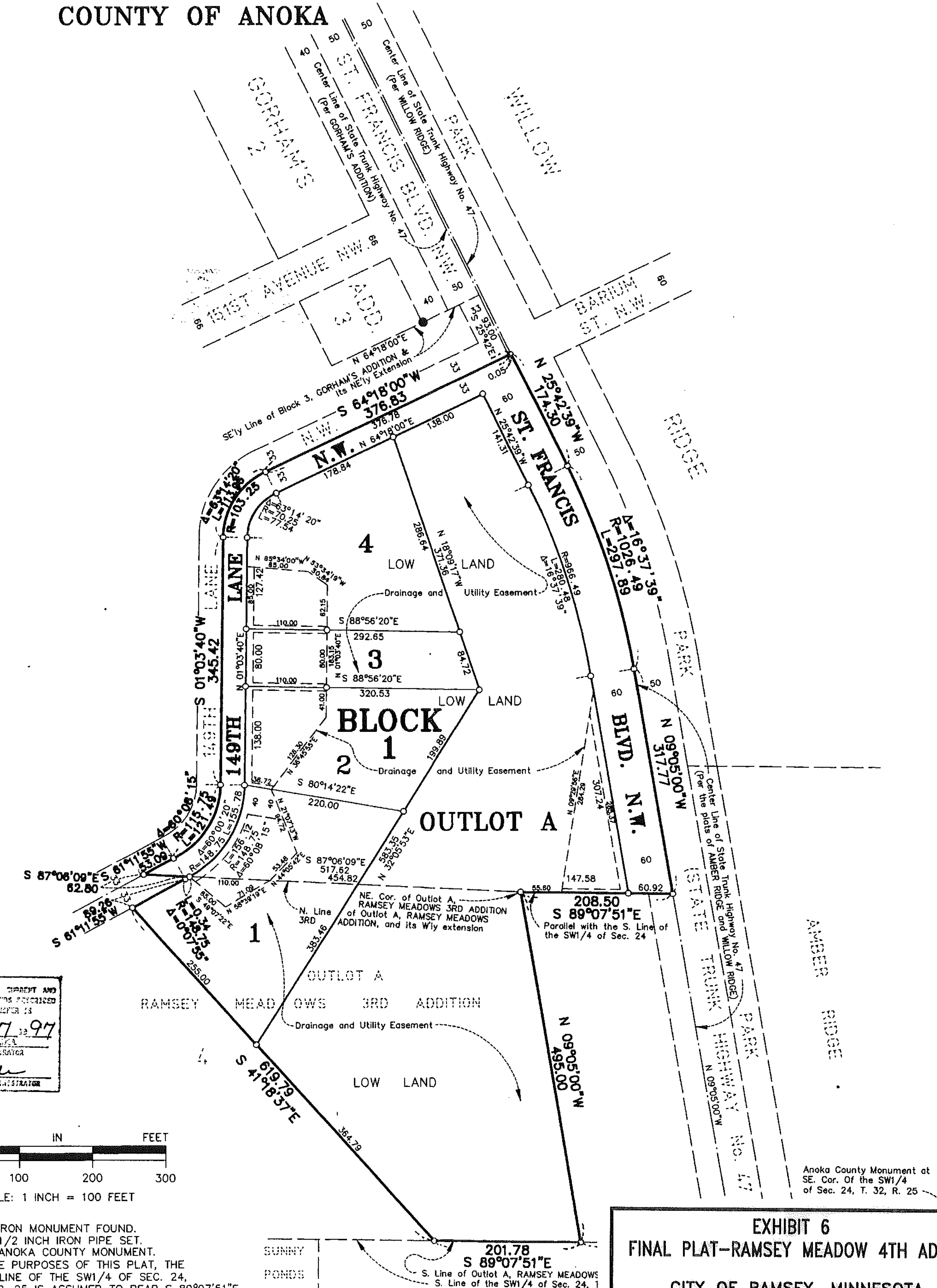
Checked and approved this 7TH day of MAY, 1997.

By MERLYN D. ANDERSON
Anoka County Surveyor
by Larry D. Hoium deputy

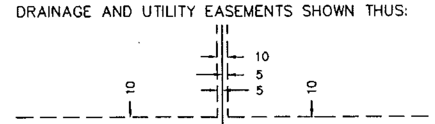
I HEREBY CERTIFY THAT THE CURRENT AND DELINQUENT TAXES ON THE LANDS DESCRIBED WITHIN ARE PAID AND THE TRANSFER IS ENTERED May 7, 1997
BY J. Culver
DEPUTY PROPERTY TAX ADMINISTRATOR

1275655
OFFICE OF COUNTY RECORDER
STATE OF MINNESOTA, COUNTY OF ANOKA
I hereby certify that the within instrument was filed in this office for record on the 7th May A.D., 1997 10:00 o'clock A.M., and was duly recorded in book 54 page 25
Edward M. Treska
County Recorder
By KHG
Deputy

CITY OF RAMSEY MUNICIPAL CORP. ANOKA COUNTY MINN.



DRAINAGE AND UTILITY EASEMENTS SHOWN THUS:



BEING 10 FEET WIDE AND ADJOINING ALL STREET RIGHT-OF-WAY LINES AND REAR LOT LINES AND 5 FEET WIDE AND ADJOINING ALL SIDE LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

SCALE IN FEET 0 100 200 300
SCALE: 1 INCH = 100 FEET

● DENOTES IRON MONUMENT FOUND.
○ DENOTES 1/2 INCH IRON PIPE SET.
◉ DENOTES ANOKA COUNTY MONUMENT.
NOTE: FOR THE PURPOSES OF THIS PLAT, THE SOUTH LINE OF THE SW1/4 OF SEC. 24, T. 32, R. 25 IS ASSUMED TO BEAR S 89°07'51"E

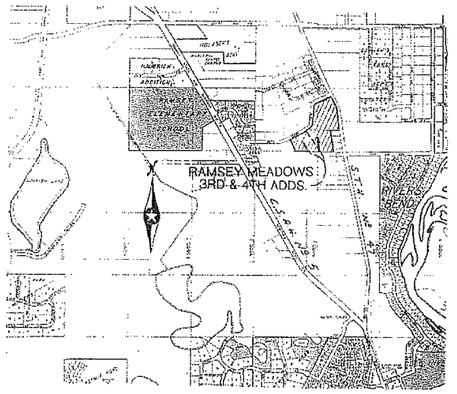
CAINE & ASSOCIATES LAND SURVEYORS, INC.

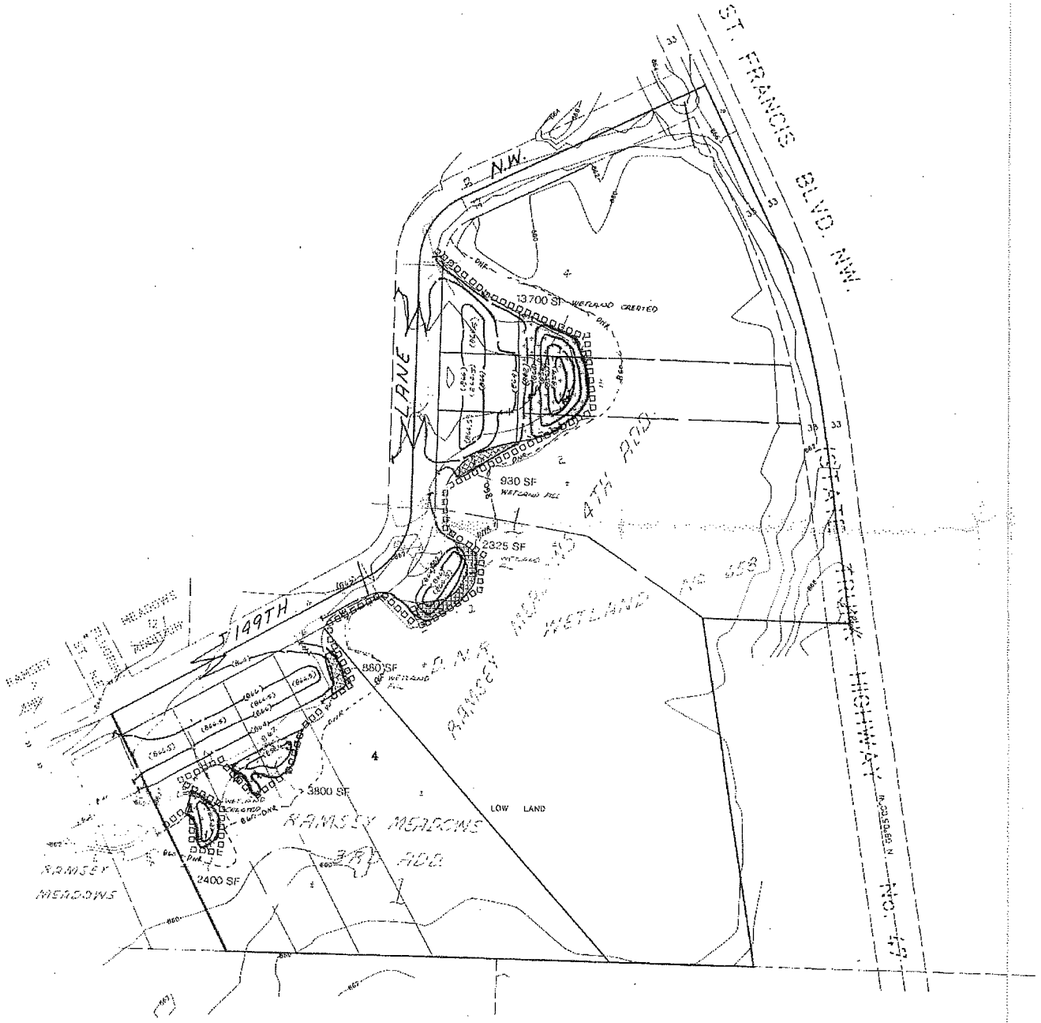
EXHIBIT 6
FINAL PLAT-RAMSEY MEADOW 4TH ADD.
CITY OF RAMSEY, MINNESOTA

30397/$245.00

PRELIMINARY GRADING, DRAINAGE & EROSION CONTROL PLAN FOR:

RAMSEY MEADOWS 3RD & 4TH ADDITIONS





EROSION CONTROL DURING CONSTRUCTION

NOTES:

1. All disturbed soils within 100 lineal feet from wetlands shall be covered with four inches (4") of topsoil and seeded with a minimum of seventy-five (75) pounds per acre of MN/DOT Specification Section 3876, Mixture No. 12, with fertilizer 12-12-12 mixture applied at 600 pounds per acre with Mulch-Type 1. This work shall be constructed in accordance with MN/DOT Specification Section 2575, within the following timeframe:

   Slopes steeper than 3:1 - 7 days
   Slopes 10:1 to 3:1 - 14 days
   Flatter than 10:1 - 21 days

2. Excavate ponding areas before upland grading.

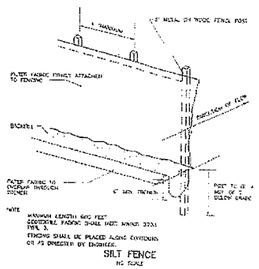
3. The bottom of all drainage ditches shall be stabilized within 100 feet of all wetlands. Stabilization must be initiated within 24 hours of connection to wetlands and be completed within five days. All pipes connecting to drainage swales must be provided with energy dissipation structures prior to connecting to wetland.

4. Sediment control structures must be in place prior to starting of grading and must be maintained until final stabilization has been established.

5. Inspect and maintain after rainfall (as required). The inspector is to be

6. Vehicle tracking onto unpaved surfaces must be minimized.

7. All silt fence shall be removed after the site has undergone final stabilization.



SILT FENCE
NO SCALE

	PROPOSED NON-DNR WETLAND DISTURBED	PROPOSED WETLAND CREATED
Ramsey Meadows 3rd Addition	880 S.F. ±	6,200 S.F. ±
Ramsey Meadows 4th Addition	4,135 S.F. ±	19,900 S.F. ±
TOTALS	5,015 S.F. ±	26,100 S.F. ±

I HEREBY CERTIFY THAT THIS SURVEY, PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

J. Gary M. Caine

DATE Jan. 23, 1995 REG. NO. 12251

x 000.0	DENOTES EXISTING SPOT ELEVATION
(000.0)	" PROPOSED " "
—000—	" EXISTING CONTOUR
—(000)—	" PROPOSED CONTOUR
----DNR----	DENOTES EDGE OF D.N.R. WETLAND NO 6SB.
—W—W—	DENOTES EDGE OF WETLAND AS LOCATED BY JOHN C. ANDERSON OF WETLANDS DATA, INC. & SURVEYED BY CAINE & ASSOC. LAND SURVEYORS, INC.
□□□□□□□□□□□□□□□	DENOTES PROPOSED SILT FENCE

SCALE IN FEET
0 100 200 300
SCALE: 1 INCH = 100 FEET

● DENOTES IRON MONUMENT FOUND
○ DENOTES 1/2 INCH IRON PIPE SET.
BEARINGS SHOWN ARE BASED ON ASSUMED DATUM

CAINE & ASSOCIATES
LAND SURVEYORS, INC.
17720 Highway 65 N.E. – Ham L
434-7646

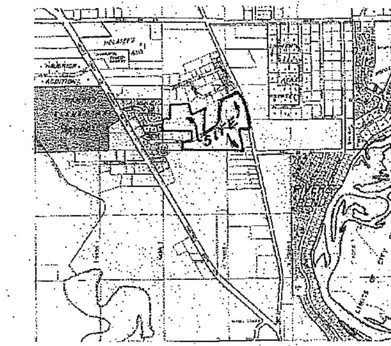
EXHIBIT 7
RAMSEY MEADOWS GRADING PLAN

CITY OF RAMSEY, MINNESOTA

RAMSEY MEADOWS 2ND ADDITION

CITY OF RAMSEY — COUNTY OF ANOKA

PRELIMINARY PLAT AND WETLAND MITIGATION PLAN



OWNER AND SUBDIVIDER: Gilbert A. Menkveld
257 E. Main St.
Box 547
Anoka, MN 55303

LAND SURVEYOR AND DESIGNER: Caine and Associates Land Surveyors, Inc.
17720 Hwy 65 N.E.
Ham Lake, MN 55304
434-7946

TOTAL AREA: 26.5 Acres, more or less

PROPOSED USE: 23 Lots for R-1, U, Single Family Urban Residential, *4 outlets and 1 Park (Walkway) in two phases.*

PROPOSED DENSITY: 1.15 Lots per acre

PROPOSED WATER SOURCE AND SEWAGE DISPOSAL: City water and sewer

EXISTING ZONING: R-1 Residential

MINIMUM BUILDING SET BACKS: Front = 35
Side House = 10
Side Garage = 5
Side Corner = 20 or line up with existing homes
Rear = 35

DRAINAGE AND UTILITY EASEMENTS: 10 feet wide adjoining all street lines and rear lot lines, and 5 feet wide adjoining all side lot lines, unless otherwise indicated on the plat.

DATE OF PREPARATION: 1992

Proposed Legal Description:

That part of the SW1/4 of Section 24, Township 32, Range 25, in Anoka County, Minnesota, described as follows: Beginning at a point on the South line of said SW1/4, said point being a distance of 175 feet, as measured along said South line, Westerly of the West right of way line of State Trunk Highway No. 47 as it is now laid out and travelled; thence North 5 degrees 04 minutes 41 seconds West on a line parallel to said West right of way line a distance of 495 feet; thence North 84 degrees 56 minutes 06 seconds West a distance of 516.99 feet; thence South 61 degrees 11 minutes 55 seconds West a distance of 456.94 feet; thence Southwesterly on a curve to the right having a radius of 434.27 feet a distance of 225.07 feet; thence North 89 degrees 06 minutes 25 seconds West on a line parallel to the South line of said SW1/4 a distance of 55.31 feet; thence Southerly and parallel to the West line of said SW1/4 a distance of 217.00 feet to a point on the South line of said SW1/4, said point being 200 feet East of the Southwest corner of said SW1/4 as measured along its south line; thence Easterly on said South line a distance of 1277.57 feet to the point of beginning;

AND That part of the Southwest Quarter of Section 24, Township 32, Range 25 in Anoka County, Minnesota described as follows: Commencing at the intersection of the South line of said Southwest Quarter and the center line of State Trunk Highway No. 47 as it is now laid out and travelled, thence North 5 degrees 04 minutes 41 seconds West on said center line a distance of 495 feet to the point of beginning of land to be described; thence North 7 degrees 55 minutes 10 seconds West on said center line a distance of 282.37 feet; thence Northwesterly along said center line on a curve to the left having a radius of 1036.48 feet a distance of 320.44 feet; thence North 25 degrees 42 minutes West on said center line a distance of 189.24 feet to a point which is 93 feet Southeasterly as measured along said center line, from the Northeasterly extension of the Southeasterly line of Block 3 in Gorham's Addition; thence South 64 degrees 18 minutes West on a line parallel to the Southeasterly line of said Block 3 a distance of 376.78 feet; thence Southwesterly on a curve to the left having a radius of 103.25 feet a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West a distance of 345.42 feet; thence Southwesterly on a curve to the right having a radius of 115.75 feet a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 seconds West a distance of 53.09 feet; thence South 84 degrees 56 minutes 06 seconds West a distance of 516.09 feet; thence Easterly on a line parallel to the South line of said Southwest Quarter a distance of 208.40 feet to the point of beginning.

And That part of the Southwest Quarter of Section 24, Township 32, Range 25, in Anoka County, Minnesota, described as follows:

Commencing at a point on the center line of State Trunk Highway Number 47 as it is now laid out and travelled, said point being 93 feet Southeasterly as measured along said center line from the Northeasterly extension of the Southeasterly line of Block 3 in GORHAM'S ADDITION; thence South 64 degrees 18 minutes West on a line parallel to the Southeasterly line of said Block 3 a distance of 376.78 feet; thence Southwesterly on a curve to the left having a radius of 103.25 feet a distance of 113.96 feet; thence South 1 degree 03 minutes 40 seconds West a distance of 345.42 feet; thence Southwesterly on a curve to the right having a radius of 115.75 feet a distance of 121.49 feet; thence South 61 degrees 11 minutes 55 Seconds West a distance of 286.99 feet to a point, hereinafter known as Point A; thence North 1 degree 03 minutes 40 seconds East a distance of 534.42 feet to a point which is 160 feet Southeasterly of, as measured at right angles to, the Southwesterly extension of the Northwesterly line of said Block 3, said point being the point of beginning of land to be described; thence returning South 1 degree 30 minutes 40 seconds West a distance 534.42 feet more or less to said point A; thence South 61 degrees 11 minutes 55 seconds West a distance of 233.04 feet; thence Southwesterly on a curve to the right having a radius of 434.27 feet a distance of 77.71 feet to a point 600 feet East of the West line of said Southwest Quarter as measured parallel with the South line of said Southwest Quarter; thence Northerly and parallel with the West line of said Southwest Quarter to a point which is 435.6 feet North of the South line of said Southwest Quarter as measured parallel with the West line of said Southwest Quarter; thence Westerly and parallel with the South line of said Southwest Quarter a distance of 600 feet to the West line of said Southwest Quarter; thence Northerly along the West line of said Southwest Quarter and to a point, said point being 531.65 feet Southerly of the intersection of the Southwesterly extension of the center line of 152nd Avenue Northwest in said GORHAM'S ADDITION with the West line of said Southwest Quarter, said 531.65 feet being measured along the west line of said Southwest Quarter; thence Easterly at right angles to the West line of said Southwest Quarter a distance of 160 feet; thence Northerly at right angles a distance of 272.25 feet; thence Westerly at right angles a distance of 20 feet to a point which is 140 feet East of the West line of said Southwest Quarter, as measured at right angles to said West line; thence Northerly and parallel with said West line to a point, said point being 275.3 feet Southerly of the Southwesterly extension of the Southeasterly line of 152nd Avenue NW, in GORHAM'S ADDITION, as measured parallel with the West line of said Southwest Quarter; thence Easterly at right angles a distance of 240 feet; thence Northerly at right angles to a point, said point being 311 feet Southerly of said Southwesterly extension of the Southeasterly line of 152nd Avenue NW., said 311 feet being measured parallel with the West line of said Southwest Quarter; thence Easterly at right angles to an intersection with a line drawn South 15 degrees 52 minutes 56 seconds East from a point on said Southwesterly extension of the Southeasterly line of 152nd Avenue NW., said point on said Southwesterly extension being distant 431 feet East of, as measured at right angles to the West line of said Southwest Quarter; thence South 15 degrees 52 minutes 56 seconds East to an intersection with line 'A', said line A being described as follows:

Commencing at the Northwest corner of Lot 1, Block 3, GORHAM'S ADDITION; thence South 64 degrees 16 minutes West on the Southeasterly line of 151st Avenue NW. in said GORHAM'S ADDITION extended Southwesterly for a distance of 470 feet; thence Northwesterly on a curve to the right having a radius of 101 feet for a distance of 141.02 feet; thence North 35 degrees 42 minutes West for a distance of 21.98 feet to the actual point of beginning of the line to be described; thence South 49 degrees 18 minutes West for a distance of 240.60 feet, more or less, to the aforementioned point of intersection and there terminating; thence South 15 degrees 51 minutes 49 seconds East to an intersection with a line drawn through the point of beginning parallel with the Southwesterly extension of the Northwesterly line of said Block 3 in GORHAM'S ADDITION; thence to the point of beginning,

Excepting therefrom all that part of the above described tract which lies Southerly of a line drawn parallel with and 33 feet Northerly of the following described line:

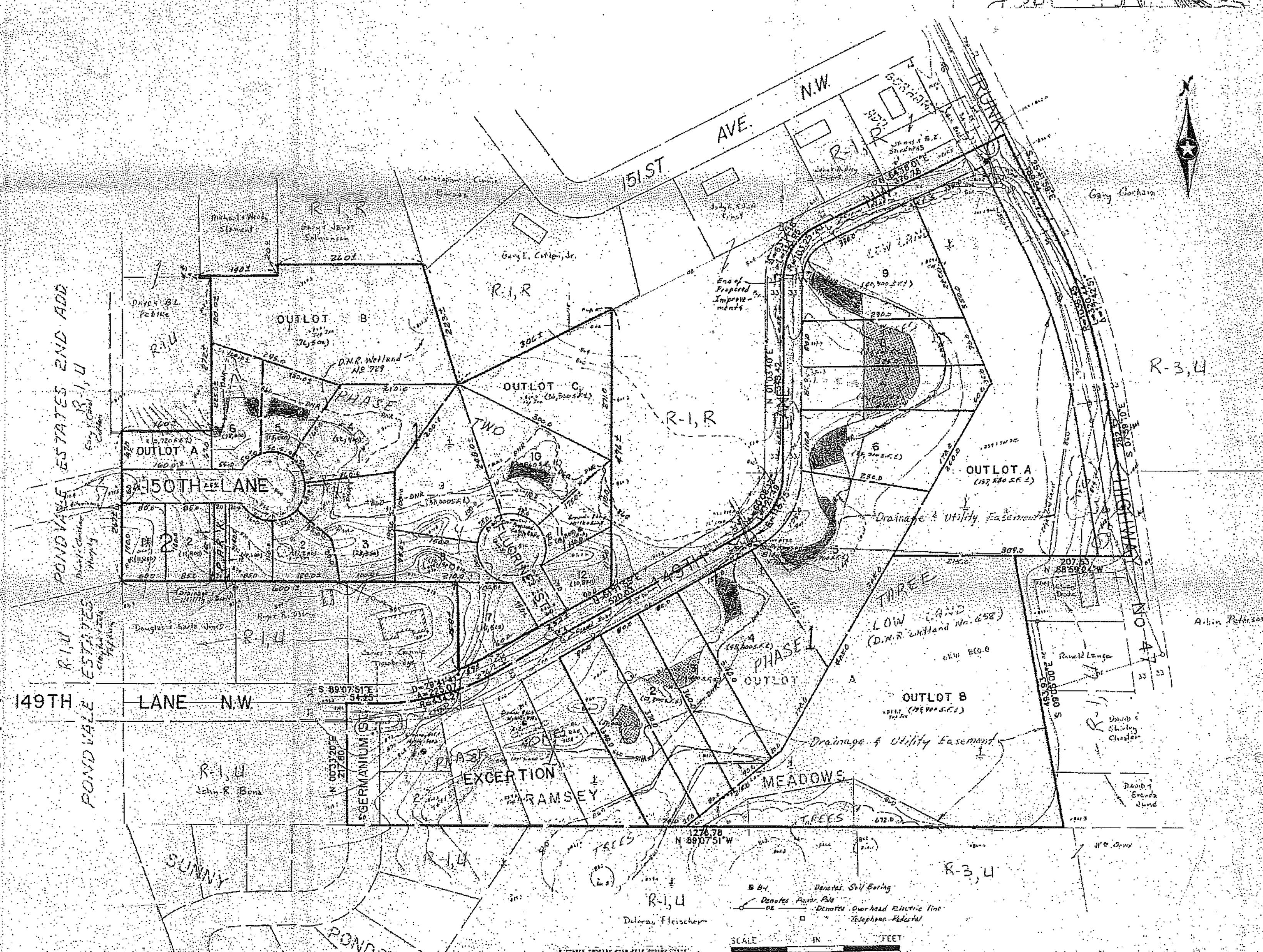
Beginning at the aforementioned point 'A'; thence South 61 degrees 11 minutes 55 seconds West for a distance of 233.04 feet, thence Southwesterly on a curve to the right having a radius of 434.27 feet for a distance of 77.71 feet and there terminating, said parallel line being lengthened or shortened as necessary to intersect the boundaries of the above described tract.

And also except:

Lots 1 through 5, Block 1, RAMSEY MEADOWS, according to the recorded plat thereof, Anoka County, Minnesota;

And also except:

That part of Germanium Street N.W. and 149TH Lane N.W. as dedicated in said plat of RAMSEY MEADOWS.



— DNR — DNR — Denotes edge of D.N.R. Wetland Number 729 or 658.

— W — W — W — Denotes edge of wetland as located by John C. Anderson of Wetlands Data and surveyed by Caine and Associates Land Surveyors, Inc.

Denotes non - D.N.R. wetland proposed to be filled.

Denotes proposed new wetland to be created.

Note: Area of non - D.N.R. wetland to be filled = 17,400 sq. ft.

Area of proposed new wetland to be created = *17,400 s.f.*

SCALE IN FEET
0 100 200 300
SCALE: 1 INCH = 100 FEET
● DENOTES IRON MONUMENT FOUND
○ DENOTES 1/2 INCH IRON PIPE SET
BEARINGS SHOWN ARE BASED ON ASSUMED DATUM

CAINE & ASSOCIATES LAND SURVEYORS, INC.
17720 Highway 65 N.E. • Ham Lake, Minnesota 55304
434-7646

EXHIBIT 8
RAMSEY MEADOWS WETLAND MITIGATION PLAN
CITY OF RAMSEY, MINNESOTA

TABLE 8
149TH LANE
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$100.00	1	$100
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
5	TURF ESTABLISHMENT	LUMP SUM	$50.00	1	$50

Estimated Construction Cost	$1,150
Contingency (10%)	$115
Total Estimated Construction Cost	$1,265

TABLE 9
149TH LANE
ALTERNATIVE 2A - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$400.00	1	$400
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	3	$900
4	15" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$100.00	118	$11,800
5	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
6	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$13,900
Contingency (10%)	$1,390
Total Estimated Construction Cost	$15,290

TABLE 10
149TH LANE
ALTERNATIVE 2B - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	18" RC PIPE APRON	EACH	$350.00	2	$700
5	18" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$125.00	118	$14,750
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$17,050
Contingency (10%)	$1,705
Total Estimated Construction Cost	$18,755

TABLE 11
149TH LANE
ALTERNATIVE 2C - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	24" RC PIPE APRON	EACH	$450.00	2	$900
5	24" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$200.00	118	$23,600
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$26,400
Contingency (10%)	$2,640
Total Estimated Construction Cost	$29,040

TABLE 12
149TH LANE
ALTERNATIVE 3A - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$500.00	1	$500
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	18" RC PIPE APRON	EACH	$350.00	2	$700
5	18" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$125.00	118	$14,750
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$17,050
Contingency (10%)	$1,705
Total Estimated Construction Cost	$18,755

TABLE 13
149TH LANE
ALTERNATIVE 3B - 24" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	REMOVE STORM STRUCTURE	EACH	$400.00	1	$400
3	15" RC PIPE APRON	EACH	$300.00	1	$300
4	24" RC PIPE APRON	EACH	$450.00	2	$900
5	24" RC PIPE SEWER DESIGN 3006, CL V - JACKED	LIN FT	$200.00	118	$23,600
6	CONNECT TO EXISTING STORM SEWER	EACH	$300.00	1	$300
7	TURF ESTABLISHMENT	LUMP SUM	$100.00	1	$100

Estimated Construction Cost	$26,400
Contingency (10%)	$2,640
Total Estimated Construction Cost	$29,040

TABLE 14
149TH LANE
ALTERNATIVE 4

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$100.00	1	$100
2	COMMON EXCAVATION	CU YD	$5.00	133	$665
3	GRANULAR BORROW	CU YD	$8.00	380	$3,040
4	TURF ESTABLISHMENT	ACRE	$1,500.00	0.3	$450

Estimated Construction Cost	$4,255
Contingency (10%)	$426
Total Estimated Construction Cost	$4,681

Section 3
Rum River Hills Golf Club

Rum River Hills Golf Club

Summary

Rum River Hills Golf Club has recently experienced flooding on some fairways and cart paths. Exhibit 9 shows the discharge points and problem areas throughout the golf course. The following will address the problem areas throughout the golf course.

Flooding along Hole #1

The first area of concern includes flooding of the large pond along Hole #1. This pond discharges through an existing concrete outlet structure and a 12" plastic pipe to the east. The outlet is labeled as Area 1 on Exhibit 9. It is our understanding that after large storm events, the pond remains elevated for long periods of time. The 100-year high water level (HWL) is 870.3.

After reviewing video recordings of the outlet pipe, it appears that the pipe has several sags in it and several joints have been compromised. The outlet pipe is relatively shallow and may have been affected by frost heave. This outlet pipe is likely causing the pond to operate inefficiently.

We believe that the best alternative for this outlet is to remove the existing outlet structure and the 12" outlet pipe and replace them with a new 4-foot diameter concrete outlet structure and 18" high density polyethylene pipe outlet in the same location as the existing pipe. Exhibit 10 shows the proposed outlet structure. The new pipe would be installed at a lower elevation than it exists now, reducing the impact of frost heave on the pipe. The polyethylene pipe is also more rigid and is solid (no air voids) and therefore more resistant to frost heave or buoyancy when soils are saturated. A removable, weir wall would be installed in the new outlet structure. We would propose to leave the weir height at the same elevation as existing. By installing the weir wall, it will allow for greater flexibility in controlling the water elevations of the pond. Installing this outlet structure would result in a 100-year HWL of 870.0.

The estimated cost to construct the new outlet pipe and structure is $29,853. Table 15 includes the individual costs for this alternative.

Cart path flooding near the clubhouse

Based on the HWL of the pond along Hole #1, it appears that there could be an issue with the cart paths flooding near the clubhouse, Areas 2A and 2B on Exhibit 9. The existing culverts under the cart paths are a 15" diameter and 12" diameter. If flooding the cart paths is an issue, the best alternative would be to install larger diameter culverts under the cart paths.

Installing 24" diameter culverts will reduce the flooding during small storm events. However, since the HWL elevation for the area is controlled by the downstream outlet structure discussed above, the paths will still flood during large storm events. To reduce the flooding during the large storm events, the cart paths would have to be raised

approximately 1.5 feet. This would, however, increase the HWL in the pond near the clubhouse, which would appear to adversely affect the fairway for Hole #18.

The estimated cost to replace the two culverts under the carts paths is $6,642. Table 16 includes the individual costs this alternative.

Saturated soil along Hole #15

Another issue is occurring along Hole #15 near the Rum River. The soil in the area is saturated. There is an existing rock dam, Area 3 on Exhibit 19, southeast of the most saturated area of the fairway. Part of the fairway was excavated to help to determine the problem and drain the area.

Based on our review, it appears that the water being contained by the rock dam may be infiltrating into the soil and causing the saturation. There is a dropped of approximately seven feet from the rock dam to the bottom of the downstream channel. We also noticed that the existing drain tile that was excavated along Hole #15 was plugged with roots and soil.

We recommend two alternatives to address the soil saturation along Hole #15. First, the drain tile should be replaced to improve the drainage in the area. Second, the area of the creek that is being contained by the rock dam should be lined with an impermeable material to eliminate the water infiltrating through the soil. Lining the creek will eliminate the infiltration into the soil and the new drain tile will help to keep the existing soil dry.

The estimated cost to replace the drain tile and line the creek bed is $13,530. Table 17 includes individual costs for this alternative.

Flooding of Hole #3 and #17

Flooding of Hole #3 and #17 is also an issue at the golf course. The stormwater drains south through three 15" culverts, labeled Area 4A, Area 4B and Area 4C on Exhibit 9, and then to the Rum River.

One alternative to lower the HWL's in the area would be to install bigger culverts. A 21" culvert was modeled to replace the culverts at Area 4A and 4B and a 24" culvert was modeled to replace the culvert at 4C. The following table summarizes the 100-year HWL's for the three areas:

Existing 100-Year HWL			Proposed 100-Year HWL		
Area 4A	Area 4B	Area 4C	Area 4A	Area 4B	Area 4C
859.3	859.3	858.5	859.1	858.7	858.3

The estimated cost to replace the three culverts is $4,990. Table 18 includes individual costs for this alternative.

Feb 14, 2012 - 9:28am
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EXHIBIT 9
RUM RIVER HILLS GOLF CLUB
EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

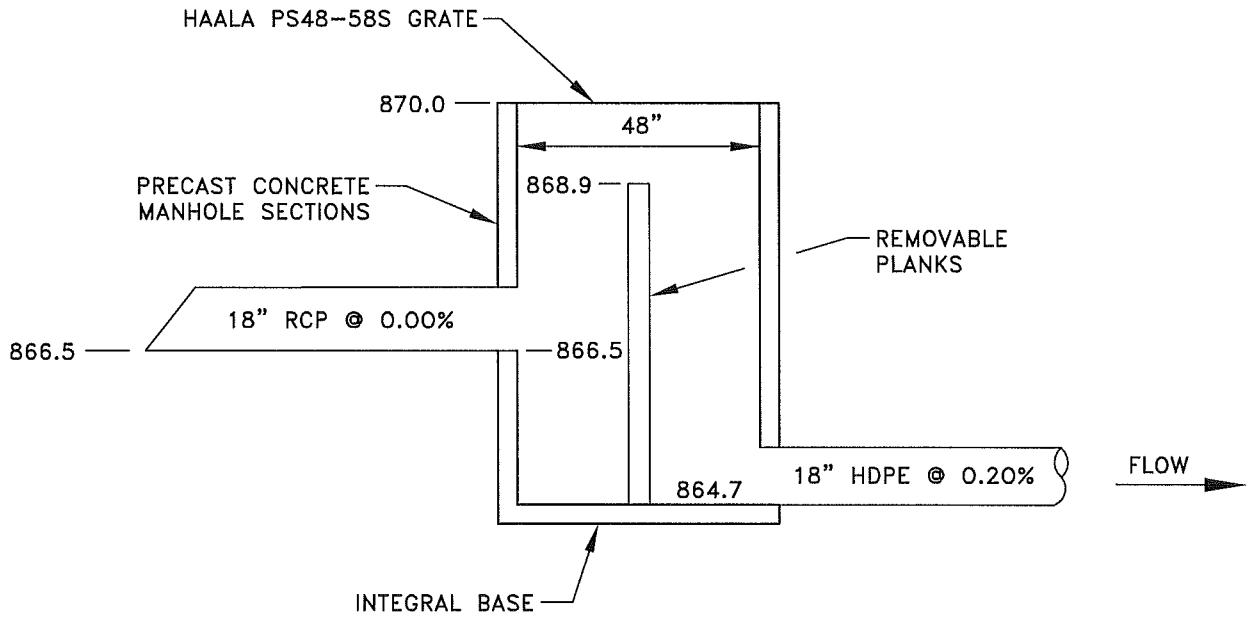

EXHIBIT 10
RUM RIVER HILLS GOLF CLUB
PROPOSED OUTLET STRUCTURE
CITY OF RAMSEY, MINNESOTA

Feb 14, 2012 — 11:42am
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TABLE 15
RUM RIVER HILLS GOLF CLUB
FLOODING AROUND HOLE #1 - NEW OUTLET STRUCTURE

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$800.00	1	$800
2	CLEARING	ACRE	$1,500.00	0.2	$300
3	GRUBBING	ACRE	$1,500.00	0.2	$300
4	REMOVE STORM SEWER	LIN FT	$1.50	856	$1,284
5	18" METAL APRON	EACH	$275.00	1	$275
6	18" RC PIPE APRON	EACH	$350.00	1	$350
7	18" HDPE PIPE SEWER	LIN FT	$22.00	850	$18,700
8	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	10	$230
9	OUTLET CONTROL STRUCTURE	EACH	$4,000.00	1	$4,000
10	TURF ESTABLISHMENT	ACRE	$1,500.00	0.6	$900

Estimated Construction Cost	$27,139
Contingency (10%)	$2,714
Total Estimated Construction Cost	$29,853

TABLE 16
RUM RIVER HILLS GOLF CLUB
CART PATH FLOODING NEAR CLUBHOUSE - NEW CULVERTS

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$200.00	1	$200
2	REMOVE STORM SEWER	LIN FT	$4.00	96	$384
3	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	30	$150
4	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	48	$144
5	4" AGGREGATE BASE CLASS 5	SQ YD	$8.00	30	$240
6	4" BITUMINOUS PAVEMENT	SQ YD	$34.00	30	$1,020
7	24" METAL APRON	EACH	$325.00	4	$1,300
8	24" CP PIPE CULVERT	LIN FT	$25.00	96	$2,400
9	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$6,038
Contingency (10%)	$604
Total Estimated Construction Cost	$6,642

TABLE 17
RUM RIVER HILLS GOLF CLUB
HOLE #15 SATURATION - CREEK LINING AND DRAIN TILE

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$350.00	1	$350
2	4" PERF PIPE DRAIN	LIN FT	$15.00	450	$6,750
3	CREEK LINING	LUMP SUM	$5,000.00	1	$5,000
4	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$12,300
Contingency (10%)	$1,230
Total Estimated Construction Cost	$13,530

TABLE 18
RUM RIVER HILLS GOLF CLUB
FLOODING AROUND HOLE #3 AND #17 - NEW CULVERTS

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$200.00	1	$200
2	REMOVE STORM SEWER	LIN FT	$4.00	72	$288
3	21" METAL APRON	EACH	$300.00	4	$1,200
4	24" METAL APRON	EACH	$325.00	2	$650
5	24" CP PIPE CULVERT	LIN FT	$26.00	46	$1,196
6	24" CP PIPE CULVERT	LIN FT	$27.00	26	$702
7	TURF ESTABLISHMENT	LUMP SUM	$300.00	1	$300

Estimated Construction Cost	$4,536
Contingency (10%)	$454
Total Estimated Construction Cost	$4,990

Section 4
163rd Lane

163rd Lane

Description

As shown on Exhibit 11, a low area exists south of 163rd Lane and east of Wolfram Street. The low area does not have a piped outlet to County Ditch #3. During a majority of the year, stormwater runoff infiltrates into the soil. However, during early spring when the ground is frozen and during periods of heavy rainfall, water levels have risen to levels that cause flooding of adjacent properties.

Alternatives

The following alternatives address the water elevation in the low area.

Alternative 1
In this alternative, an outlet pipe would be installed from the low area to County Ditch #3, as shown on Exhibit 12. The outlet pipe will not be installed at the bottom of the low area, rather, it will be installed at an elevation that would allow smaller storm events to continue to infiltrate into the soil. The outlet pipe invert is proposed at an elevation of 872.0, which is the approximate elevation of a 3-inch rainfall event. The following table summarizes the 100-year HWL's, the detention time above an elevation of 873.0 and estimated costs to construct each outlet pipe:

Outlet Pipe Size	100-Year HWL	Detention Time Above Elevation 873 During a 100-Year Storm Event (hours)	Estimated Cost
Existing	874.8	23.4	N/A
12"	874.3	6.2	$68,640
15"	874.0	2.9	$74,305
18"	873.8	1.5	$80,795

As shown, the area may continue to flood during large storm events; however, the duration of flooding will be much shorter.

Tables 19 through 21 include the individual costs for this alternative. It is proposed to directionally drill the pipe as shown on Exhibit 12 as opposed to open cutting a trench. A trench would require excessive cuts in the surrounding area. The outlet pipe will be approximately 700 feet long. Cleaning the pipe will require access on both ends of the pipe.

Alternative 2
Alternative 2 included draining the low area east to a ditch system in Elmcrest Park. This alternative was reviewed and deemed not feasible. There is not enough difference in elevation from the low area to the ditch in Elmcrest Park.

Alternative 3

Alternative 3 included constructing a pipe west and then south along 163rd Lane and Wolfram Street to County Ditch #3. The length of this alternative is approximately 500 feet longer than Alternative 1, therefore decreasing the pipe slope and increasing the costs. The impact of constructing the pipe along the existing streets would also add to the costs of this alternative. For these reasons, this alternative was deemed not feasible.

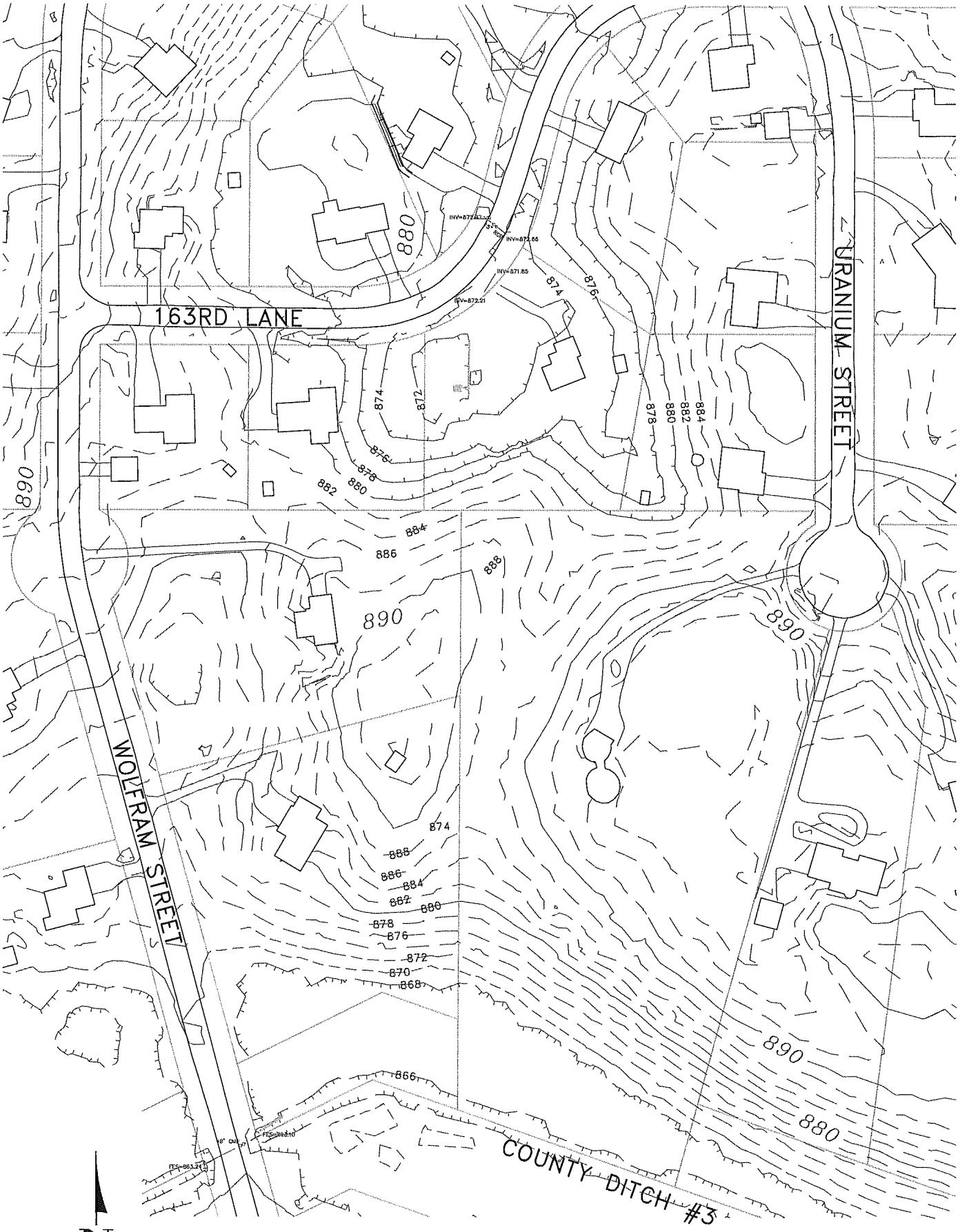

EXHIBIT 11
163RD LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

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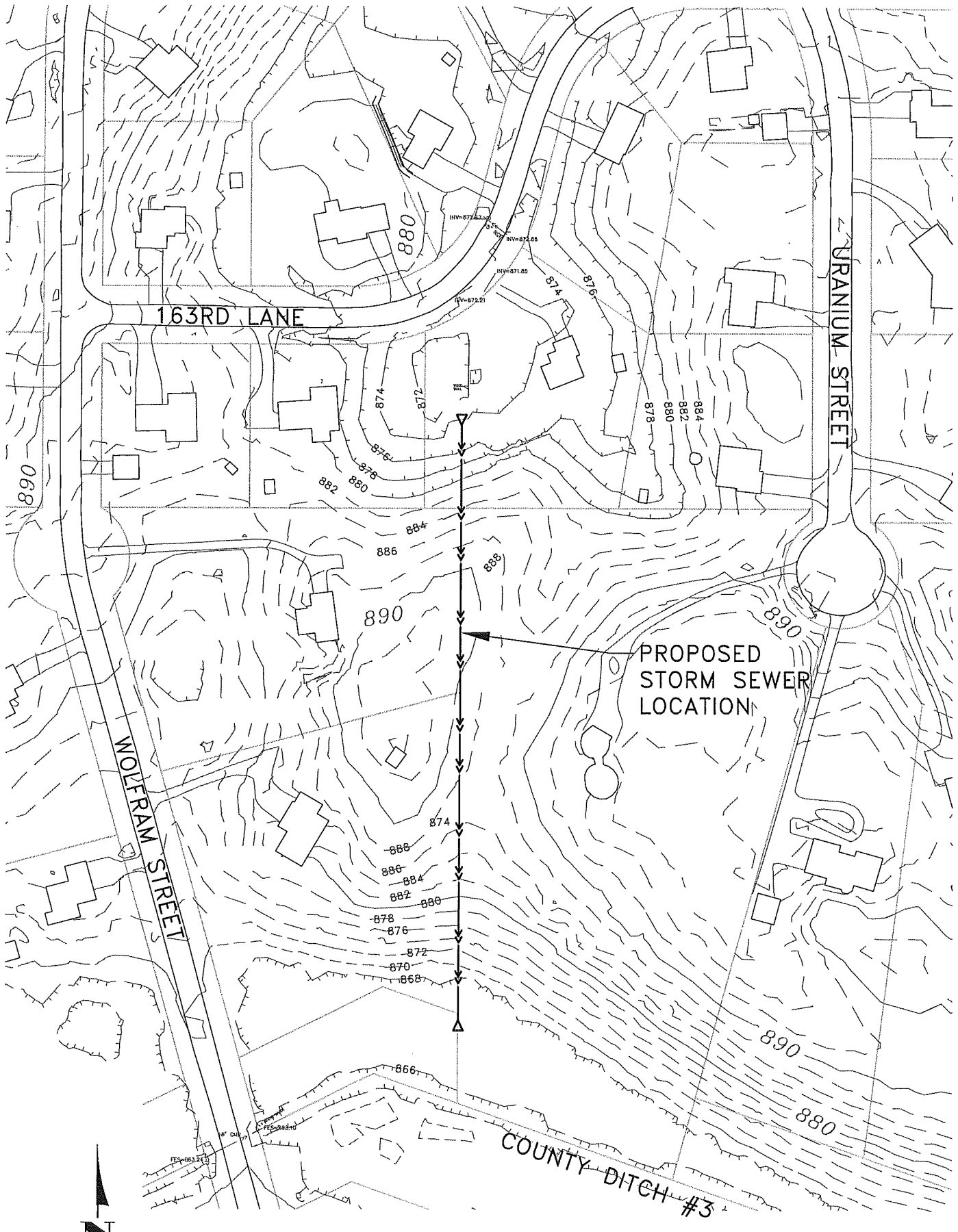

EXHIBIT 12
163RD LANE PROPOSED STORM SEWER

CITY OF RAMSEY, MINNESOTA

Feb 12, 2012 - 9:45am
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TABLE 19
163RD LANE
ALTERNATIVE 1A - 12" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,800.00	1	$1,800
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	12" METAL APRON	EACH	$200.00	2	$400
4	12" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$85.00	700	$59,500
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$62,400
Contingency (10%)	$6,240
Total Estimated Construction Cost	$68,640

TABLE 20
163RD LANE
ALTERNATIVE 1B - 15" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$2,000.00	1	$2,000
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	15" METAL APRON	EACH	$225.00	2	$450
4	15" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$92.00	700	$64,400
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$67,550
Contingency (10%)	$6,755
Total Estimated Construction Cost	$74,305

TABLE 21
163RD LANE
ALTERNATIVE 1C - 18" OUTLET

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$2,200.00	1	$2,200
2	COMMON EXCAVATION	CU YD	$5.00	100	$500
3	18" METAL APRON	EACH	$275.00	2	$550
4	18" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$100.00	700	$70,000
5	TURF ESTABLISHMENT	LUMP SUM	$200.00	1	$200

Estimated Construction Cost	$73,450
Contingency (10%)	$7,345
Total Estimated Construction Cost	$80,795

Section 5
156th Lane

156th Lane

Description

As shown on Exhibit 13, a low area exists south of 156th Lane and west of Yakima Street, referred to Depression 1 on Exhibit 13. Depression 1 drains south and east through an existing storm sewer system to another low area west of Juniper Ridge Drive, referred to as Depression 2 on Exhibit 13. From Depression 2 the stormwater drains north through an existing storm sewer system to the Rum River. The outlet elevations for both Depression 1 and Depression 2 are 859.8.

During storm events, water ponds in the backyard of 5220 156th Lane. The area where water ponds was platted with a 75-foot drainage and utility easement, however, this easement has been vacated. The existing 100-year high water level (HWL) for Depression 1 is 864.7.

Alternatives

The following alternatives address the stormwater in the area.

Alternative 1
Alternative 1 includes filling the backyard of 5220 156th Lane. Excavation would be required in Woodland Green Park to the south to compensate for the storage being lost by filling the backyard. The proposed grading is shown on Exhibit 14. In this alternative the proposed 100-year HWL would remain 864.7, but it would not encroach into the backyard to the extent it does under existing conditions.

The estimated cost for this alternative is $21,175. Table 22 includes the individual costs for this alternative.

Alternative 2
Alternative 2 also includes filling the backyard of 5220 156th Lane and excavating Woodland Green Park to the south to compensate for the storage being lost by filling the backyard. As opposed to Alternative 1, this alternative proposes to over-excavate the area in Woodland Green Park, which will lower the 100-year HWL by adding storage. The proposed grading is shown on Exhibit 15. In this alternative the proposed 100-year HWL would drop to 864.1.

The estimated cost for this alternative is $76,274. Table 23 includes the individual costs for this alternative.

Alternative 3
Alternative 3 includes constructing an additional 12" outlet pipe from Depression 2. As shown on Exhibit 16, the new outlet pipe would run east along 156th Lane and then north along Juniper Ridge Drive to an existing catch basin that drains to the Rum River. The

new outlet would be constructed at an elevation of 857.8, two feet lower than the existing outlet.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.6
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.9

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.0
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.8

As shown, adding this additional outlet pipe has very little effect on the high water levels of the two depressions. One reason for this is that the storm sewer system downstream of Depression 2 is at or above capacity and is flowing back into Depression 2 prior to draining downstream.

The estimated cost to construct this additional outlet pipe is $158,609. Table 24 includes the individual costs for this alternative.

Alternative 4

Alternative 4 includes constructing an additional 18" outlet pipe from Depression 1. As shown on Exhibit 16, the new outlet pipe would run east from Depression 1 to Depression 2. The new outlet would be constructed at an elevation of 858.2; 1.6-feet lower than the existing outlet. This alternative assumes that the new outlet from Depression 2, as discussed in Alternative 3, would also be constructed.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	864.6
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.5

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	863.8
Depression 2 – Existing	866.0
Depression 2 – Proposed	865.3

As shown, adding this additional outlet pipe has very little effect on the high water levels of the two depressions. After adding the pipe, stormwater actually flows from Depression 2 back to Depression 1 prior to flowing downstream, lowering the HWL in Depression 2.

The estimated cost to construct this additional outlet pipe is $37,697. Table 25 includes the individual costs for this alternative.

Alternative 5

Alternative 5 includes constructing a 36" outlet pipe from Depression 2. As shown on Exhibit 16, the new outlet pipe would run east from Depression 2 to the Rum River. The new outlet would be constructed at an elevation of 857.8. As part of this alternative, the existing outlet pipe from Depression 2 will be eliminated. This alternative also assumes that the new outlet from Depression 1, as discussed in Alternative 4, would also be constructed.

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 14, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	863.8
Depression 2 – Existing	866.0
Depression 2 – Proposed	859.9

The following table summarizes the 100-year HWL's for Depression 1, assuming the pond construction shown on Exhibit 15, and Depression 2:

Location	100-year HWL
Depression 1 – Existing	864.7
Depression 1 – Proposed	862.7
Depression 2 – Existing	866.0
Depression 2 – Proposed	859.8

As shown, adding this outlet pipe has a significant effect on the high water levels of the two depressions. This alternative would have to be approved by the Minnesota Department of Natural Resources.

The estimated cost to construct this additional outlet pipe is $142,772. Table 26 includes the individual costs for this alternative.

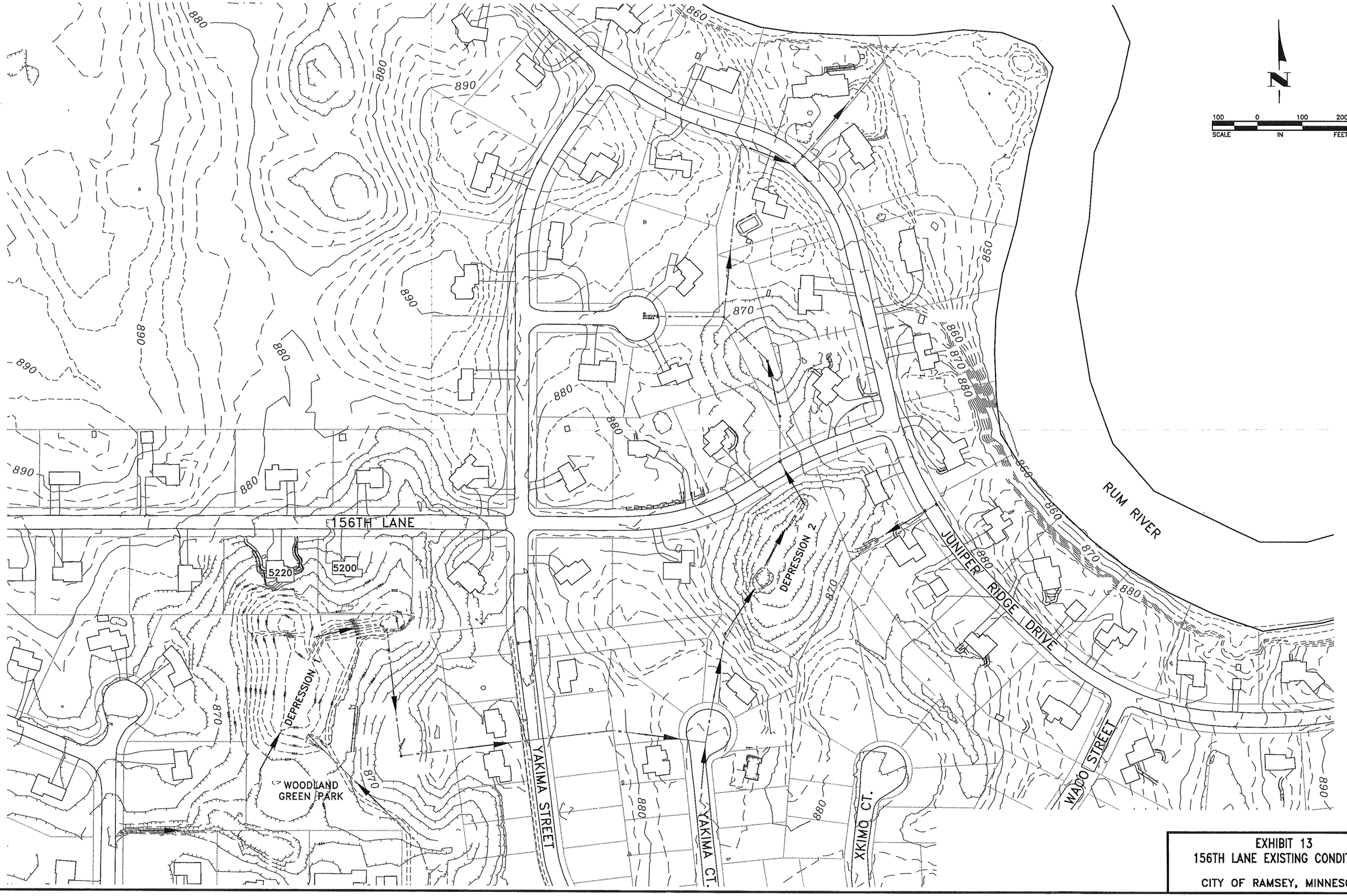

EXHIBIT 13
156TH LANE EXISTING CONDITIONS

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 5:14pm
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156TH LANE

5220

5200

DEPRESSION 1

WOODLAND GREEN PARK

Fence

FES=857.47

INV=859.23

15" RCP

INV=859.76

SKIMMER
HIGH=863.48
LOW=862.74
BTM=858.89

FES=858.77

FES=859.89

18" PVC

21" RCP

STORM MH
RIM=872.02
INV=859.52

N

30 0 30 60
SCALE IN FEET

EXHIBIT 14
156TH LANE ALTERNATIVE 1 GRADING PLAN
CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 6:14pm
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156TH LANE

5220

5200

DEPRESSION 1

870

COBALT STREET

BARIUM STREET

155TH LANE

YAKIMA STREET

WOODLAND GREEN PARK

STORM MH
RIM=872.02
INV=859.52

CB
RIM=872.65
INV E=868.00

12" RCP

15" RCP

18" RCP

24" RCP

SKIMMER
HIGH=863.49
LOW=862.74
BTM=858.89

INV=859.23

INV=859.76

FES=857.43

FES=858.77

FES=859.89

N

50 0 50 100
SCALE IN FEET

EXHIBIT 15
156TH LANE ALTERNATIVE 2 GRADING PLAN

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 6:14pm
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N

100 0 100 200
SCALE IN FEET

ALTERNATIVE 3 & 4
PROPOSED STORM
SEWER LOCATION

ALTERNATIVE 5
PROPOSED STORM
SEWER LOCATION

ALTERNATIVE 4 & 5
PROPOSED STORM
SEWER LOCATION

156TH LANE

5220

5200

DEPRESSION 1

DEPRESSION 2

WOODLAND
GREEN PARK

YAKIMA STREET

YAKIMA CT.

YKIMO CT.

JUNIPER RIDGE DRIVE

WADO STREET

RUM RIVER

EXHIBIT 16
156TH LANE PROPOSED STORM SEWER

CITY OF RAMSEY, MINNESOTA

Feb 14, 2012 - 10:33am
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TABLE 22
156TH LANE
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$600.00	1	$600
2	CLEARING	ACRE	$1,500.00	0.75	$1,125
3	GRUBBING	ACRE	$1,500.00	0.75	$1,125
4	COMMON EXCAVATION	CU YD	$5.00	1820	$9,100
5	ADJUST SEWER MANHOLES	LUMP SUM	$4,000.00	1	$4,000
6	ADJUST SEWER CLEANOUTS	LUMP SUM	$500.00	1	$500
7	REINSTALL SPRINKLER SYSTEM	LUMP SUM	$1,000.00	1	$1,000
8	TURF ESTABLISHMENT	ACRE	$1,500.00	1.2	$1,800

Estimated Construction Cost	$19,250
Contingency (10%)	$1,925
Total Estimated Construction Cost	$21,175

TABLE 23
156TH LANE
ALTERNATIVE 2

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,900.00	1	$1,900
2	CLEARING	ACRE	$1,500.00	2.35	$3,525
3	GRUBBING	ACRE	$1,500.00	2.35	$3,525
4	COMMON EXCAVATION	CU YD	$5.00	10123	$50,615
5	ADJUST SEWER MANHOLES	LUMP SUM	$4,000.00	1	$4,000
6	ADJUST SEWER CLEANOUTS	LUMP SUM	$500.00	1	$500
7	REINSTALL SPRINKLER SYSTEM	LUMP SUM	$1,000.00	1	$1,000
8	TURF ESTABLISHMENT	ACRE	$1,500.00	2.9	$4,275

Estimated Construction Cost	$69,340
Contingency (10%)	$6,934
Total Estimated Construction Cost	$76,274

TABLE 24
156TH LANE
ALTERNATIVE 3

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$4,200.00	1	$4,200
2	SALVAGE STORM SEWER	LIN FT	$20.00	72	$1,440
3	REMOVE MANHOLE	EACH	$500.00	1	$500
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$2.00	3,290	$6,580
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	100	$300
6	4" AGGREGATE BASE CLASS 5	SQ YD	$7.00	3,290	$23,030
7	4" BITUMINOUS PAVEMENT	SQ YD	$21.00	3,290	$69,090
8	BITUMINOUS CURB	LIN FT	$3.00	1,850	$5,550
9	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	2	$2,000
10	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$22.00	925	$20,350
11	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$2,000.00	3	$6,000
12	TRAFFIC CONTROL	LUMP SUM	$5,000.00	1	$5,000
13	TURF ESTABLISHMENT	ACRE	$1,500.00	0.1	$150

Estimated Construction Cost	$144,190
Contingency (10%)	$14,419
Total Estimated Construction Cost	$158,609

TABLE 25
156TH LANE
ALTERNATIVE 4

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$1,000.00	1	$1,000
2	SALVAGE STORM SEWER	LIN FT	$20.00	120	$2,400
3	REMOVE CONCRETE CURB	LIN FT	$10.00	60	$600
4	REMOVE MANHOLE	EACH	$500.00	1	$500
5	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	110	$550
6	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	70	$210
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	110	$825
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	110	$3,080
9	18" RC PIPE APRON	EACH	$350.00	1	$350
10	TRASH GUARD FOR 18" PIPE APRON	EACH	$200.00	1	$200
11	CONNECT TO EXISTING STORM SEWER	EACH	$1,000.00	1	$1,000
12	18" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$23.00	735	$16,905
13	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48 - 4020	EACH	$1,500.00	2	$3,000
14	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	$20.00	60	$1,200
15	TRAFFIC CONTROL	LUMP SUM	$2,000.00	1	$2,000
16	TURF ESTABLISHMENT	ACRE	$1,500.00	0.3	$450

Estimated Construction Cost	$34,270
Contingency (10%)	$3,427
Total Estimated Construction Cost	$37,697

TABLE 26
156TH LANE
ALTERNATIVE 5

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$3,750.00	1	$3,750
2	REMOVE STORM SEWER	LIN FT	$4.00	72	$288
3	BULKHEAD MANHOLE	EACH	$500.00	1	$500
4	36" METAL APRON	EACH	$325.00	1	$325
5	36" RC PIPE APRON	EACH	$450.00	1	$450
6	TRASH GUARD FOR 36" PIPE APRON	EACH	$400.00	1	$400
7	36" RC PIPE SEWER DESIGN 3006, CL III	LIN FT	$38.00	110	$4,180
8	36" HDPE PIPE SEWER (DIRECTIONALLY DRILLED)	LIN FT	$280.00	420	$117,600
9	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 - 4020	LIN FT	$2,000.00	1	$2,000
10	TURF ESTABLISHMENT	ACRE	$1,500.00	0.2	$300

Estimated Construction Cost	$129,793
Contingency (10%)	$12,979
Total Estimated Construction Cost	$142,772

Section 6
Sodium Street

Sodium Street

Description

The house at 16756 Sodium Street has been experiencing water in the basement. Exhibit 17 shows the existing area. One reason for water in the basement could be that stormwater fills the ditch on the east side of Sodium Street, overtops the road and if the driveway culvert is blocked, the water fills up the ditch on the west side of Sodium Street and drains toward the house. The water then seeps along the basement wall and eventually into the basement. Another reason for water in the basement may be due to a high groundwater elevation in the area.

Alternatives

The following alternatives address the issue of water entering the basement from the road ditch.

Alternative 1

Alternative 1 will include installing a culvert under Sodium Street, regrading the west ditch of Sodium Street, constructing a berm to keep the water in the ditch, and replacing the existing driveway culvert. The ditch would be graded to drain to the south property line of 16756 Sodium Street and a culvert would be installed to drain the stormwater to the swale on the west side of the lot. Exhibit 18 shows the proposed construction. The culvert along the south property line is needed since a ditch cannot be graded without impacting the existing septic drainfield.

To be able to install the pipe along the south property line to the swale on the west side of the lot, a utility pole and a utility pedestal will have to be relocated from the southeast corner of 16756 Sodium Street. Moving the utilities will allow the area to be graded as needed to construct the ditch and the culvert. Regrading the ditch will prevent the stormwater from draining toward the house and reducing the chances of having water in the basement.

The estimated cost for this alternative is $12,225. Table 27 includes the individual costs for this alternative.

Alternative 2

Alternative 2 is similar to Alternative 1, but instead of installing a culvert along the south property line to the swale, a retaining wall would be constructed. This alternative would only be required if the utilities in the southeast corner of the lot were unable to be relocated.

The estimated cost for this alternative is $18,847. Table 28 includes the individual costs for this alternative.

Both alternatives would require that the property owner give an easement along the south property line. Also, temporary easements will likely be required to grade the ditch and construct the berm on the west side of Sodium Street.

SODIUM STREET

N

25 0 25 50
SCALE IN FEET

16756

GFE= 873.38
GFE= 876.96
873.72 WO

INV=876.21
12" CMP
INV=875.99

WOOD WALL
INV=875.02

INV=875.39
12" RCP

BLOCK WALL
CONC
WELL
CONTROL BOX
Septic manhole
FENCE
3' Hedge
SEPTIC MOUND

WOOD WALL
INV=876.45
12" CMP
WOOD WALL
INV=876.33
CONC
FENCE

P-OH

Feb 13, 2012 – 1:42pm
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EXHIBIT 17
SODIUM STREET EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

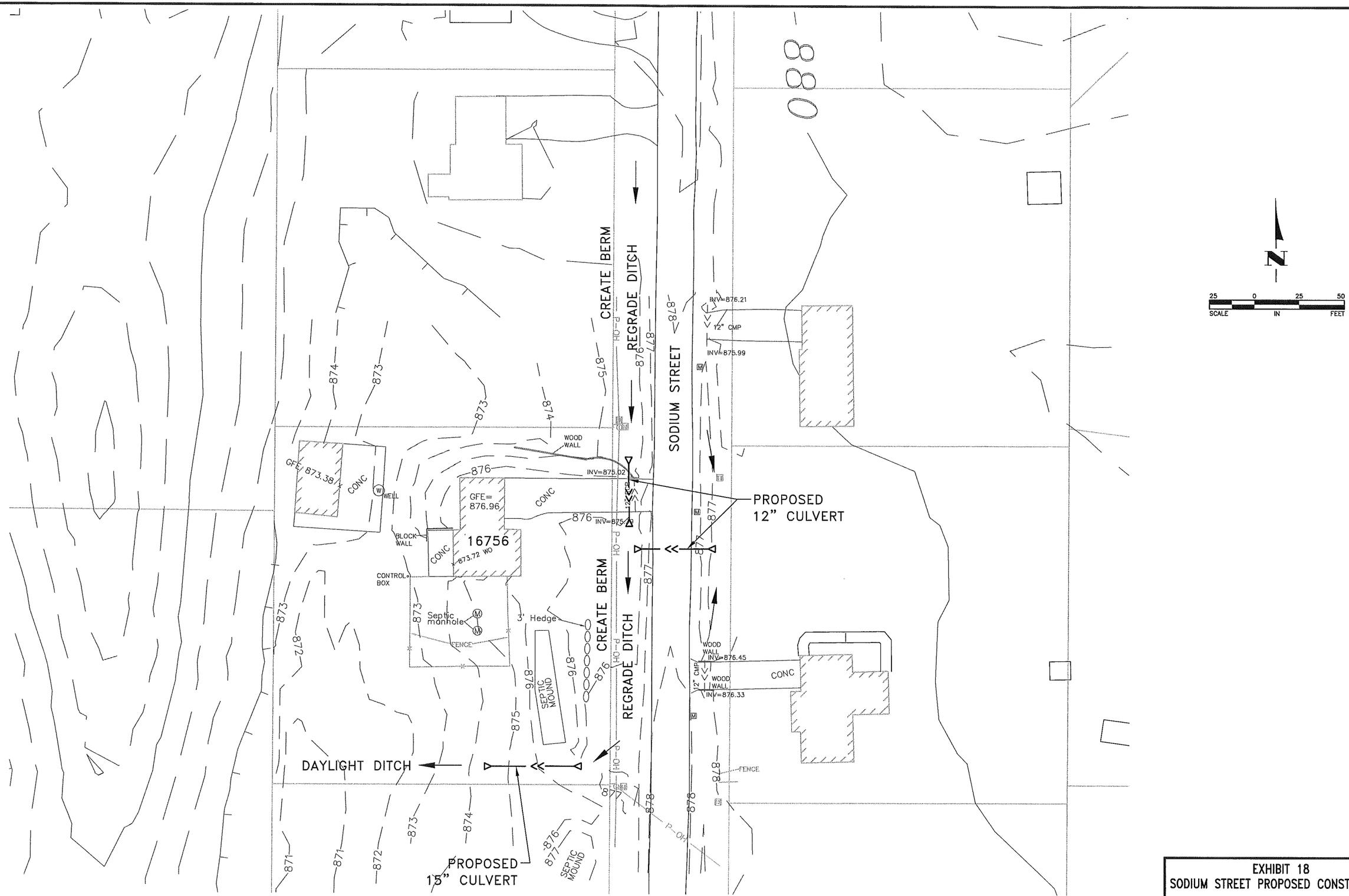

EXHIBIT 18
SODIUM STREET PROPOSED CONSTRUCTION

CITY OF RAMSEY, MINNESOTA

Feb 13, 2012 - 1:53pm
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TABLE 27
SODIUM STREET
ALTERNATIVE 1

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$300.00	1	$300
2	REMMOVE STORM SEWER	LIN FT	$5.00	25	$125
3	REMOVE CONCRETE PAVEMENT	SQ YD	$6.00	45	$270
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	49	$245
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	44	$132
6	COMMON EXCAVATION	CU YD	$6.00	400	$2,400
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	94	$705
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	49	$1,372
9	4" CONCRETE DRIVEWAY PAVEMENT	SQ YD	$13.00	45	$585
10	15" METAL APRON	EACH	$225.00	2	$450
11	12" RC PIPE APRON	EACH	$275.00	4	$1,100
12	15" CP PIPE SEWER	LIN FT	$20.00	44	$880
13	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$20.00	40	$800
14	TRAFFIC CONTROL	LUMP SUM	$1,000.00	1	$1,000
15	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$11,114
Contingency (10%)	$1,111
Total Estimated Construction Cost	$12,225

TABLE 28
SODIUM STREET
ALTERNATIVE 2

ITEM NO.	DESCRIPTION	UNIT	UNIT COST	TOTAL ESTIMATED QUANTITY	TOTAL ESTIMATED COST
1	MOBILIZATION	LUMP SUM	$300.00	1	$300
2	REMMOVE STORM SEWER	LIN FT	$5.00	25	$125
3	REMOVE CONCRETE PAVEMENT	SQ YD	$6.00	45	$270
4	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.00	49	$245
5	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	$3.00	44	$132
6	COMMON EXCAVATION	CU YD	$6.00	475	$2,850
7	4" AGGREGATE BASE CLASS 5	SQ YD	$7.50	94	$705
8	4" BITUMINOUS PAVEMENT	SQ YD	$28.00	49	$1,372
9	4" CONCRETE DRIVEWAY PAVEMENT	SQ YD	$13.00	45	$585
10	12" RC PIPE APRON	EACH	$275.00	4	$1,100
11	12" RC PIPE SEWER DESIGN 3006, CL V	LIN FT	$20.00	40	$800
12	MODULAR BLOCK RETAINING WALL	SQ FT	$23.00	300	$6,900
13	TRAFFIC CONTROL	LUMP SUM	$1,000.00	1	$1,000
14	TURF ESTABLISHMENT	ACRE	$1,500.00	0.5	$750

Estimated Construction Cost	$17,134
Contingency (10%)	$1,713
Total Estimated Construction Cost	$18,847

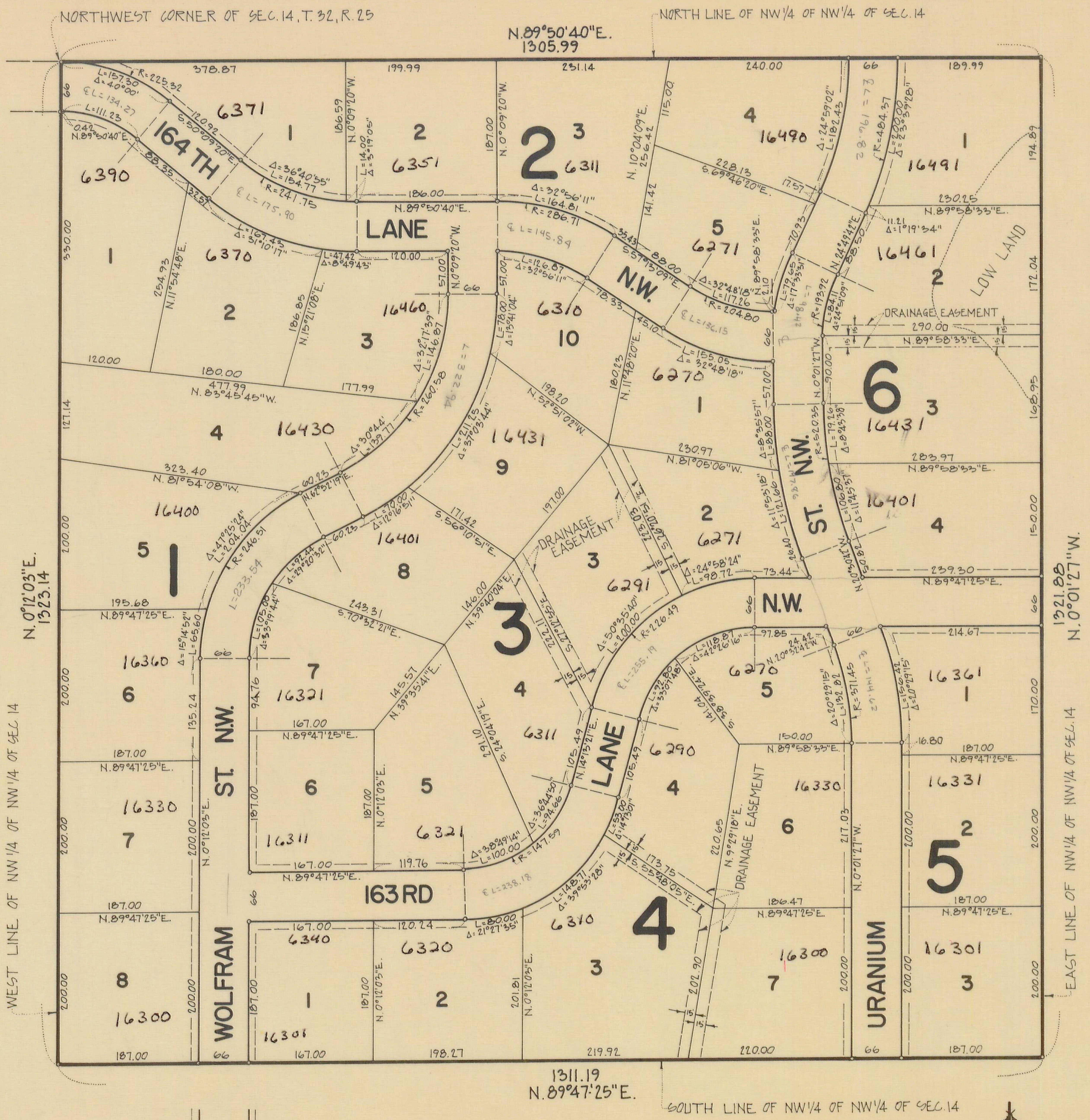
CITY COPY

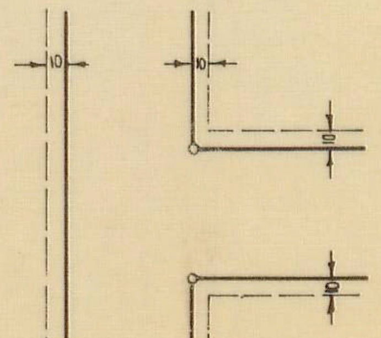
14

MENKVELD'S COUNTRY PARK

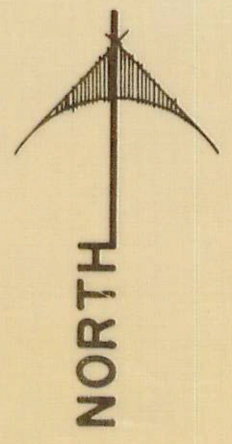
BEARINGS SHOWN ARE ASSUMED — NOVEMBER, 1972 — EGAN, FIELD & NOWAK

○ DENOTES IRON MONUMENT — SCALE: 1 INCH EQUALS 100 FEET — SURVEYORS





Utility Easements shown thus, being 10 feet wide, are continuous along all road right-of-ways for all lots in all blocks.



Know all men by these presents that G. M. Investment Co., a Minnesota Corporation, owner and proprietor of the following described property situated in the State of Minnesota and County of Anoka, to wit: The Northwest Quarter of the Northwest Quarter of Section 14, Township 32, Range 25, Anoka County, Minnesota, has caused the same to be surveyed and platted as MENKVELD'S COUNTRY PARK and does hereby donate and dedicate to the public for public use forever the lanes, streets and easements for drainage and utility purposes as shown on the plat.
In witness whereof said G. M. Investment Co., has caused these presents to be signed by its proper officer and its corporate seal to be hereunto affixed this 8th day of January A. D. 1973.

In presence of: Joyce Tiffany

G. M. INVESTMENT CO.

by G. A. Menk — president
Gilbert A. Menkveld

STATE OF MINNESOTA)
COUNTY OF ANOKA) S. S. On this 8th day of January A. D. 1973, before me a Notary Public, personally appeared Gilbert A. Menkveld, to me personally known who by me duly sworn did say that he is president of G. M. Investment Co., the corporation named in the foregoing instrument, that the corporate seal affixed to said instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors and said Gilbert A. Menkveld acknowledged said instrument to be the free act and deed of said corporation.

Notary Public, Anoka County, Minnesota
My commission expires July 17, 1976

I hereby certify that I have surveyed and platted the property described on this plat as MENKVELD'S COUNTRY PARK; that this plat is a correct representation of said survey; that all distances are correctly shown on the plat in feet and decimals of a foot; that monuments have been correctly placed in the ground as shown; and that the outside boundary lines are correctly designated on the plat, and that there are no wet lands or public highways to be designated on the plat other than as shown thereon.

Vernon A. Nickols
Surveyor - Minnesota Registration No. 9053

STATE OF MINNESOTA)
COUNTY OF HENNEPIN) S. S. The surveyor's certificate was subscribed and sworn to before me, a Notary Public, this 4th day of January A. D. 1973.

Chris Kuntz
CHRIS KUNTZ, Notary Public, Hennepin County, Minnesota
My commission expires March 4, 1975.

The plat of MENKVELD'S COUNTRY PARK was approved by the Planning and Zoning Commission and by the Town Board of the Township of Ramsey, Minnesota at a regular meeting thereof held this 8th day of January A. D. 1973.

Herbert Murphy — Chairman of the Town Board
James M. Peterson — Clerk of the Town Board
Gary R. Reimann — Chairman of the Planning and Zoning Commission

This plat was approved this 16th day of January, 1973, A. D.

by E. J. Lundheim
County Engineer, Anoka County, Minnesota

This plat was approved as to form and execution this 23rd day of Jan., 1973, A. D.

by Stephen W. Montalvo
Ass't County Attorney, Anoka, County, Minnesota

This plat was approved and accepted by the Honorable Board of County Commissioners of the County of Anoka, State of Minnesota, at a regular meeting thereof held this 23rd day of Jan, 1973, A. D.

by Albert A. Kordiak — Chairman of the Board
by Charles R. Lefebvre — County Auditor, Anoka County, Minnesota

Checked and approved this 23rd day of January A. D. 1973.

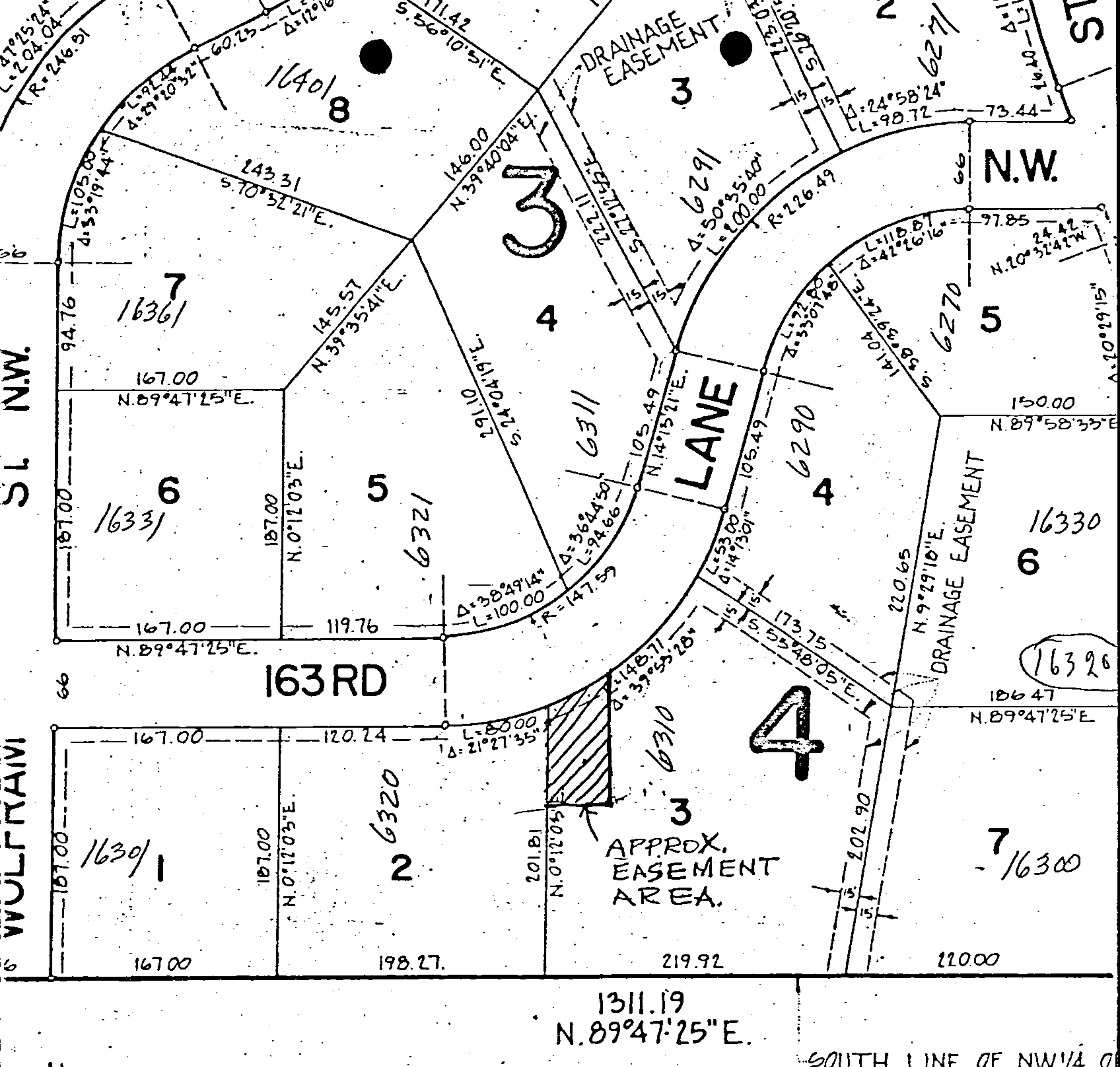
by Roland W. Anderson
Anoka County Surveyor

NO DELINQUENT TAXES AND TRANSFER ENTERED
Mar. 9 1973
Charles R. Lefebvre
Auditor, Anoka County
BY Nancy C. Ampe Deputy

385094
OFFICE OF REGISTER OF DEEDS
STATE OF MINNESOTA, COUNTY OF ANOKA } ss
I hereby certify that the within instrument was filed in this office for record on the ___ day of MAR 9 1973 A.D. 19__ at 1815 o'clock A.M., and was duly recorded in book 11 of PL 21 page 14
Ted J. Omdahl
Register of Deeds
Deputy

Lot 2 (16461) Uranium is considered unbuildable by me GHF — Removed 40' strip / Protected wetland

Address Map — Menkveld's Country Park



DRAINAGE EASEMENT
N.W.
LANE
163 RD
APPROX. EASEMENT AREA.
DRAINAGE EASEMENT
1311.19
N.89°47'25"E.
SOUTH LINE OF NW1/4 O
S.56°10'51"E.
243.31
S.70°32'21"E.
146.00
N.39°40'04"E.
145.57
N.39°35'41"E.
291.10
S.24°04'19"E.
167.00
N.89°47'25"E.
187.00
N.0°12'03"E.
119.76
120.24
198.27.
219.92
220.00
201.81
N.0°12'05"E.
105.49
N.14°13'21"E.
220.65
N.9°29'10"E.
202.90
173.75
S.55°48'05"E.
150.00
N.89°58'33"E
186.47
N.89°47'25"E
141.04
R=226.49
R=147.59
R=246.51
16401
16361
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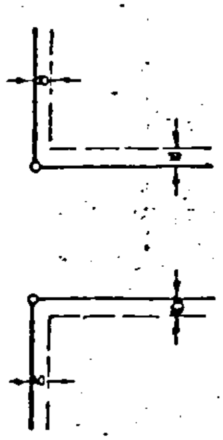
16320
16300

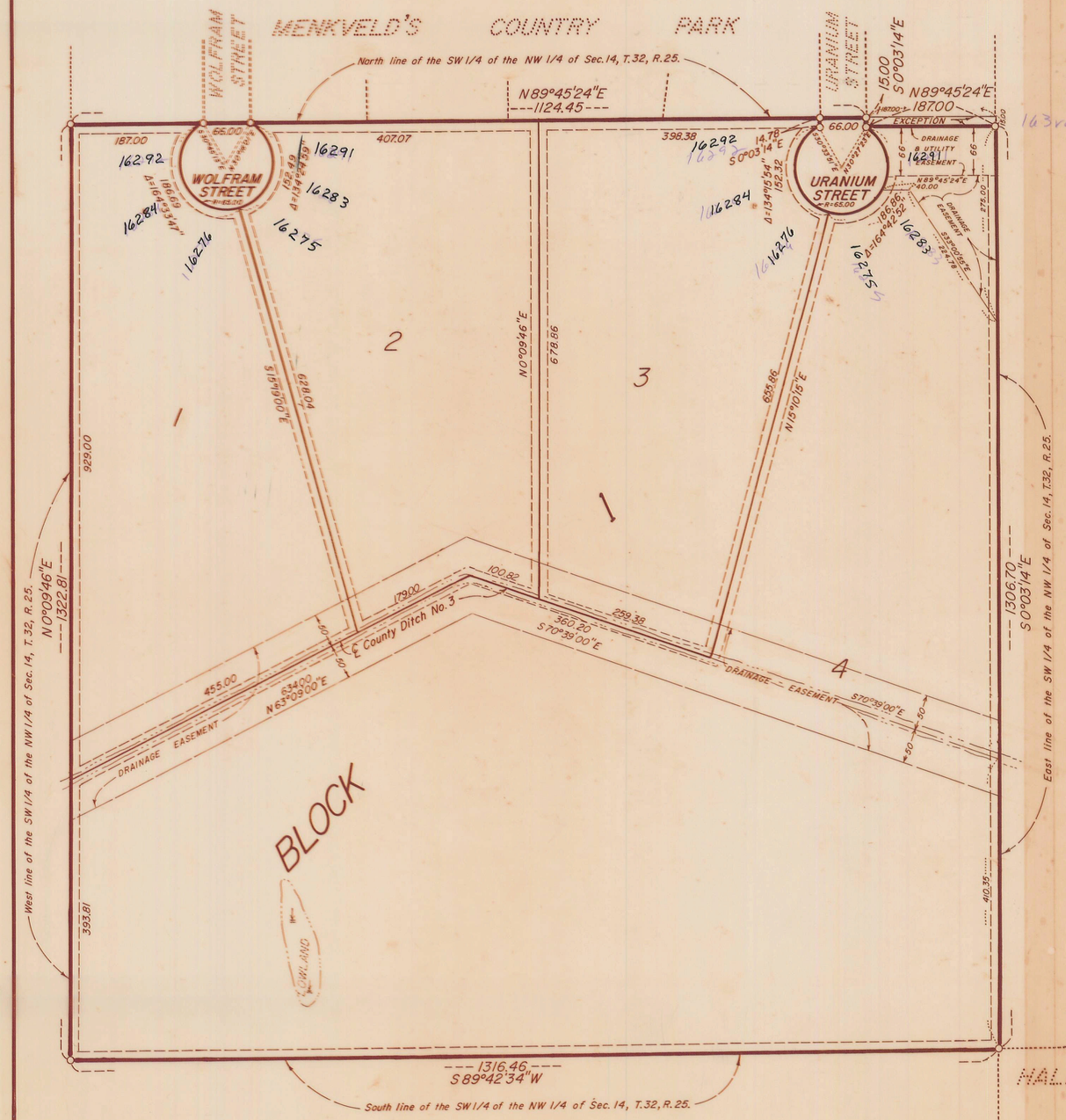


Utility Easements shown thus, being 10 feet wide, are continuous along all road right-of-ways for all lots in all blocks.

STREET ADDRESS PLAN FOR:

VOLTIN'S OAK HILL ESTATES

CITY OF RAMSEY — COUNTY OF ANOKA



KNOW ALL PERSONS BY THESE PRESENTS: That Dale J. Voltin, a single person, and David G. Schulte, a single person, owners and proprietors, and Lucille M. Stevens, a widow, mortgagee of the following described property situated in the State of Minnesota, County of Anoka, to-wit:

The Southwest Quarter of the Northwest Quarter of Section 14, Township 32, Range 25, Anoka County, Minnesota, except the north 15 feet of the east 187 feet thereof, as measured along the east and north lines respectively.

Have caused the same to be surveyed and platted as VOLTIN'S OAK HILL ESTATES, and do hereby donate and dedicate to the public for public use forever the Streets as shown on this plat. Also dedicating to the public the easements for drainage and/or utility purposes as shown on the plat. In witness whereof said Dale J. Voltin has set his hand this ____ day of _____, 19___. Also in witness whereof said David G. Schulte has set his hand this ____ day of _____, 19___. Also in witness whereof said Lucille M. Stevens has set her hand this ____ day of _____, 19___.

SIGNED:

_____ Dale J. Voltin

_____ David G. Schulte

_____ Lucille M. Stevens

STATE OF MINNESOTA
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, 19___, by Dale J. Voltin, a single person.

_____ Notary Public, _____ County, Minnesota
My Commission expires _____

STATE OF MINNESOTA
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, 19___, by David G. Schulte, a single person.

_____ Notary Public, _____ County, Minnesota
My Commission expires _____

STATE OF MINNESOTA
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, 19___, by Lucille M. Stevens, a widow.

_____ Notary Public, _____ County, Minnesota
My Commission expires _____

I hereby certify that I have surveyed and platted the land described in the dedication on this plat as VOLTIN'S OAK HILL ESTATES; that the plat is a correct representation of said survey; that all distances are correctly shown on said plat in feet and hundredths of a foot; that the monuments have been correctly placed in the ground as shown; that the outside boundaries are correctly designated on said plat; and that there are no wet lands or public highways to be designated on said plat other than are shown thereon.

_____ Registered Land Surveyor
Minnesota Reg. No. 12251

STATE OF MINNESOTA
COUNTY OF ANOKA

The surveyors certificate was ackowledged before me, a Notary Public, this ____ day of _____, 19___, by Jeffrey N. Caine, Land Surveyor.

_____ Notary Public, _____ County, Minnesota
My Commission expires _____

We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of VOLTIN'S OAK HILL ESTATES at a regular meeting held this ____ day of _____, 19___.

By _____ Mayor By _____ Clerk

Checked and approved this ____ day of _____, 19___.

By _____ County Surveyor, Anoka County, Minnesota

SCALE IN FEET
0 100 200 300
1 INCH = 100 FEET

○ DENOTES 1/2 INCH IRON PIPE SET.

NOTE: FOR THE PURPOSES OF THIS PLAT, THE W. LINE OF THE SW1/4 OF THE NW1/4 OF SEC. 14, T. 32, R. 25, IS ASSUMED TO BEAR N 0°09'46" E.

DRAINAGE AND UTILITY EASEMENTS SHOWN THUS, UNLESS OTHERWISE SHOWN ON THE PLAT.

10 10 20 10 10

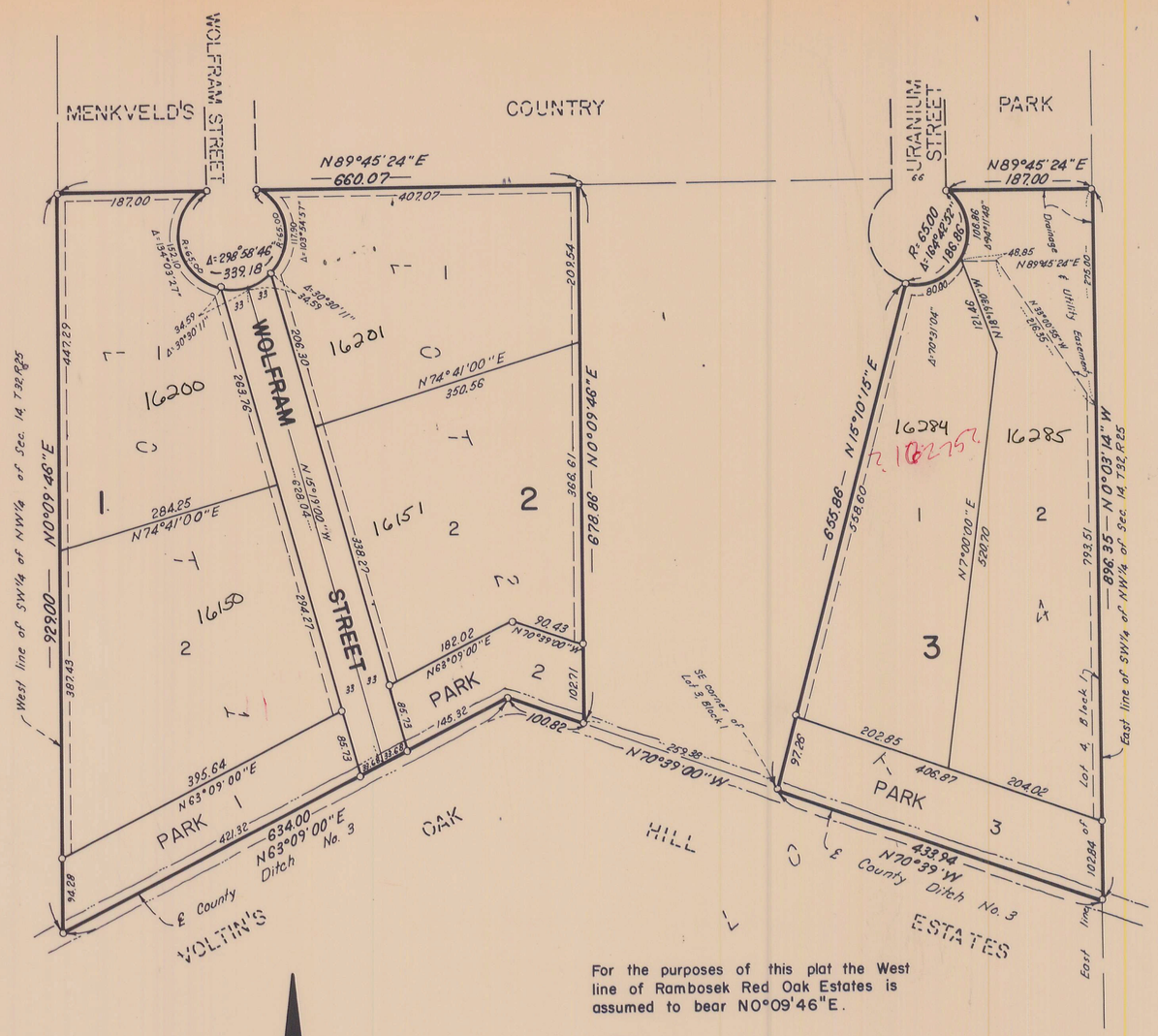
CAINE & ASSOCIATES
LAND SURVEYORS, INC.

Address Map Voltin's Oak Hill Estates

SURVEYOR'S COPY

RAMBOSEK RED OAK ESTATES

CITY OF RAMSEY
ANOKA COUNTY, MN.



For the purposes of this plat the West line of Rambosek Red Oak Estates is assumed to bear N0°09'46"E.

o Denotes Iron Monument

Drainage and Utility Easements are shown thus:

10 10

Being 10 feet in width and adjoining lot lines, unless otherwise indicated.

N

SCALE : 1 inch = 100 feet

Scale in Feet
0 100 200 300

KNOW ALL PERSONS BY THESE PRESENTS: That Jonathon M. Rambosek, a single person, owner and proprietor, of the following described property situated in the County of Anoka and State of Minnesota to wit:

Lots 1, 2, and 4, Block 1, VOLTIN'S OAK HILL ESTATES, Anoka County, Minnesota except that part of said Lot 4, lying South of a line described as beginning at the Southeast corner of Lot 3, Block 1, VOLTIN'S OAK HILL ESTATES; thence South 70 degrees 39 minutes 00 seconds East, assumed bearing, along the Southeasterly extension of the Southerly line of said Lot 3, Block 1 a distance of 433.94 feet to its intersection with the East line of said Lot 4, Block 1 and there terminating.

Has caused the same to be surveyed and platted as RAMBOSEK RED OAK ESTATES and does hereby donate and dedicate to the public for the public use forever the street, parks and easements for drainage and utility purposes as shown on the plat. In witness whereof said Jonathon M. Rambosek has set his hand this 6th day of July, 1988.

SIGNED:

Jonathon M. Rambosek

STATE OF MINNESOTA
COUNTY OF Ramsey

The foregoing instrument was acknowledged before me this 6th day of July, 1988, Jonathon M. Rambosek, a single person.

Terrence E. Rothenbacher
NOTARY PUBLIC — MINNESOTA
ANOKA COUNTY
My commission expires 7-30-93

Terrence E. Rothenbacher
Notary Public Anoka County, Minnesota
My Commission Expires: 7-30-93

I hereby certify that I have surveyed and platted the property described on this plat a RAMBOSEK RED OAK ESTATES; that this plat is a true and correct representation of said survey; that all distances are correctly shown on the plat in feet and hundredths of a foot; that all monuments have been correctly placed in the ground as shown; that the outside boundary lines are correctly designated on the plat and that there are no public highways to be designated on said plat.

Rodney H. Halvorson
Rodney H. Halvorson, Land Surveyor
Minnesota License No. 10947

STATE OF MINNESOTA
COUNTY OF Ramsey

The foregoing instrument was acknowledged before me this 27th day of June, 1988, by Rodney H. Halvorson, Land Surveyor.

DIANE S. HALVORSON
NOTARY PUBLIC — MINNESOTA
RAMSEY COUNTY
My Commission expires 7-30-93

Diane S. Halvorson
Notary Public Ramsey County, Minnesota
My Commission Expires: 7-30-93

The foregoing plat of RAMBOSEK RED OAK ESTATES was approved and accepted by the City Council of Ramsey, Minnesota at a regular meeting thereof held this 14th day of June, 1988. If applicable, the written comments and recommendations of the Commissioner of Transportation and the County Highway Engineer have been received by the City or the prescribed 30 day period has elapsed without receipt of such comments and recommendations, as provided by Minnesota Statutes, Section 505.03, Subd. 2.

CITY COUNCIL OF RAMSEY, MINNESOTA

By Gary R. Reimann, Mayor

By Dan R. Heath, Clerk

Checked and approved this 14th day of SEPT., 1988.

MERLYN D. ANDERSON
Anoka County Surveyor
by Larry D. Hoin
deputy

Doc # 823070
Filed Sept. 19, 1988
Book Of Plats 39
Page 42

MIDWEST LAND SURVEYORS, INC.

Address Map

Rambosek Red Oak Estates

DRAWING NUMBER Rambosek Red Oak

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

Public Works Committee **5. 3.**

Meeting Date: 03/20/2012

By: Tim Himmer, Engineering/Public Works

Title:

Consider Revisions to the City's Minnesota State Aid (MSA) Street System

Background:

The municipal state aid (MSA) street system consists of collector roadways which are designated by the City, and reviewed and approved by MnDOT. These roadways become eligible for funding from state gas tax revenues for both construction and maintenance. In 2012 the City will receive $1,070,753 as its total apportionment. We currently elect to receive $374,764 (35%) of this allocation for general maintenance purposes, $117,500 for bond interest on previous projects, and $578,489 for construction.

The total allocation the City receives each year is dependent upon two factors; population and the estimated amount of dollars needed to bring the designated MSA system up to the required standards. In 2012 participating cities will receive $19.76 per person and $13.72 per $1,000 of documented need, which is based upon a MnDOT formula for computing needs. The needs for each city participating in the program are updated annually and submitted to MnDOT for review and approval. The purpose of this case is to discuss potential modifications to the system that fit the planned transportation system and development scenarios of the City, and maximize the amount of funding that could be captured.

Notification:

Observations:

The City is allowed to designate up to 20% of its total road system mileage onto the MSA system. Since the allocation is proportional to the dollars needed to bring the system up to standards, it is advantageous to designate the total allotment available. At the end of 2011 the City of Ramsey was .01 miles over our allowable allotment, therefore a minor revision is necessary to correct this over designation.

Staff is proposing to adjust and reconfigure some of the MSA street designations within the City to better align with the stated transportation goals and planned development activities. The attached figure shows in general terms what is being proposed; it ultimately ends up being a net loss to our MSA system in the short term, with future revisions to occur as the COR development and Armstrong interchange advance.

Any system revisions proposed will need to be submitted to MnDOT for review and approval. Once approved it will be necessary for the City Council to pass a formal resolution requesting these system revisions prior to May 1, 2012 in order for them to be included in the 2012 needs determination.

Funding Source:

There is no funding request as part of this agenda item, revisions and MnDOT correspondence are being conducted with staff time.

Staff Recommendation:

Staff recommends that the Public Works Committee recommend to the City Council approval of the staff requested revisions to the City's MSA street system.

Committee Action:

Motion to recommend to the City Council approval of the staff requested revisions to the City's MSA street system.

Attachments

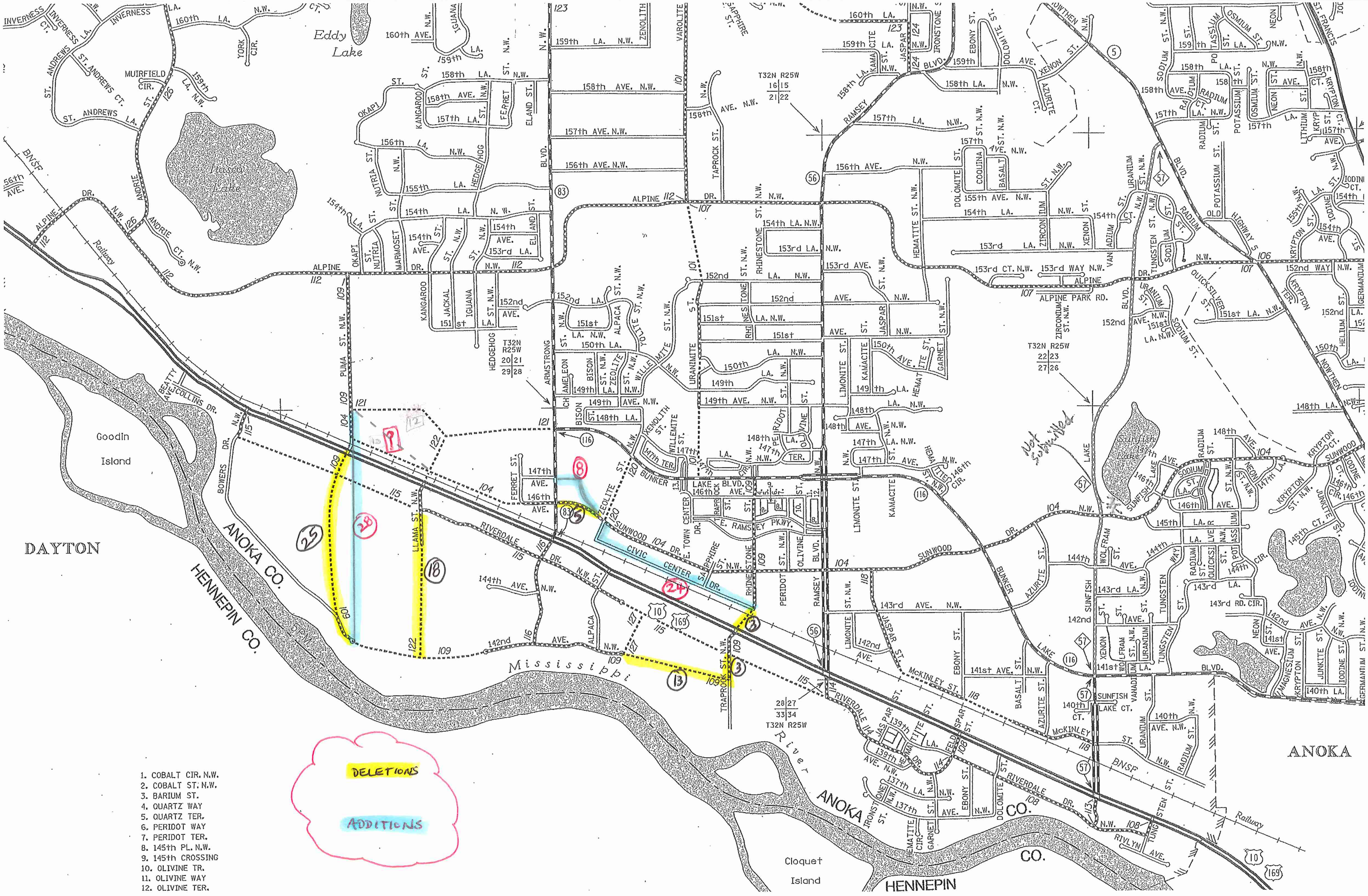
Proposed MSA System Revisions

Form Review

Inbox	Reviewed By	Date
Brian Olson	MaryJo Warner	03/15/2012 03:01 PM
Kurt Ulrich	Kurt Ulrich	03/15/2012 03:23 PM

Form Started By: Tim Himmer Started On: 03/13/2012 11:38 AM

Final Approval Date: 03/15/2012


DAYTON
ANOKA
ANOKA CO.
HENNEPIN CO.
Mississippi River
Goodin Island
Cloquet Island
Itasca Lake
Eddy Lake
Sunfish Lake
BNSF Railway
T32N R25W
DELETIONS
ADDITIONS
Not Submitted
1. COBALT CIR. N.W.
2. COBALT ST. N.W.
3. BARIUM ST.
4. QUARTZ WAY
5. QUARTZ TER.
6. PERIDOT WAY
7. PERIDOT TER.
8. 145th PL. N.W.
9. 145th CROSSING
10. OLIVINE TR.
11. OLIVINE WAY
12. OLIVINE TER.

Public Works Committee **5. 4.**

Meeting Date: 03/20/2012

By: Tim Himmer, Engineering/Public Works

Title:

Consider Project Scope for Phase 2 of the Alpine Drive Overlay Project

Background:

In the fall of 2009 staff brought a case forward to the Public Works Committee to discuss options for the installation of a crosswalk near Alpine Park. The request was advanced from a property owner living along 153rd Court who wanted more convenient access to the park from the neighborhoods to the north. The thought at the time was that maybe something could be done as part of the skate park installation and/or the watermain loop and parking lot construction. The consensus of the Committee at that time was to install a crosswalk at the location of the new parking lot to the skate park, and to look for opportunities to construct a trail or sidewalk with subsequent projects in the area.

In March of 2011 staff outlined the Alpine Drive overlay project, from Sunfish Lake Boulevard to Ramsey Boulevard, as a planned maintenance improvement to address the deteriorating pavement condition. At that time we were beginning to prepare project plans, and were looking for direction on the ultimate scope of improvements. Due to funding constraints, pavement condition along the extents of the roadway, and the pending Anoka County signalization project it was decided to break the project into two. The first phase of construction was to improve the failing pavement section from Ramsey Boulevard to the skate park entrance at 153rd Court; this project was completed in 2011 and included additional storm sewer upgrades. Phase two (153rd Court to Sunfish Lake Boulevard) was delayed until 2012 and was to include consideration of a trail from Alpine Park to the SWEETBAY RIDGE boardwalk (and ultimately Central Park), and alternative technologies that may assist in extending pavement life.

Notification:

Observations:

Staff is looking for direction on inclusion of a trail with the phase two overlay of Alpine Drive, to be completed this summer/fall. A funding package for this trail has been difficult to determine, as the only available sources would be MSA or the City trail fund. Currently the MSA fund has been tapped for many of the regional roadway improvements around the COR and other priority CIP projects, but there may be a possibility to utilize some funding from this source if directed by the Council. The current balance in the trail fund is approximately $200,000 but those funds are also earmarked for other needed trail projects, including the City's local match to recently submitted DNR grant applications that were approved by the City Council on March 13, 2012. If directed staff could submit a third grant application to the DNR Local Trail Connections Program but we would just be competing with ourselves, which may cause confusion and uncertainty with the reviewers and result in us potentially missing out on those opportunities (attached to this case are location maps for the applications already submitted for this program).

Another option to consider is breaking the overall trail into three separate segments, and constructing them over time. Staff has prepared a map and rough estimates for each of the potential segments for your consideration. The cost to construct a10' wide bituminous trail is approximately $24 per lineal foot, and is the basis for the estimates to follow.

- Segment 1: south side of Alpine Drive, from 153rd Court to Hematite Street. This segment is estimated at $33,000 for construction and is a fairly straight forward project. There would be some private utility coordination issues and/or relocations necessary, and approximately 16' of boulevard space.
- Segment 2: north side of Alpine Drive, from Hematite Street to Ramsey Boulevard. This segment is

estimated at $66,000 for construction, but includes some wetland impacts and right-of-way (ROW) issues to resolve as the properties adjacent to the roadway are unplatted and contain prescriptive roadway easements. Additional research would be required to determine ROW location, and may include the need to acquire trail easements. We would also have to perform wetland delineations and receive a permit from the local watershed for potential impacts and mitigation.

- Segment 3: west side of Ramsey Boulevard, from Alpine Drive to the SWEETBAY RIDGE boardwalk. This segment is estimated at $44,000 for construction, but includes significant grade considerations, some wetland impacts, and Anoka County ROW issues. Additional research would be required to determine ROW location. We would also have to perform wetland delineations and receive a permit from the local watershed for potential impacts and mitigation, as well as an Anoka County ROW permit and associated review.

In evaluating the total trail installation costs (approximately $143,000 in construction costs), and current available funds, it appears that constructing the entire trail connection with available funds would deplete the trail fund and/or continue to place a strain on the MSA account. If it is the desire to seek a DNR trail connection grant the City could apply for up to $100,000, of which a 25% local match is required; the deadline for applications under this program is March 31st. It should be noted that staff will be bringing forward a prioritization of community trail connections to a future Council meeting, consistent with a stated 2012 strategic goal.

Staff is also looking for feedback on the inclusion of alternate technologies with this proposed overlay project. We have been researching alternative products/applications for road base treatments (additives, interlayment, etc.) that could potentially extend the pavement life for this segment of Alpine Drive, but based upon the existing pavement conditions it does not appear to warrant the additional costs to evaluate potential benefits. It would be difficult to compare the recently completed Alpine Drive overlay segment with what is being proposed for this section, as the two areas are somewhat different in nature. The 2012 proposed segment was constructed on native soils in a cut condition, whereas the completed 2011 segment is located on fill placed in and around a large wetland complex. Staff is recommending that the alternative treatment analysis would be better suited for evaluation on the reconstruction of Riverdale Drive, planned for later this year and coordinated with the Mississippi River Trail (MRT) project. The geotechnical report for that project shows a more consistent roadway section, with silty and/or clay fill over native sands.

Funding Source:

The City's MSA account shows a 2012 beginning balance of approximately $390,000; incorporating the planned activities for this year results in an end of the year balance of approximately $200,000. Looking at the same account for end of year 2013, incorporating the planned projects for that year, results in a negative balance of approximately $1,000,000. Included in these totals is a $459,000 annual contribution to the MSA account, beginning in 2012, from COR land sales to repay the regional roadway improvements that were initially funded from this account. As stated previously, trail construction along Alpine Drive can certainly be funded by MSA dollars but it does create a strain on that account. If desired staff can include trail segment one in the project plans and potentially bid it as an alternate. Doing this would allow the Council to review the costs associated with the trail before determining whether or not to fund the improvement with MSA dollars, another funding source, or delay construction.

Staff Recommendation:

Staff recommends that the Public Works Committee recommend to the City Council the inclusion of trail segment one within the scope of the 2012 Alpine Drive overlay project.

It is further recommended to forego the inclusion of alternative road base technologies on this project, but rather include that investigation and analysis with the future Riverdale Drive/MRT project.

Committee Action:

Motion to recommend to the City Council the inclusion of trail segment one within the scope of the 2012 Alpine Drive overlay project.

-and-

Motion to recommended the elimination of alternative road base technologies on this project, but rather include that investigation and analysis with the future Riverdale Drive/MRT project.

Attachments

Existing Trails Near Alpine Park

Existing DNR Trail Grant Requests

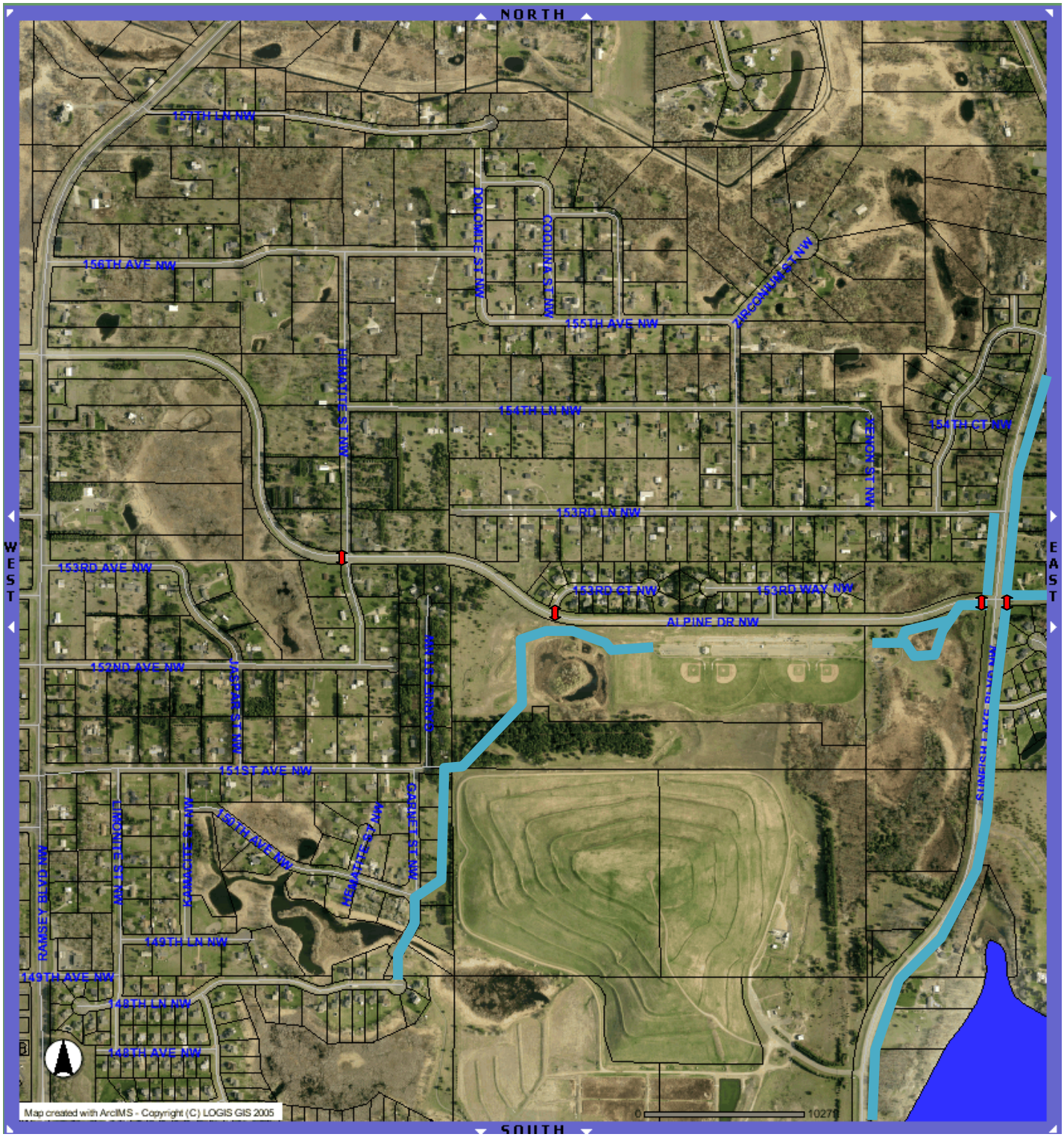
Potential Trail Segments

Form Review

Inbox	Reviewed By	Date
Brian Olson	MaryJo Warner	03/15/2012 03:01 PM
Kurt Ulrich	Kurt Ulrich	03/15/2012 03:23 PM

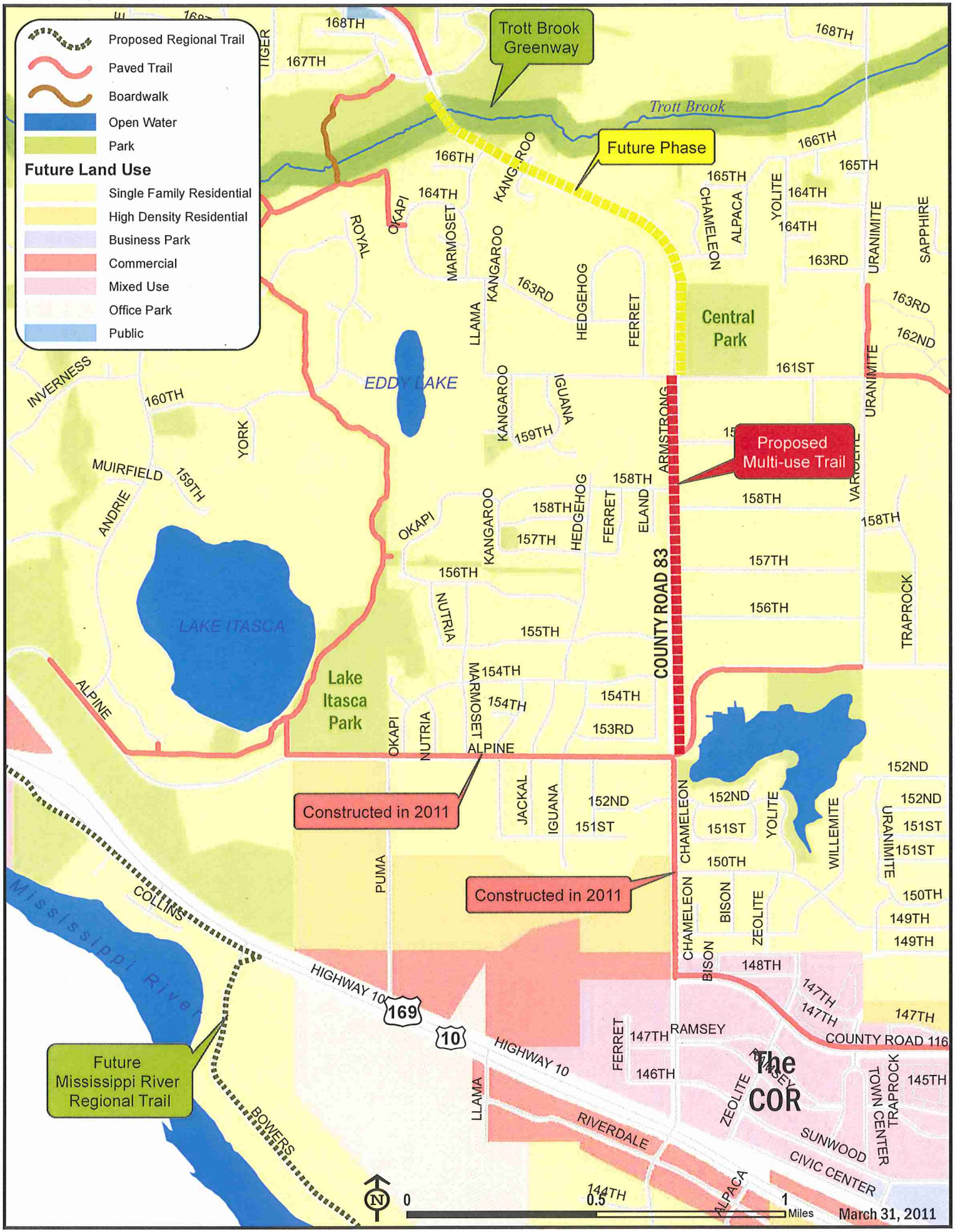
Form Started By: Tim Himmer Started On: 03/13/2012 11:41 AM

Final Approval Date: 03/15/2012



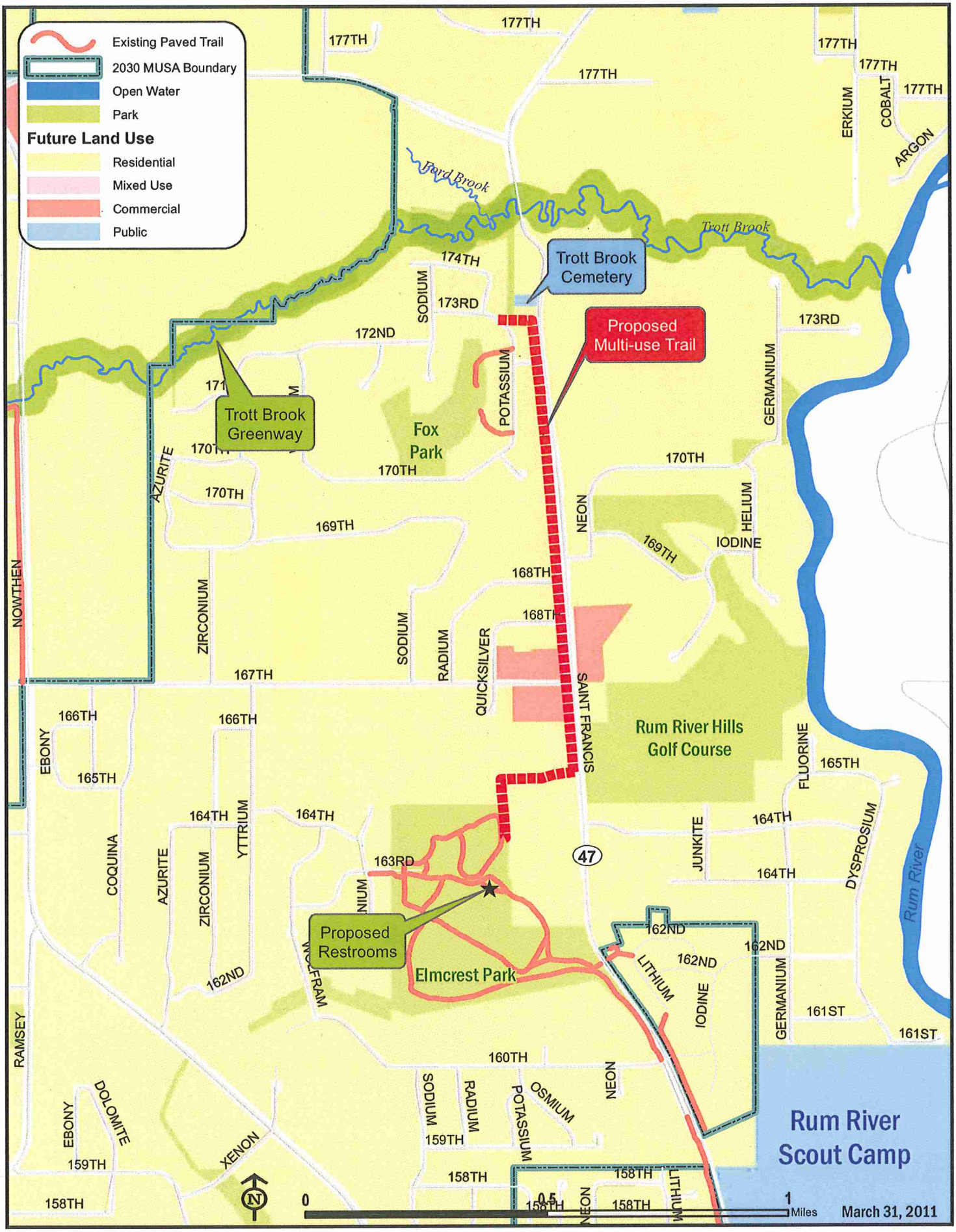
EXISTING CROSSWALKS

EXISTING TRAILS



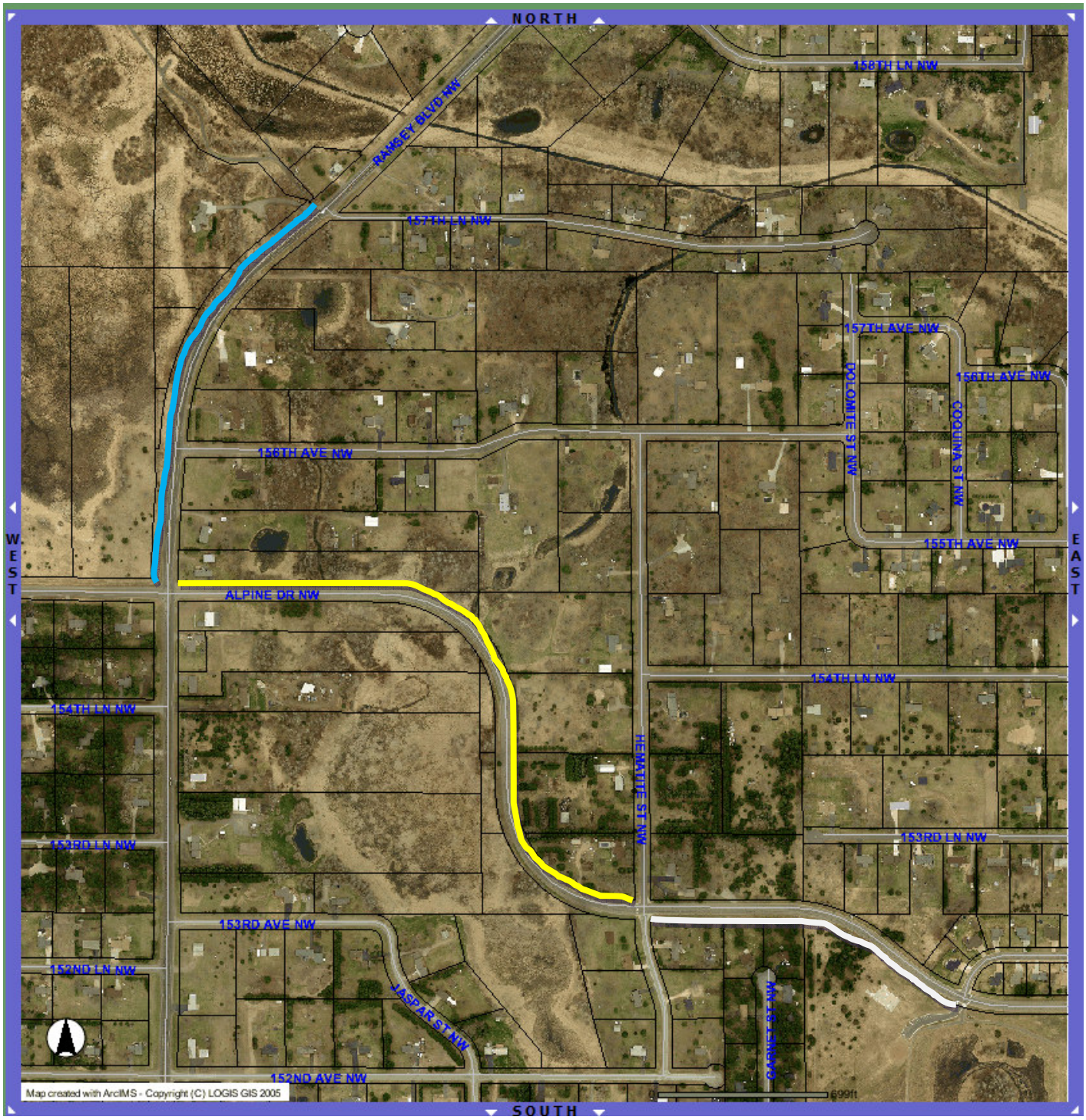
Central Park to Alpine Drive Trail

Site Map



Trott Brook to Elmcrest Park Trail

Site Map



Segment 1 (white): 1350’	approximately $33,000 (private utility coordination/relocation, portion platted)
Segment 2 (yellow): 2750’	approximately $66,000 (wetland impacts, private utilities, unplatted ROW)
Segment 3 (blue): 1800’	approximately $44,000 (wetland impacts, unplatted County ROW)