

City of Ramsey
Agenda
Public Works Committee
Tuesday May 15, 2012
6:00 pm or immediately following Special City Council meeting
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 March 20, 2012.
- 5. Committee Business**
 1. Consider Stormwater Improvements at 149th Lane - A Continuation of Discussion Related to 2011 Flooding Concerns
 2. Consider Stormwater Improvements at Rum River Hills Golf Course - A Continuation of Discussion Related to 2011 Flooding Concerns
 3. Consider Stormwater Improvements at 148 th Lane - A Continuation of Discussion Related to 2011 Flooding Concerns
 4. Consider the Installation of Stop Signs and an In-Street Pedestrian Crossing Sign Near 150th Lane NW and Ute Street NW
 5. Discuss Trail Easement at 15620 Krypton Street NW
 6. Winter Maintenance Summary
 7. The Use of AVL Systems in Public Works
- 6. Committee/Staff Input**
- 7. Adjournment**

Public Works Committee

4. 1.

Meeting Date: 05/15/2012

Submitted For: MaryJo Warner

By: MaryJo Warner, Engineering/Public Works

Title:

Approve Public Works Committee meeting minutes dated March 20, 2012.

Background:

The Public Works Committee held its regular meeting on March 20, 2012. Please note there was no meeting held in April, therefore there are no minutes for approval for that month.

Notification:

Observations:

Funding Source:

n/a

Staff Recommendation:

Committee Action:

Motion to approve Public Works Committee meeting minutes date March 20, 2012.

Attachments

Minutes 03.20.12

Form Review

Inbox	Reviewed By	Date
Brian Olson	Brian Olson	05/08/2012 09:59 AM
Kurt Ulrich	Kurt Ulrich	05/10/2012 01:58 PM
Form Started By: MaryJo Warner		Started On: 05/08/2012 09:34 AM
Final Approval Date: 05/10/2012		

**PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA**

The Public Works Committee conducted a regular meeting on Tuesday, March 20, 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
 Park Supervisor Mark Riverblood
 Civil Engineer Leonard Linton
 City Attorney William Goodrich
 Mayor Bob Ramsey
 Councilmember Sarah Strommen
 Councilmember Jason Tossey
 Councilmember Jeff Wise
 Development Manager Darren Lazan

CALL TO ORDER

Chairperson Backous called the regular meeting of the Public Works Committee to order at 5:00 p.m.

CITIZEN INPUT

There was none.

APPROVE AGENDA

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

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

APPROVE MINUTES

Motion by Councilmember McGlone, seconded by Councilmember Elvig, to approve the minutes from the February 21, 2012, Public Works Meeting.

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

COMMITTEE BUSINESS

Case #1: Consider Storm Sewer Improvements on Sodium Street – A Continuation of Discussions Related to 2011 Flooding Concerns

City Engineer Himmer reviewed the staff report and described the proposed project to address drainage on the 16756 Sodium Street property.

Joel Kamrowski, 16756 Sodium Street, asked about the easement to put in a culvert to direct water to the pond and what will be done to prevent water from backing up farther into his yard.

City Engineer Himmer advised the City, along with the Lower Rum River Water Management Organization, will undertake a wetland mitigation project across the street that would remove the high ground to create wetlands, which will provide some relief. Also, the City cleaned the west side ditch so the water can drain to the County ditch on the south side of the park. City Engineer Himmer indicated he can't say Mr. Kamrowski's property will never experience high water but the downstream has been addressed and the wetland mitigation project will also help.

Mr. Kamrowski stated he installed rain tile and still his back yard is flooded this spring with no snow.

City Engineer Himmer explained that easements were not taken with older plats and if the City has to purchase those types of easements, it would be a large expenditure and require more discussion. He noted that until there is regional ponding, it is difficult to fix these situations but if the pond fills up there is relief downstream.

Mr. Kamrowski stated his foundation is cracked and the pad in front of his garage has settled and cracked.

City Engineer Himmer explained it may be the low area has ponded and is backing up or it may be water flowing to the pipe.

Mr. Kamrowski stated it appears most is coming from the north and working towards the south. He thought that once water is in the swamp, it stays there.

City Engineer Himmer indicated the proposed project will get water from the south property line and provide positive drainage.

Chairperson Backous asked if staff has addressed the easement issue with Mr. Kamrowski.

City Engineer Himmer stated staff has not yet talked with the property owner about the easement because staff was not sure this project would be supported by the Public Works Committee. He asked if this is a reasonable project, noting the project cost will be covered by the Storm Water Utility but does not include payment for an easement. He asked Mr. Kamrowski if he would be willing to give a 10-foot easement so the City can do the project, if approved by the City Council on April 10, 2012.

Mr. Kamrowski stated it sounds like a good start.

City Engineer Himmer stated the project proposal is included in the staff report

Councilmember Elvig asked if creating drainage will also create a wicking effect of surface water.

City Engineer Himmer stated the project does not include grading up to the house and will create positive drainage. However, if there is a dip in the elevation of the Kamrowski yard, they may have to fill it in.

Councilmember Elvig asked about drain tile.

City Engineer Himmer explained there would not be a hard pipe, just a culvert.

Ms. Kamrowski, 16756 Sodium Street, stated they already have water issues on the back side and she believes the pond overflows into the back yard, which has already wrecked their garage.

City Engineer Himmer stated he had asked if the water gets to the pond and backs up, or the water flowing to the pond is causing the problem. He clarified this project will not grade the Kamrowski property but will bring the water to the low side and the Kamrowskis could do some grading or filling upstream to force the water.

Motion by Councilmember Elvig, seconded by Councilmember McGlone, to recommend that 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.

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

Case #2: Consider Storm Sewer Improvements on 163rd Lane – A Continuation of Discussions Related to 2011 Flooding Concerns

City Engineer Himmer reviewed the staff report and described the proposed project to address drainage on 163rd Lane. He indicated the City has no easement for the outlet pipe for the property of impact and the estimated project cost is \$80,000. City Engineer Himmer requested

input, noting only \$75,000 had been budgeted. If supported, the project may be instituted in the fall and staff would contact the property owner to explain this project and address the crushed culvert.

Mike Dealing, 6310 163rd Avenue, stated he has a drainage easement and when the water goes over, it goes into his drain field. The water is not yet up to the house, but very close. Mr. Dealing stated the easement is not a problem and asked if the water will be moved via gravity or pump.

City Engineer Himmer stated it will be moved via gravity. The properties behind Mr. Dealing's property have dedicated easements along the common lot lines, platted easements. He explained staff looked at the distance between the ponding easement and existing easement and the project would directional bore to lessen impact to the trees.

Mr. Dealing asked if the project would start from the back.

City Engineer Himmer answered in the affirmative and stated the project would then go due south.

Mr. Dealing explained that in the spring the ground is frozen so the pond doesn't work. He asked if the pipe will be below the frost line.

Public Works Director Olson explained the problem with freezing is experienced at the end portions at the entry/exit, so it still has to thaw. However, if there was an issue creating an emergency situation, or jeopardizing the septic system, equipment can be brought in to thaw the pipe.

City Engineer Himmer explained the project would not keep the pond drained; there will still be water and infiltration but not to exceed the easement.

Mr. Dealing indicated when the pond was installed 20-25 years ago, they did a good job because in two to three days water seeps into the ground during the summer. He stated staff's proposed project is a good plan.

Chairperson Backous asked how many homes are impacted.

Civil Engineer Linton noted that on the north side of the road, it is the same elevation so water goes through the culvert.

Mr. Dealing stated when the culvert is fixed, it will probably flood toward his house and basement.

Councilmember Elvig asked staff to assure the project timing so fixing the culvert does not flood Mr. Dealing's property.

Public Works Director Olson noted the budget is \$75,000 yet the balance in the Storm Drainage Utility is in the hundreds of thousands so exceeding by \$10-\$15,000 may not be a concern. He clarified the staff recommendation is to delay until the Council looks at the 2015 CIP but would recommend moving forward and creating a plan set to re-identify cost estimates.

Tom Heifort, 6311 163rd Lane NW, stated he met with staff to determine how the system is to work; however, it is not working now so his yard is taking a lot of water before it gets to Mr. Dealing's property. He indicated that last summer, he had to cut grass in water and hopes the project is done right so it fixes all the problems.

Chairperson Backous agreed it has to be done right so water doesn't impact a different property.

City Engineer Himmer noted staff's report identified six different locations and asked how the projects should be addressed, as they come forward or to select two projects.

Councilmember McGlone stated he knows of three projects, those who show up.

Chairperson Backous stated the Public Works Committee counts on staff to prioritize the projects based on the factors involved.

City Engineer Himmer stated there are two more projects on 148th and 149th and the final two projects are the Obermaiers and the golf course, which can wait since the short-term issues are solved. He explained the two projects being discussed tonight were prioritized because both involve road projects. City Engineer Himmer stated the two projects approved last year will be packaged with the two projects discussed tonight, if approved.

Public Works Director Olson explained the intent is to handle the projects under one contract to capitalize on economies of scale.

Motion by Councilmember Elvig, seconded by Councilmember McGlone, to recommend that the City Council add this project to the list to be evaluated when the Capital Improvement Program is updated.

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

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

City Engineer Himmer reviewed the staff report and recommendation to adjust and reconfigure some Minnesota State Aid (MSA) street designations to better align with stated transportation goals and planned development activities.

Public Works Director Olson indicated the new MSA standards will be based on traffic points, not road segments.

City Engineer Himmer stated MSA will be upgrading its software and consider basing needs solely on traffic volumes so non-existing segments would only get minimal dollars. There will still be a requirement to connect a State Aid road with a State Aid road.

Councilmember Elvig asked how the system of “ghosting” State Aid roads is changing.

City Engineer Himmer explained the City cannot designate as State Aid, build the road, and then remove the designation because the City is collecting needs for 20 years. If the City removes the designation, it has to repay the State Aid.

Councilmember Elvig asked how that changes “ghosting” streets.

City Engineer Himmer answered it does not change the system the City has now, except it won't get as much funding for ghost streets. He stated he looked at the traffic counts and considered which streets may not be constructed and could be removed from the MSA designation. Staff would recommend keeping open the local flyover for Highway 10, potential River crossing, and also factored in the realignment of Sunwood Drive.

Councilmember McGlone asked how the change in the system will affect the City moving forward or affect people who own property on a State Aid road and want it improved.

Public Works Director Olson explained it will not change anything with existing State Aid streets and as the City's roadway system continues to grow, the City can designate 20% of its existing mileage to State Aid. He noted the recommended changes are minor and are roads that will not impact residential properties.

City Engineer Himmer stated the City ultimately decides how to spend State Aid dollars and if they approve the revision, and the City will still receive about \$1 million.

Motion by Chairperson Backous, seconded by Councilmember McGlone, to recommend that the City Council approve the staff requested revision to the City's MSA street system.

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

Case #4: Consider Project Scope for Phase 2 of the Alpine Drive Overlay Project

City Engineer Himmer reviewed the staff report and requested input on the trail and alternate treatments. He then described each of the three trail segments, existing conditions, potential impacts, and estimated costs, noting there are also grant opportunities.

Park Supervisor Riverblood indicated moving ahead with Segment 1 would meet the Council's strategic goals and inform staff where to focus the City's resources because there are millions of dollars of trail needs. He believed Riverdale Drive made sense because it would be consistent with street reconstruction and the Mississippi River Trail.

Councilmember McGlone asked if staff is suggesting to hold off on the project.

Park Supervisor Riverblood suggested the Public Works Committee consider not moving forward with Segments 2 and 3 and consider Segment 1, noting it provides community connectivity along Alpine Drive up to the Sweet Bay boardwalk and trail. Park Supervisor Riverblood advised staff has submitted two grant applications for larger projects and once priorities are known, staff can break out funding priority.

Councilmember Elvig asked about submitting additional trail grants.

Park Supervisor Riverblood stated there is a small concern staff may be successful in two grants and the City will need funds for the match. He noted, however, if the agency is awarding \$9 million in projects, one community would typically not be awarded two grants.

Councilmember Elvig stated the Met Council is pushing trails.

Public Works Director Olson indicated the TED program looks geographically at where they put money and take pride in assuring it is geographically spread round the State.

Chairperson Backous asked if \$33,000 from the MSA Fund would be used for the trail.

City Engineer Himmer answered in the affirmative.

Chairperson Backous stated his position that trails need to wait if the City does not have the money. He noted the City has been waiting to build at Elmcrest for many years and the City needs to balance out the projects.

Park Supervisor Riverblood stated staff has not approached it recently but could also ask Anoka County, as part of the prioritization process, if they want to be co-applicant next year for a DNR trail grant for reasons of public safety.

City Engineer Himmer explained that once constructed, staff will apply on the City's behalf for reimbursement from the Metropolitan Council.

Councilmember Elvig stated support to proceed with Segment 1.

City Engineer Himmer stated funding would come from State Aid and this segment can be added to the plans and bid as an alternate. The City can then decide once the bids are received. He noted that Segments 2 and 3 involve the need for delineation and acquisition.

Councilmember McGlone stated funding is always a factor but an equal factor is working to take advantage of economies of scale. He believed there was a definite potential for savings with Segment 1 and doing it now would inconvenience the public only once. Councilmember McGlone stated he would argue for trails where the City is already doing a roadway project. He supported Segment 1 and asked if there were any other trail segments to consider, noting the City will be paving Sunfish Lake Boulevard.

Chairperson Backous agreed unless it involved right-of-way acquisition.

Councilmember Elvig noted the problem with Segment 2 is the need for acquisitions.

City Engineer Himmer stated the road is not platted or dedicated, it is prescriptive rights.

Councilmember Elvig asked if this could also be part of a bid alternate.

City Engineer Himmer stated it could but requires delineations, watershed permitting, banking, and design. Segment 1 doesn't need that extra work.

Motion by Councilmember Elvig, seconded by Councilmember McGlone, to recommend that the City Council eliminate the alternative road base technologies on this project but, rather, include that investigation and analysis with the future Riverdale Drive/MRT project, and to include Segment 1 as an add alternate within the scope of the 2012 Alpine Drive overlay.

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

COMMITTEE INPUT

City Engineer Himmer stated the Bunker Lake Boulevard project has started and Anoka County will install signs for closures. Staff is working to assure it is properly signed and enforceable.

Public Works Director Olson indicated staff is evaluating the Sunwood Drive realignment project and working with the Police and Fire Departments to decide whether it should be constructed under traffic or closed during construction.

City Engineer Himmer explained if closed, three to four weeks could be removed from the schedule and there would be a savings of close to \$100,000 in material since bypass lanes would not be needed, liability reduction, traffic staging, and mobilization, equaling up to \$150,000 in savings. City Engineer Himmer advised Anoka County said they will entertain this option if there is no objection by the City relating to public safety and the business community. Staff recommends closing since it involves a limited closure, there are not many businesses that would be impacted, and a detour could be used to access those properties. If approved, staff will draft a letter to Anoka County and the business community, then develop a project under closure.

ADJOURNMENT

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

Motion carried.

The regular meeting of the Public Works Committee adjourned at 6:03 p.m.

Respectfully submitted,

Brian Olson
Public Works Director

Drafted by Carla Wirth
TimeSaver Off Site Secretarial, Inc.

Public Works Committee

5. 1.

Meeting Date: 05/15/2012

Submitted For: Len Linton

By: Len Linton, Engineering/Public Works

Title:

Consider Stormwater Improvements at 149th Lane - A Continuation of Discussion 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 a larger stormwater improvement plan set. Staff has finalized plans for these items, incorporated additional items that were approved at the Public Works Committee meeting in March, and now has these items out for bid. Depending on direction received tonight, for potential improvements to alleviate some of the outstanding concerns, additional plans will need to be prepared.

Notification:

The homeowner referenced on the petition as the contact person for this item has been notified of the meeting and has received a copy of the agenda.

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. This case will focus on section two of the report - 149th Lane.

This area is west of TH 47 and east of 149th Lane. The area in question is adjacent to the large DNR wetland which abuts TH 47. The petition was initiated by the resident at Lot 3, Block 1, Ramsey Meadows 4th Addition (5410 149th Lane NW). The homeowner contacted the City about water standing in the backyard. Review of the grading plan indicates this area was part of the wetland mitigation plan prepared for the plat and is controlled by the Wetland Conservation Act rules. There is a draintile that connects the backyard to the DNR wetland. Stormwater from the wetland flowed into the back yard which is lower than the wetland. A drainage and utility easement is recorded over the low area of the property. The DNR lists the normal water level of the wetland as 860.0. There is a retaining wall with steps in the backyard, with an elevation at the lowest step at approximately 860.1. The backyard slopes down from the steps so there will be water present when the wetland is at normal elevation.

There is a pipe under TH47, which is the outlet for the wetland, and there is an outlet structure on the pipe that controls the water elevation. The lowest point on the structure was approximately 2 1/2 feet above the normal water elevation at the time the elevated water was occurring last summer. The structure was quickly modified to lower the outflow elevation in an attempt to alleviate the high water concern. The overflow is now 0.8 feet above the normal water elevation, but the structure can still be modified slightly to lower the invert to the approximate normal water level of the wetland (860).

Funding Source:

The funding source for this improvement would be the Stormwater Utility Fund. It is estimated that this structure modification would cost between \$2,000 - \$5,000, but staff would like to meet with local contractors to discuss all options prior to making a final determination.

Staff Recommendation:

Staff recommends modifying the outlet structure to lower the wetland outfall elevation, placement of a flared end section, and removal of vegetation around the outlet pipe.

Committee Action:

Motion to recommend to the City Council that staff seek quotes to modify the outlet structure to lower the outlet elevation of the wetland.

Attachments

Project Location Map

Ramsey Meadows 2nd Additon Plat

Resident Petition

Petition Map

Section 2 of Hakanson Anderson Report

Form Review

Inbox	Reviewed By	Date
Tim Himmer	Len Linton	05/10/2012 03:01 PM
Len Linton (Originator)	Len Linton	05/10/2012 04:08 PM
Tim Himmer	Len Linton	05/11/2012 08:35 AM
Len Linton (Originator)	Len Linton	05/11/2012 09:51 AM
Tim Himmer	Len Linton	05/11/2012 11:03 AM
Len Linton (Originator)	Len Linton	05/11/2012 11:08 AM
Tim Himmer	Tim Himmer	05/11/2012 11:28 AM
Brian Olson	MaryJo Warner	05/11/2012 11:29 AM
Kurt Ulrich	Kurt Ulrich	05/11/2012 11:55 AM

Form Started By: Len Linton

Started On: 05/09/2012 02:46 PM

Final Approval Date: 05/11/2012

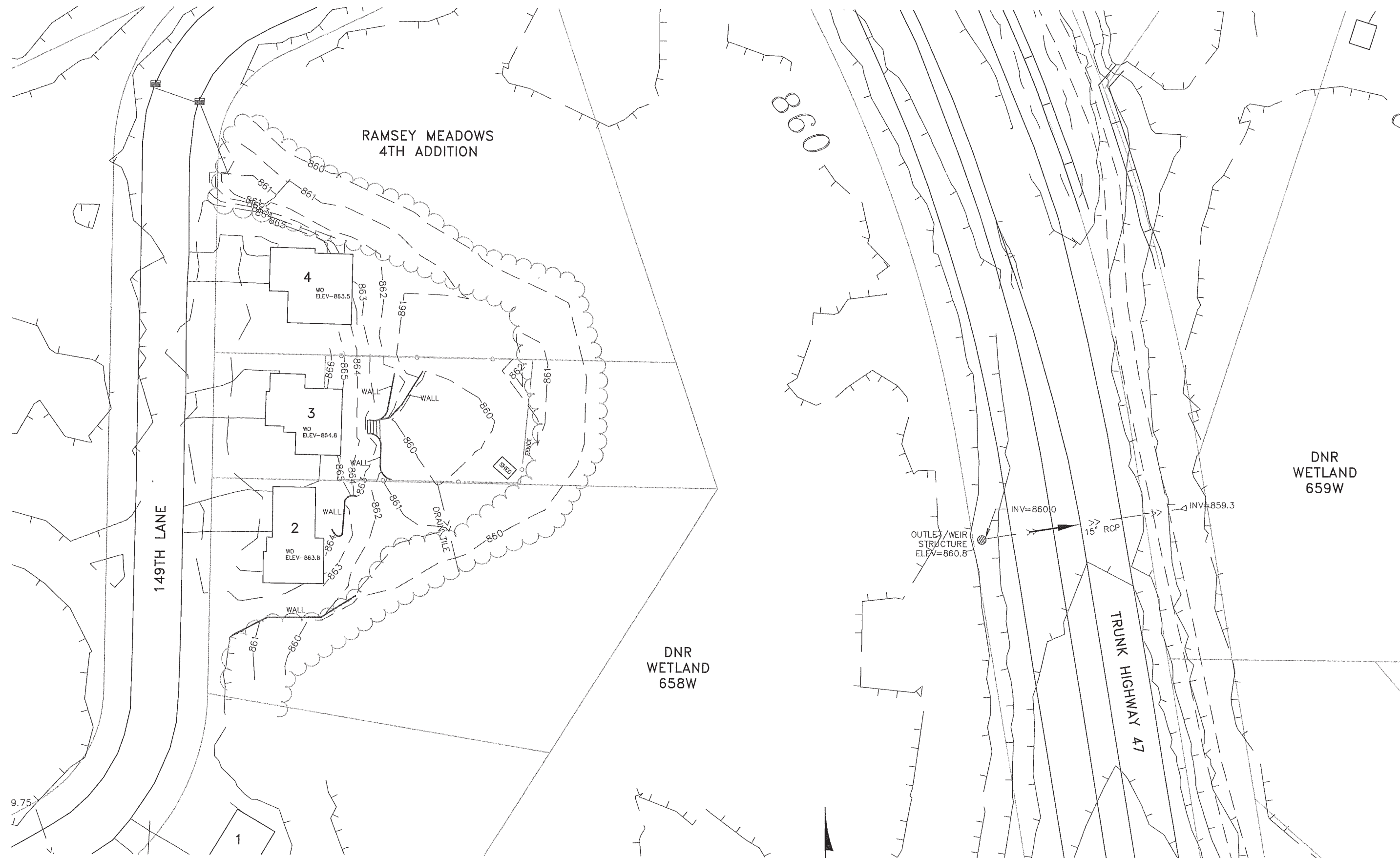
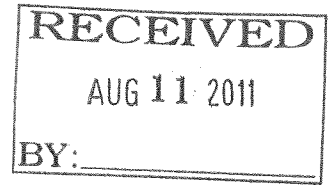


EXHIBIT 5
149TH LANE EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

11 pages
total

Petition



Target: Review drainage problems in the city of Ramsey to cope with the volume of water entering our wetland and to lower the culvert that drains to Rum River.

Background:

We have lived in our homes for over seven years and some residents many more. We have never seen water even close to this amount in our yards. We have little children that this could cause injury or a health threat to. Many areas are filled over their capacity and we feel this is dangerous for our children to play near or around.

Petition:

Many of the houses that are backed up to the wetlands off of 149th lane NW ; Sunwood drive; 148th lane; Fluorine street; Germanium and Erkiun are in the process or have lost their backwards due to the overflow of these wetlands . There is as much as 2 ½ feet of standing water and large portions of are yards, gardens, and sheds under water. The flooding started in May, before the recent rainfalls, and has continued to rise.

We as residents of the neighborhood believe that due to the new construction of houses and roads in the neighborhood this has changed the natural drainage process that was originally planned for this area and needs to be addressed by the city of Ramsey. The wetland we are told is still another foot or so away from reaching the overflow that eventually drains to the Rum River.

We are concerned now for the health and the safety of our children (newborns, special needs children), ourselves, and our pets due to the bacteria produced from the standing water along with the high concentration of mosquitoes that spread disease and we are obviously concerned of the flooding of our homes. The trees that are the noise barrier on highway 47 are starting to die. The market value of our homes has dropped considerably over the last few years and the standing stagnant water in our yards will definitely make it decrease even more. We need this problem to be addressed A.S.A.P.

Contact Person

First Name: Jessica P Rocky

Last Name: Belmonte

Email Address: j.belmonte@hotmail.com

Street Address: 5410 149th lane NW

City: Ramsey State: MN Zip Code: 55303

Signature: Jessica Belmonte Date: 8.5.11

First Name: RANDALL Crumpler

Last Name: Crumpler

Email Address: randallcrumpler@hotmail.com

Street Address: 14780 Fickum St NW

City: Ramsey State: MN Zip Code: 55303

Signature: [Signature] Date: 8-6-11

1/

First Name: Doug Donald Turbett
Last Name: Jaguer
Email Address: DJRollin33@yahoo
Street Address: 5440 149th Ln NW
City: Ramsey State: MN Zip Code: 55303
Signature: [Signature]

First Name: Patrick
Last Name: Daly
Email Address: PJ Daly 7@yahoo.com
Street Address: 5450 149 LN NW
City: Ramsey State: MN Zip Code: 55303
Signature: [Signature]

First Name: Leo
Last Name: MAJENSKI
Email Address: leo.majenki@aol.com
Street Address: 5480 149TH LANE NW
City: RAMSEY State: MN Zip Code: 55303
Signature: [Signature]

2

First Name: TEJ Sherry Klaus

Last Name: CRUTE

Email Address: TS CRUTE@MSN.COM

Street Address: 14780 FLUORINE ST. N.W.

City: RAMSEY State: MN. Zip Code: 55303

Signature: Tej Crute

First Name: KENNETH E SMITH

Last Name: _____

Email Address: KOSMITH@Q.COM

Street Address: 14771 FLUORINE ST NW

City: RAMSEY State: MN Zip Code: 55303

Signature: 

First Name: DANA Julie Gardapee

Last Name: SPAH

Email Address: _____

Street Address: 14801 FLUORINE ST. NW

City: Ramsey State: Mn Zip Code: 55303

Signature: Dana Spah


First Name: Kami
Last Name: Schauer
Email Address: KSchauer@live.com
Street Address: 5428 149th Ln NW
City: Ramsey State: Mn Zip Code: 55303
Signature: Kami Schauer

same address


First Name: KRIS FITZGERALD
Last Name: C/O GRACELYN & ESTELLE FITZGERALD
Email Address: _____
Street Address: 5420 149th Ln NW
City: RAMSEY State: MN Zip Code: 55303
Signature: [Signature]

First Name: Charles
Last Name: Monette
Email Address: cmonette2004@msn.com
Street Address: 5423 149th Ln. N.W.
City: Ramsey State: Mn Zip Code: 55303
Signature: [Signature]

AAT Investments

First Name: John Gibson & Tepi Smith
Last Name: Gibson / Smith Phone 612.437.0705
Email Address: jgbsn@nym.hush.com fax
Street Address: 5400 149 Lane NW 1715-421-6044
City: Ramsey State: MN Zip Code: 55303
Signature:  POA Date 8/11

First Name: Garett & Dee Hanson
Last Name: Hanson
Email Address: dah75@netzero.net
Street Address: 14790 Fluorine St NW
City: Ramsey State: MN Zip Code: 55303
Signature: Dee Hanson / ~~Garett~~ Hanson

First Name: Youssif Elmagri
Last Name: Elmagri
Email Address: youssifelmagri@yahoo.com
Street Address: 5430 149th Lane NW
City: Ramsey State: MN Zip Code: 55303
Signature: 

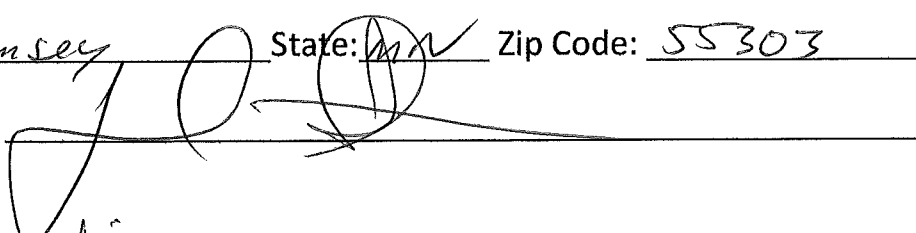
First Name: Joe Different Watershed

Last Name: Schaer

Email Address: joetanaers@hotmail.com

Street Address: 5429 145th Ave NW

City: Ramsey State: MN Zip Code: 55303

Signature: 

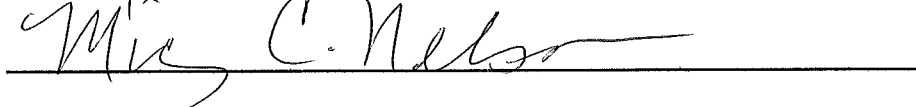
First Name: Mickey

Last Name: Nelson

Email Address: ~~mick~~ murranelsons@a.com

Street Address: 5470 149th Lane N.W.

City: Ramsey State: Mn. Zip Code: 55303

Signature: 

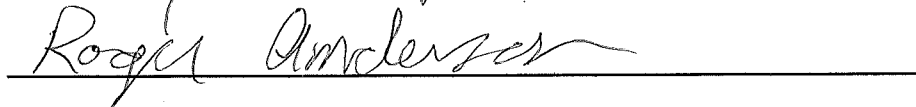
First Name: Roger

Last Name: Anderson

Email Address: RWANDERSON36@comcast.net

Street Address: 5490 149th LN. N.W.

City: Ramsey State: MN Zip Code: 55303

Signature: 

First Name: Somchith

Last Name: Chitmany

Email Address: _____

Street Address: 5460 149 LN MN

City: Ramsey State: MN Zip Code: 55308

Signature: Somchith Chitmany

✓ In to
Master
Lock

First Name: Pam

Last Name: Varner

Email Address: pjvpamela10@gmail

Street Address: 14931 Germanium St NW

City: Ramsey State: mn Zip Code: 55303

Signature: Pam Vo

First Name: RICK L. BERGLBBN

Last Name: _____

Email Address: TRANSAM ONE THREE @ AOL.COM

Street Address: 14851 GERMANIUM ST.

City: RAMSEY State: MN Zip Code: 55303-5113

Signature: Rick L. Berglbbn

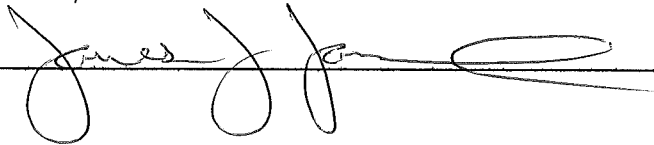
First Name: JAMES JAM

Last Name: JAMINSKI

Email Address: JJAMINSKI@COMCAST.NET

Street Address: 14827 GERMANIUM ST NW

City: RAMSEY State: MN Zip Code: 55303

Signature: 

First Name: Chad

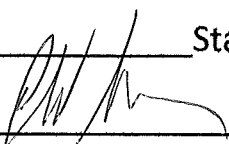
*Anna Hejchar
Chad Selger
O.K.*

Last Name: Selger

Email Address: Cselger@winroc.com

Street Address: 14801 Germanium St

City: Ramsey State: MN Zip Code: 55303

Signature: 


First Name: Jerry

Last Name: Smith

Email Address: _____

Street Address: 14790 Erbium St. NW

City: Ramsey State: MN Zip Code: 55303

Signature: 

First Name: TRISH David & Tricia
Last Name: BATES Osborn
Email Address: 14711 ERKIN ST NW
Street Address: NANTRISH@HOTMAIL.COM
City: Ramsey State: MN Zip Code: 55303
Signature: Trish Bates

First Name: Kathy Strobush
Last Name: Strobush
Email Address: DICKSTROBUS@COMCAST.NET
Street Address: 5409 145th Ln NW
City: Ramsey State: MN Zip Code: 55303
Signature: Kathy Strobush

First Name: Ryan & Katre Lang
Last Name: _____
Email Address: Rlang1018@gmail.com
Street Address: 5115 149th Lane NW
City: Ramsey State: MN Zip Code: 55303
Signature: Ryan & Katre Lang AAT Investments

First Name: Tracey

Last Name: Dowd

Email Address: dowdt@comcast.net

Street Address: 5500 149th Lane NW

City: Ramsey State: MN Zip Code: 55303

Signature: Tracey Dowd

First Name: Cheri + Mike

Last Name: Johnson

Email Address: cheriandmike@usfamily.net

Street Address: 14791 Fluorine St NW

City: Ramsey State: MN Zip Code: 55303

Signature: Cheri + John

First Name: Chris + Alexandra

Last Name: Bertz

Bertolas

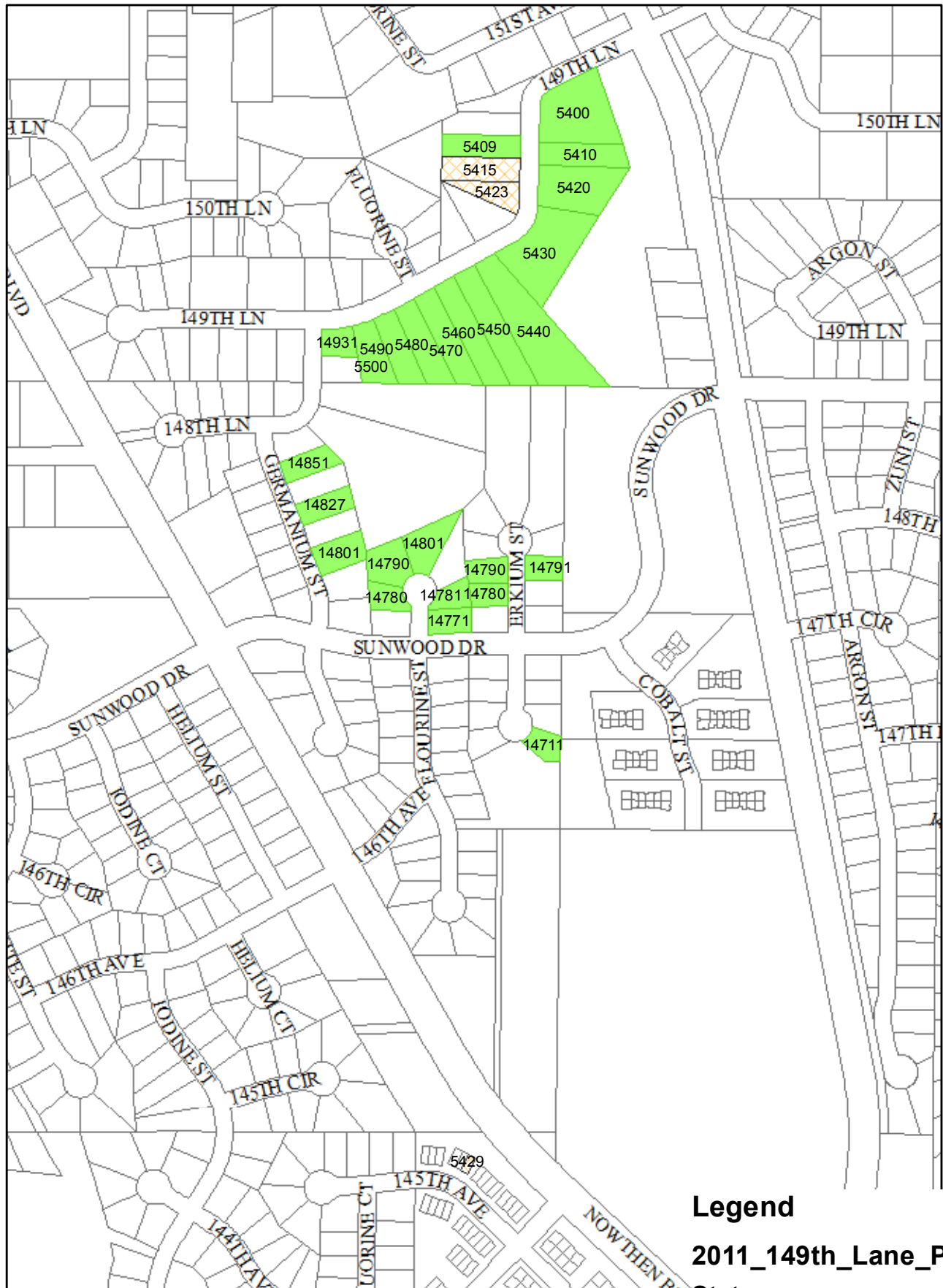
Email Address: bertz.chris@gmail.com

Street Address: 14781 Fluorine St NW

City: Ramsey State: MN Zip Code: 55303

Signature: Chris Bert

2011 149th Lane Petitioning Properties



Legend

2011_149th_Lane_Petition
Status

-  Occupant
-  Owner

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.

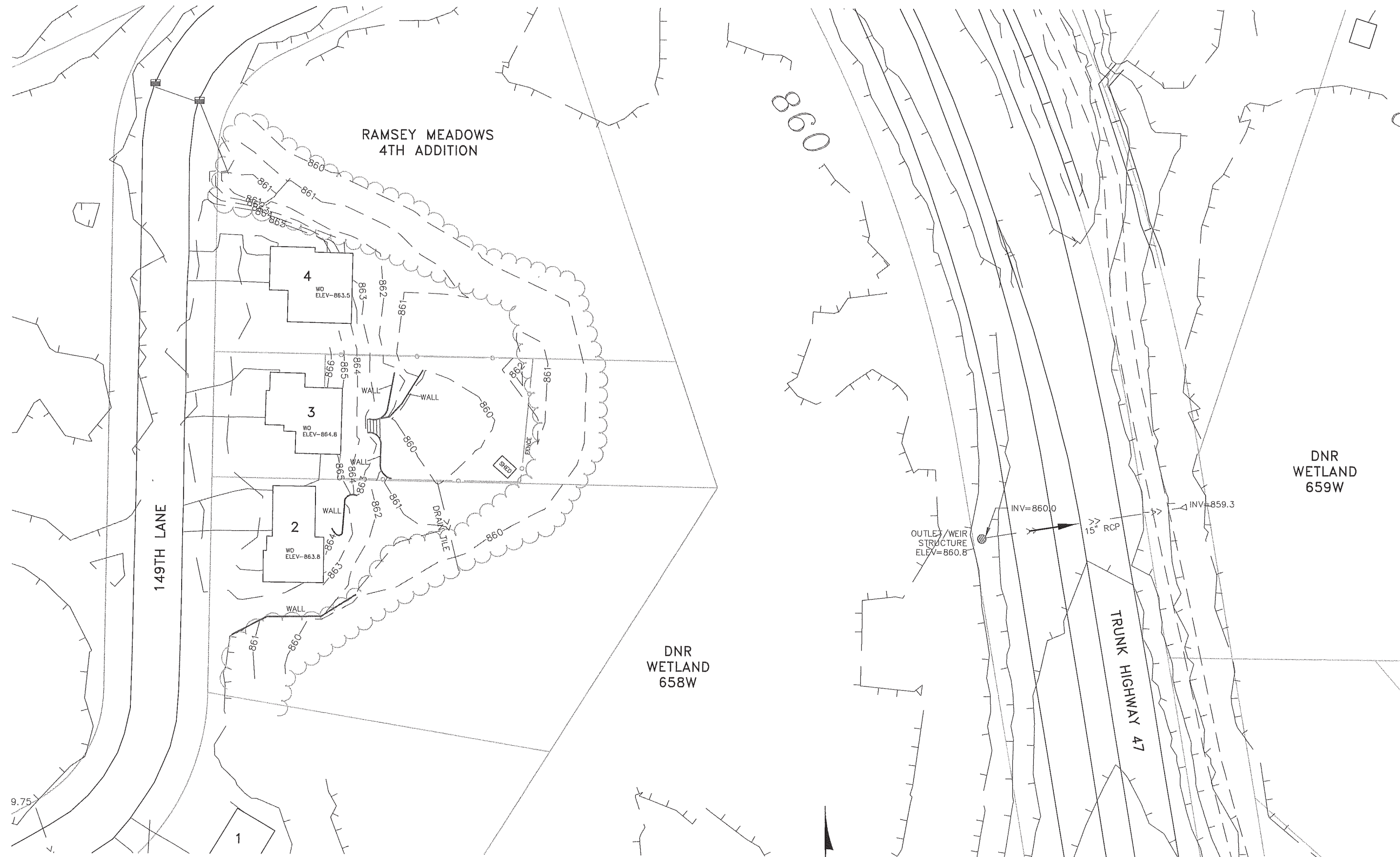


EXHIBIT 5
149TH LANE EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

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.

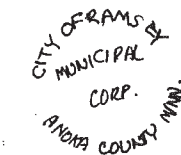
SIGNED:

J. A. MENKVELD & ASSOCIATES, INC.:

J. A. Menkveld
J. A. Menkveld, President

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 day of MAY, 1997.
Book block AM, and was duly recorded in book 54, page 15.

Edward M. Truka
County Recorder
By *KHG*
Deputy



CAINE & ASSOCIATES
LAND SURVEYORS, INC.

BUILDERS MORTGAGE CORPORATION:

Ronald Stratton
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, Anoka County, Minnesota
My Commission expires 1-31-00

STATE OF MINNESOTA) The foregoing instrument was acknowledged before me this COUNTY OF ANOKA) 7th day of October, 1996, by Ronald Stratton, President of Builders Mortgage Corporation, a Minnesota corporation, on behalf of the corporation.

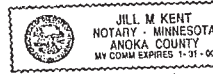


Kathleen R. Caven
Notary Public, Ramsey County, Minnesota
My Commission expires 1-31-2000

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
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 12th day of October, 1996, by Jeffrey N. Caine, Land Surveyor.



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

CITY OF RAMSEY

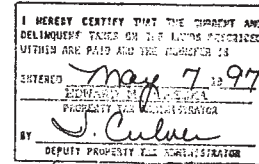
We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY MEADOWS 4TH ADDITION at a regular meeting held this 24th day of September, 1996. If applicable, the written comments and recommendations of the Commissioner of Transportation 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 *Ryan R. Schroeder* Mayor By *Ryan R. Schroeder* Clerk

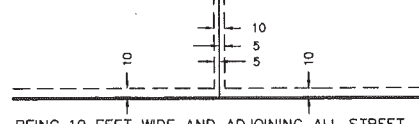
Checked and approved this 7th day of MAY, 1997.

By *Merlyn D. Anderson*
Anoka County Surveyor

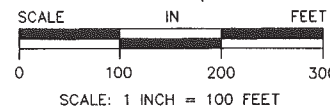
By *Larry S. Ham* deputy



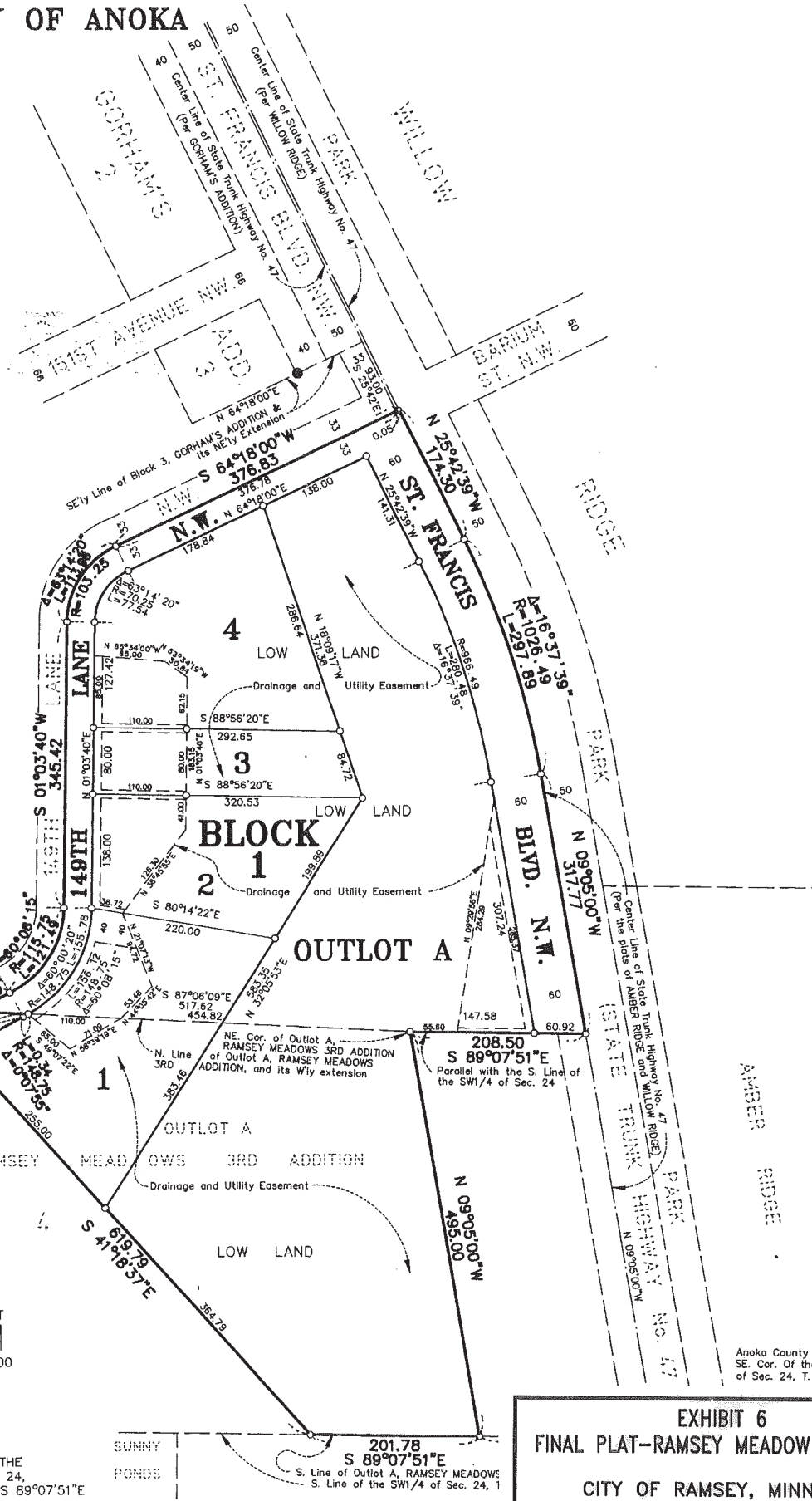
DRAINAGE AND UTILITY EASEMENTS SHOWN THUS:



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 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

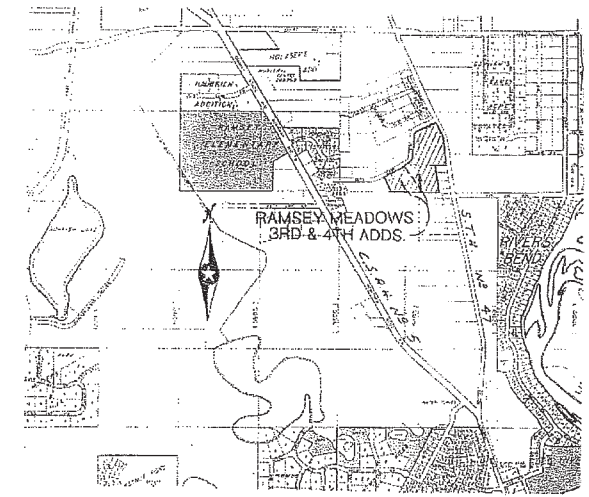
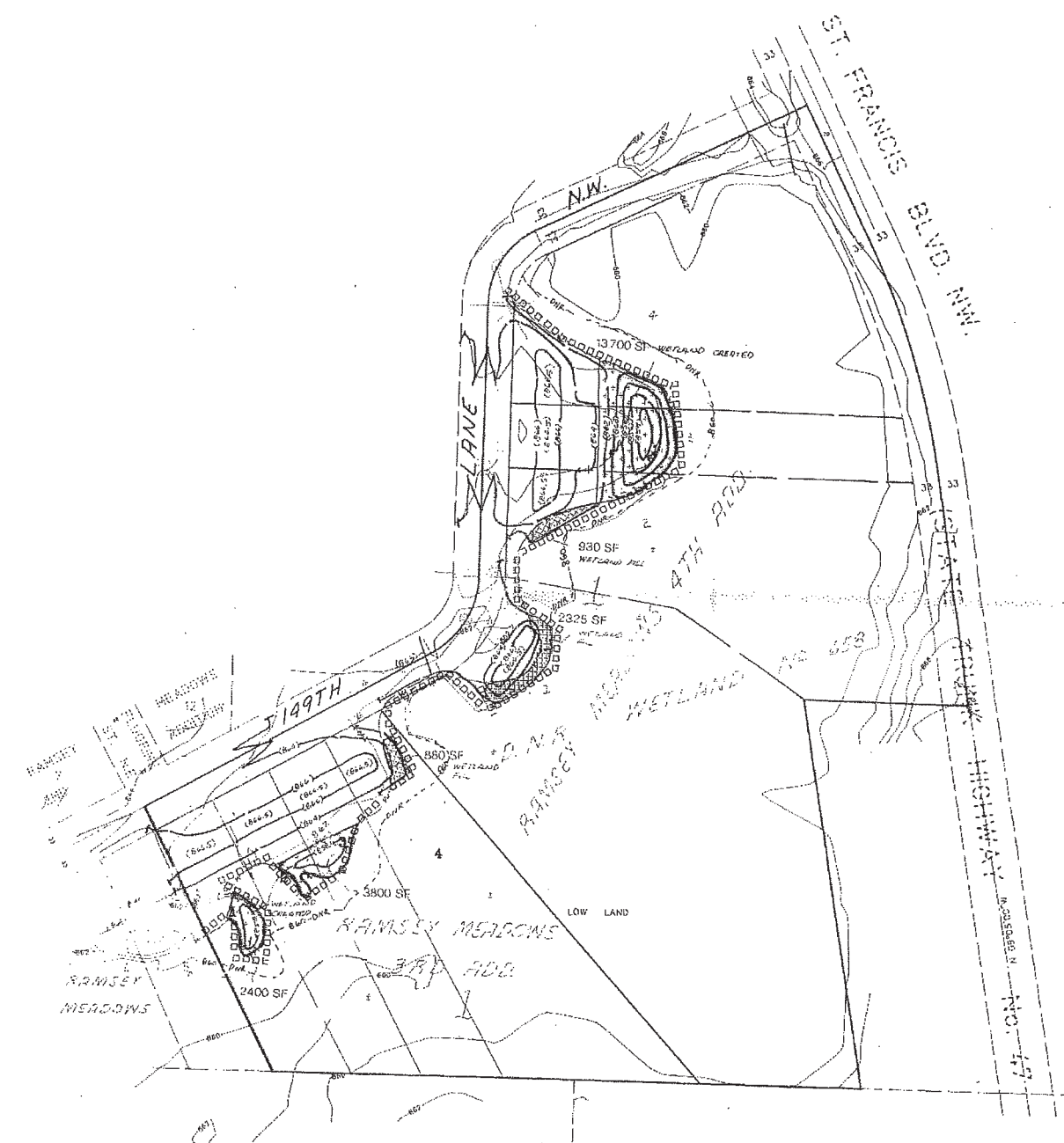


Anoka County Monument at SE. Cor. Of the SW1/4 of Sec. 24, T. 32, R. 25

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

30997/824500

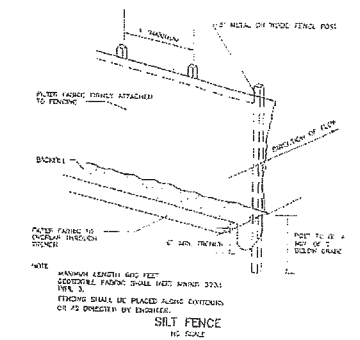
PRELIMINARY GRADING, DRAINAGE & EROSION CONTROL PLAN FOR: **RAMSEY MEADOWS 3RD & 4TH ADDITIONS**



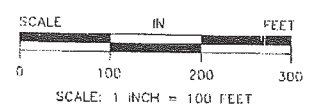
EROSION CONTROL DURING CONSTRUCTION

NOTES:

- 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
- Excavate ponding areas before upland grading.
- 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.
- Sediment control structures must be in place prior to starting of grading and must be maintained until final stabilization has been established.
- Inspect and maintain after rainfall (as required). The inspector is to be
- Vehicle tracking onto unpaved surfaces must be minimized.
- All silt fence shall be removed after the site has undergone final stabilization.



	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.

Jeffrey M. Caine
 DATE: Jan. 28, 2015 REG. NO. 32251

2000.0 DENOTES EXISTING SPOT ELEVATION
 (0000) " " PROPOSED " "
 ---000--- " " EXISTING CONTOUR
 ---(000)--- " " PROPOSED CONTOUR

---DNR--- DENOTES EDGE OF D.N.R. WETLAND N.R. 658.
 ---W---W--- DENOTES EDGE OF WETLAND AS CREATED BY JOHN C. ANDERSON OF WETLANDS DATA, INC. & SURVEYED BY CAINE & ASSOC. LAND SURVEYORS, INC.
 □□□□□□□□□□ DENOTES PROPOSED SILT FENCE

● 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 85 N.E. - Ham. 1c
 434-7846

EXHIBIT 7
RAMSEY MEADOWS GRADING 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	<u>\$1,265</u>

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	<u>\$15,290</u>

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	<u>\$18,755</u>

**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	<u>\$29,040</u>

**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	<u>\$18,755</u>

**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	<u>\$29,040</u>

**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	<u>\$4,681</u>

Public Works Committee

5. 2.

Meeting Date: 05/15/2012

Submitted For: Len Linton

By: Len Linton, Engineering/Public Works

Title:

Consider Stormwater Improvements at Rum River Hills Golf Course - A Continuation of Discussion 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 Golf Course representatives have been notified of the meeting and have recieved a copy of the agenda.

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 an excerpt of 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. This case will focus on section three of the report - Rum River Hills Golf Club.

Rum River Hills Golf Club is located east of Trunk Highway 47 at 167th Avenue NW. Several areas were evaluated and summarized in the report. The golf course was platted in the early 1980's, and at that time linear drainage and utility easements were secured on the site to encumber areas where off-site stormwater was routed through the site. Many areas of the site experienced flooding concerns last summer, and they are summarized as follows:

Hole #1 (Area 1)

There is a large pond located adjacent to Hole #1, which has a 12" plastic pipe that serves as the outlet. This outlet pipe was televised after the flooding was brought to the attention of the City last year, and the video revealed that there were several sags in the line, and many joints have been compromised with root intrusion. This pond was evaluated with the City storm water model, and it was determined that the 12" pipe was the limiting factor and slightly undersized to accommodate the flows. Up-sizing this line to an 18" pipe, and installing a manhole at the outfall would improve the efficiency of the stormwater routing. It should be noted that the City has always worked with the golf course on the outlet to this pond and previously installed a removable weir so they could control the flow leaving the pond with a removable weir. We are proposing to maintain this pond elevation adjustment for the golf course by installing a new manhole structure with a similar feature, as they currently utilize this pond as a course amenity and irrigation supply. The golf course likes to retain as much water as possible in the pond, installing the removable weir will provide the flexibility to retain small storm events and store the water while allowing larger events to pass through the system quickly.

Cart path area near the club house (Area 2A, B)

There is a pond north of the club house which is connected to the pond on hole #1. There are several cart paths around this smaller pond which experience localized flooding on occasion. By up sizing the existing undersized culvert connections we can allow more water to pass through the system quicker. The elevations on certain areas of the paths are below the maximum elevation of the pond. The paths would need to be raised if the intent is to not have water on the paths during the larger storm events, but doing so would have ramifications on other areas of the site upstream.

Saturated soil along Hole #15 (Area 3)

Hole #15 is along the Rum River, and there is a rock dam across the main drainage way from the golf course down to the river. This dam creates a ponding area adjacent to the fairway, and the water elevation of this pool is very close to the fairway grades, resulting in saturated soils in the area. The golf course excavated an area adjacent to the fairway last fall in an effort to determine the source of the water and dry the area up. Several draitile lines were uncovered by the excavation and they appeared to be plugged and collapsed in several locations.

Staff visited the site May 10th and observed the conditions in this area. The golf course has excavated a low area and swale on the edge of the 15th fairway. Golf course representatives said the low area had open water in it that flowed through the swale all winter, but the ponding area behind the dam froze over. This excavated low area has standing water that flows through the swale to the river. The water level behind the dam is approximately 1 foot below the adjacent fairway grades.

The recommendations for this area are two-fold; the golf course will undertake work that is outside of the drainage and utility easement (regrading and/or draitile installation), and the City will provide improvements within the drainage and utility easement. The golf course will monitor the low area this summer and are thinking about improving it into another water feature on the course.

They will also contact a draitile company to evaluate the installation of a new system along the fairway. They are also interested in removing sediment from behind the dam so that they can re-install a floating fountain. Staff will assist by researching state requirements for disposal of pond dredge material.

The City will evaluate options for changing the control structure on the rock dam. Currently there is an open top metal channel approximately 2 feet wide, which directs water over the top of the dam. Rocks are placed against the edges of the channel and as the depth increases water flows over the rocks. There is a metal dam approximately 70 yards upstream which has a flow width of 4 feet. The control structure on the dam should be widened to match



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

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.

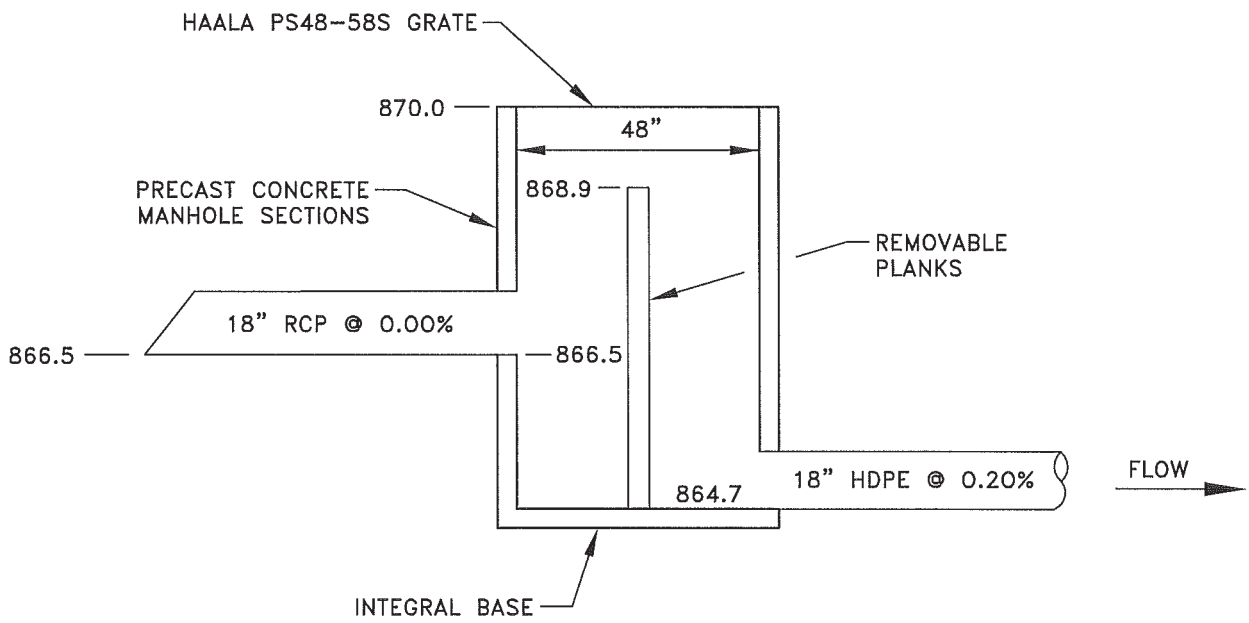
One alternative to lower the HWL’s in the area would be to install bigger culverts. A 21” culvert was modeled to replace the culverts at Area 4A and 4B and a 24” culvert was modeled to replace the culvert at 4C. The following table summarizes the 100-year HWL’s for the three areas:

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.



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



Feb 14, 2012 - 11:42am
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EXHIBIT 10
 RUM RIVER HILLS GOLF CLUB
 PROPOSED OUTLET STRUCTURE
 CITY OF RAMSEY, MINNESOTA

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	<u>\$29,853</u>

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	<u>\$6,642</u>

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	<u>\$13,530</u>

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	<u>\$4,990</u>



EXISTING EASEMENTS

PERPETUAL PONDING EASEMENT 11/9/82

RUM RIVER HILLS GOLF CLUB & DRIVING RANGE

OUTLOT G DRAINAGE EASEMENT 11/9/82

EASEMENT 2

EASEMENT 2

EASEMENT 3

EASEMENT 1

EASEMENT 3

1 BARTHEL'S

14 13

165TH LA NW

165TH

ESTATES

RIVER



Public Works Committee

5. 3.

Meeting Date: 05/15/2012

By: Len Linton, Engineering/Public Works

Title:

Consider Stormwater Improvements at 148 th Lane - A Continuation of Discussion 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 a larger stormwater improvement plan set. Staff has finalized plans for these items, incorporated additional items that were approved at the Public Works Committee meeting in March, and now has these items out for bid. Depending on direction received tonight, for potential improvements to alleviate some of the outstanding concerns, additional plans will need to be prepared.

Notification:

The homeowners adjacent to his ponding area have been notified of the meeting, and have received a copy of the agenda.

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. This case will focus on section one of the report - 148th Lane

The site is east of Nowthen Boulevard (CSAH 5), southeast of Ramsey Elementary School. There is a low area across three (3) lots south of 148th Lane, that was created as a stormwater pond for the area and wetland mitigation for the development. There is a storm sewer inlet to this area along the west edge, which drains the subdivision to the north. There is also an outlet from this area on the east end that connects to a pipe that runs easterly and parallel to 148th Lane. The invert of this outlet pipe is approximately 2.5 feet above the low point in the basin. The outlet pipe also connects to a structure in the boulevard of 148th Lane that takes storm water runoff from the roadway and directs it easterly as described above. The inverts on both these pipes are at approximately the same elevation, and therefore water may be entering this basin that is not intended to flow there from the stormwater system. It was also observed that the basin has several undulations in the ground surface that do not allow the water to evenly spread out across the entire drainage and utility easement; basically there appears to be three separate, somewhat isolated basins.

Hakanson Anderson explored several options for installing another outlet and determined that each option would not significantly affect the high water elevation in the basin, and would justify the costs associated with performing them. Additional easements would need to be acquired, and disruption of neighboring properties would occur. Staff is currently researching check valves that could be placed in the outlet pipe at the manhole to block drainage from the street and only allow water to exit the basin through this structure, thereby eliminating additional flow to the area.

Funding Source:

The funding source for these improvements is the storm water utility fund. It is estimated that regrading the basin and installing a backflow valve on the outlet pipe would cost approximately \$7,500 to \$12,500.

Staff Recommendation:

Staff recommends regrading the backyards of the three properties to better distribute water in the basin, and re-establish the original pond contours. It is further recommended to install a backflow valve on the outlet pipe to direct storm water runoff from 148th Lane to the intended downstream receiving body.

Committee Action:

Motion to recommend to the City Council that staff seek quotes to regrade the backyards of the three properties to better distribute water in the basin and re-establish the original pond contours, and to install a backflow valve on the outlet pipe to direct storm water runoff from 148th Lane to the intended downstream receiving body.

Attachments

Project Location Map

Section 1 of Hakanson Anderson Report

Form Review

Inbox	Reviewed By	Date
Tim Himmer	Len Linton	05/11/2012 08:35 AM
Len Linton (Originator)	Len Linton	05/11/2012 09:51 AM
Tim Himmer	Len Linton	05/11/2012 11:03 AM
Len Linton (Originator)	Len Linton	05/11/2012 11:08 AM
Tim Himmer	Tim Himmer	05/11/2012 11:25 AM
Brian Olson	MaryJo Warner	05/11/2012 11:29 AM
Kurt Ulrich	Kurt Ulrich	05/11/2012 11:54 AM

Form Started By: Len Linton

Started On: 05/09/2012 02:41 PM

Final Approval Date: 05/11/2012



DNR
WETLAND
658W

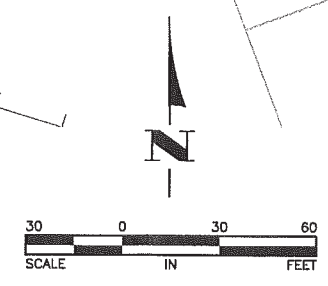


EXHIBIT 4
148TH LANE ALTERNATIVE 2 STORM SEWER
 CITY OF RAMSEY, MINNESOTA

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” 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 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 the 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

DNR
WETLAND
658W

860

SUNNY PONDS

GERMANIUM STREET

NORTHEN BOULEVARD

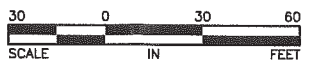
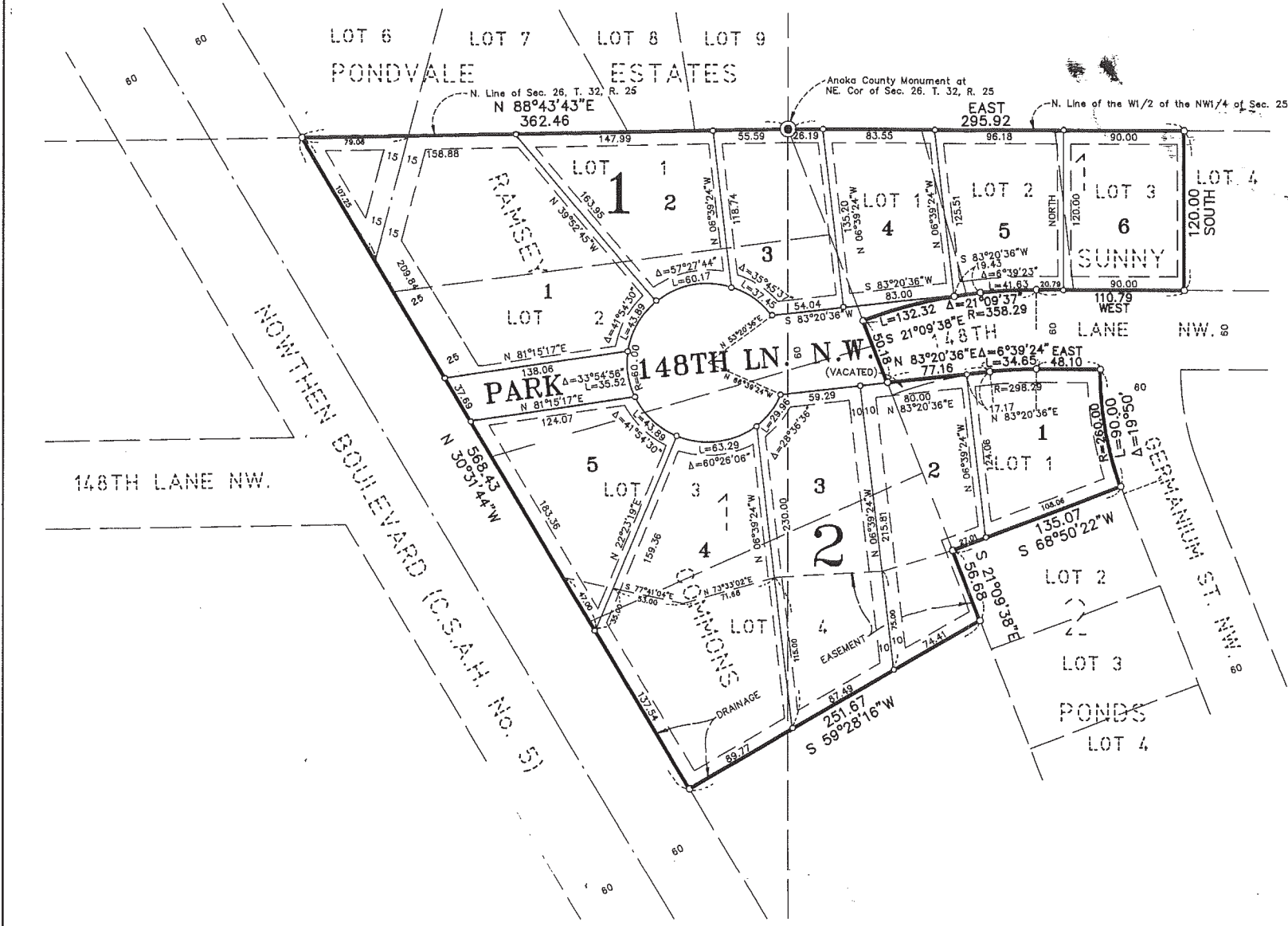


EXHIBIT 1
148TH LANE EXISTING CONDITIONS
CITY OF RAMSEY, MINNESOTA

RAMSEY COMMONS 2ND ADDITION

CITY OF RAMSEY
COUNTY OF ANOKA



KNOW ALL PERSONS BY THESE PRESENTS: That North Suburban Development, Inc., a Minnesota Corporation, owner and proprietor, and Dolores 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 Dolores 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. Henkveid
J.A. Henkveid, as President

SIGNED:
Dolores S. Fleischer
Dolores 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) Henkveid, 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 Dolores 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. McINERNEY
NOTARY PUBLIC-MINNESOTA
ANOKA COUNTY
My Commission Expires FEB. 22, 1998

Margaret A. McInerney
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

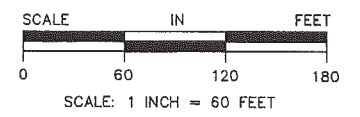
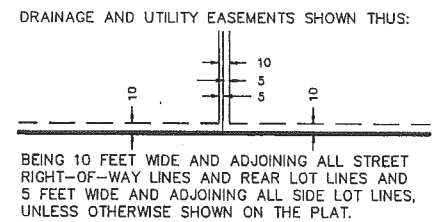
We hereby certify that the City Council of the City of Ramsey, Anoka County, Minnesota, duly accepted and approved the plat of RAMSEY COMMONS 2ND ADDITION at a regular meeting held this 14th day of May, 1993. If applicable, the written comments and recommendations of the Commissioner of Transportation 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 Minn. Statutes, Section 509.03, Subd. 2.

By *James R. ...* Mayor By *Deborah ...* Clerk

Checked and approved this 29th day of June, 1993

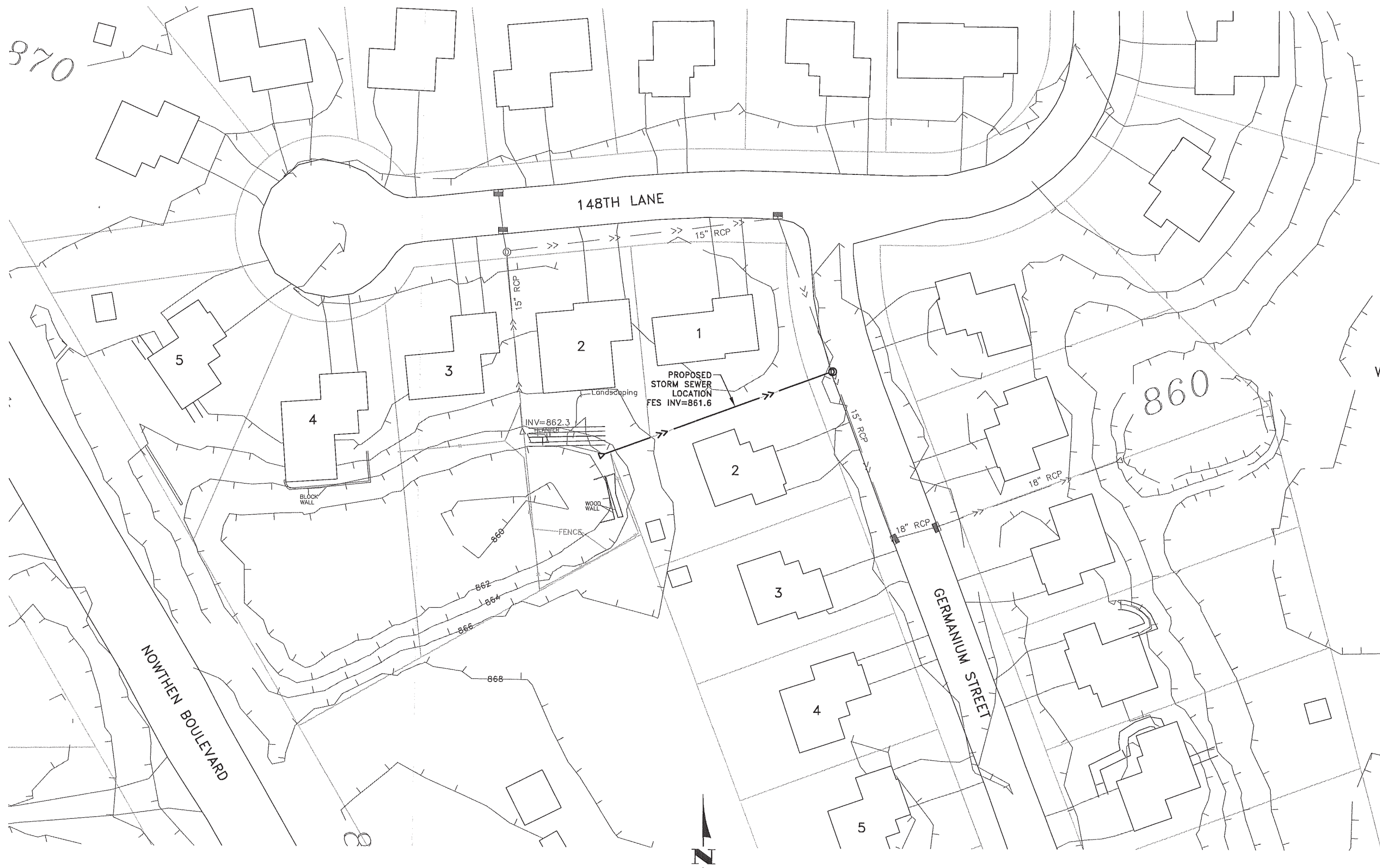
By *M. J. D. ...*
Anoka County Surveyor

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



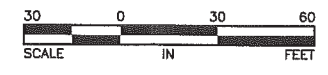
NOTE: DENOTES 1/2 INCH IRON PIPE SET.
DENOTES ANOKA COUNTY MONUMENT.
FOR THE PURPOSES OF THIS PLAT, THE NORTH LINE OF THE W1/2 OF THE NW1/4 OF SEC. 25, T. 32, R. 25 IS ASSUMED TO HAVE A BEARING OF EAST.

CAINE & ASSOCIATES
LAND SURVEYORS, INC.



DNR
WETLAND
658W

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



Feb 13, 2012 - 2:42pm
 K:\cod_surv\Land Desktop 2008\RA432\dwg\RA432-EXHIBITS.dwg



DNR
WETLAND
658W

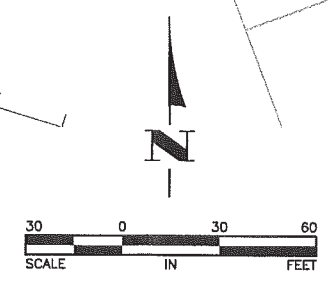


EXHIBIT 4
148TH LANE ALTERNATIVE 2 STORM SEWER
 CITY OF RAMSEY, MINNESOTA

**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	<u>\$16,264</u>

**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	<u>\$31,566</u>

**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	<u>\$45,381</u>

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	<u>\$13,098</u>

**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	<u>\$18,846</u>

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	<u>\$32,543</u>

**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	<u>\$15,321</u>

Public Works Committee

5. 4.

Meeting Date: 05/15/2012

By: Tim Himmer, Engineering/Public Works

Title:

Consider the Installation of Stop Signs and an In-Street Pedestrian Crossing Sign Near 150th Lane NW and Ute Street NW

Background:

On April 3, 2012 staff received a petition signed by twelve property owners in the neighborhood near the intersection of 150th Lane NW and Ute Street NW, including three of the four properties that make up the corner lots. They are requesting the installation of stop signs at this intersection, consideration for the installation of an in-street pedestrian crossing at the location of the existing City trail crossing on 150th Lane, and reduction of the speed limit on 150th Lane to 15 MPH (see attached maps). Staff has reviewed the signatures and compared them to Anoka County property records, and there appears to be one signature that does not match the property owner as identified in the Anoka County system. There is often a lag in updating the County system once a property transfers, so this may be the case for this particular property, but at this time staff is considering the petition complete with eleven confirmed property owner signatures.

City Charter requires the Council to receive all petitions submitted at the next available meeting, so this item was placed on the April 10th regular City Council agenda as a consent case and accepted. Traffic related requests such as this are typically forwarded to the Public Works Committee prior to Council action, therefore the item is before you tonight for consideration.

The organizer of the petition states that vehicles travel through the area at a high rate of speed, and use these roadways and a way to avoid the traffic signal on Alpine Drive and TH 47. It should be noted that Waco Street and 149th Avenue are Municipal State Aid (MSA) streets in the City's transportation system. Staff has performed a cursory review of the intersection in anticipation of this case and offers the following information.

- **Accident history** - Staff has requested an accident history report for this intersection, along with 150th Lane and Waco Street. The information was not available at the time of case preparation, but should be available for the meeting.
- **Traffic** - twenty-four hour traffic counts were taken on all four legs of this intersection by public works crews on Tuesday May 8th. The police department also placed the speed trailer along 150th Lane for a twelve hour period on April 17th. The peak hour count represents an approximate average value of 10% of the total daily traffic volume, and was found to occurred on 150th Lane between approximately 3:30 pm and 4:30 pm. The results of this traffic volume study are as follows:

STREET	LEG	DAILY TRAFFIC	PEAK HOUR TRAFFIC
Ute St	West	184	
Tonto St	North	170	
151st Ave	East	142	
150th Ln	South	417	51
INTERSECTION TOTAL		913	

- **Sight Distance** - The sight line for all approaches to this intersection are good and unobstructed.

Notification:

The organizer of the petition has been notified that this item is being placed on the Public Works Committee agenda.

Observations:

The Minnesota Manual on Uniform Traffic Control Devices (MNMUTCD) provides guidance on the placement of stop signs. The manual states that in many low traffic volume situations with no unusual history of intersection crashes, no control is an effective strategy because each driver is required to assume responsibility for proceeding safely through the intersection. This uncontrolled intersection can be considered a low volume intersection as is evidenced by the daily traffic counts shown above, therefore the installation of stop signs does not appear to be a good solution for this intersection.

The south leg of the intersection (150th Lane) is by far the busiest as it functions as a collector route off our MSA system to both Alpine Drive and Th 47. While speed was not a concern on this roadway; average speed of 20 MPH, maximum speed of 31 MPH, and 85th percentile speed of 24 MPH, the roadway curvature and mid-block City trail crossing do provide some special circumstances that may warrant additional investigation. A speed study could be requested from the state Commissioner of Transportation, in an effort to determine whether this section of street could receive a lower posted speed limit. An in-street pedestrian crossing may also further accentuate the striped trail crossing and serve to slow traffic through the area. Street chokers could also be consider for the roadway section at the location of the trail crossing, and could be incorporated into the design when this area is due for road maintenance activities, which is currently due for a sealcoat application. This type of improvement would be additional work beyond the scope of a typical sealcoat. Future road maintenance and reconstruction throughout the City are currently being discussed by the Council, and the timing for this street will be budget dependent.

Funding Source:

The investigation and analysis of this petition request has been and will continue to be accomplished utilizing staff time.

Staff Recommendation:

Staff recommends the following:

- A stop sign not be posted on this intersection.
- Staff should investigate the opportunity to include enhanced signage and chokers on 150th Lane when future maintenance activities are completed in the area. Since this is an improvement that is more than what is typically done, and is at the request of the residents in the area, additional assessments may be required.

Additionally, if the Council and residents should desire, a request could be forwarded to the state Commissioner of Transportation to request a speed study be conducted on this segment of 150th Lane.

Committee Action:

Based upon discussion.

Attachments

[Location Map](#)

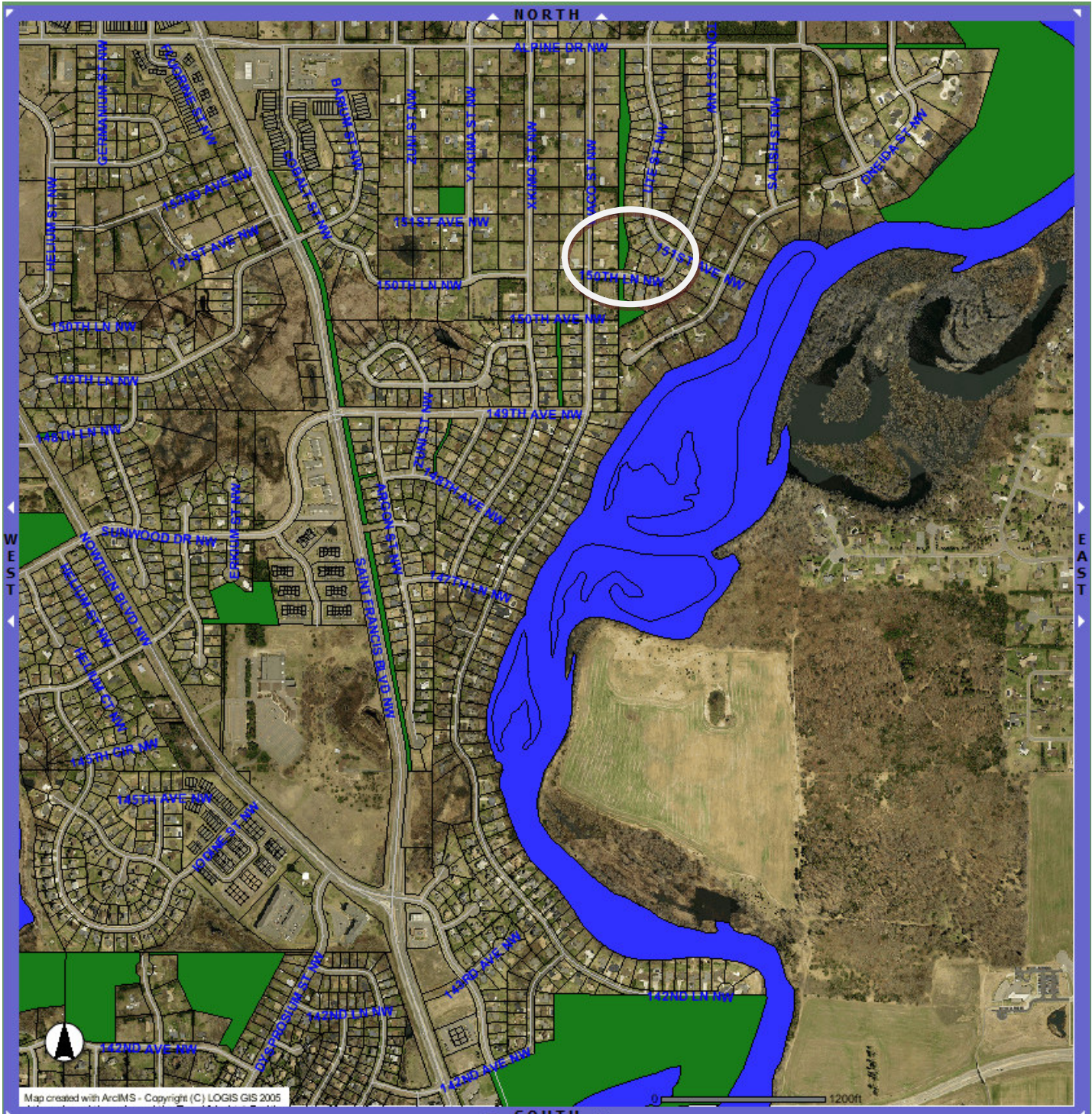
[Petition Map](#)

[Petition](#)




Form Review

Inbox	Reviewed By	Date
Brian Olson	Kathy Schmitz	05/11/2012 10:48 AM
Kurt Ulrich	Kurt Ulrich	05/11/2012 11:50 AM
Form Started By: Tim Himmer		Started On: 05/08/2012 05:09 PM

Final Approval Date: 05/11/2012





-  Confirmed signature (11)
-  Unconfirmed signature (1)
-  Existing City trail crossing

Petition for Traffic and Speed study as well as a Informal Crosswalk for:

150th lane Ramsey Mn, 55303

PRINT NAME

ADDRESS

SIGNATURE

- ✓ 1. BEN BERGAN / 15108 UTE ST / Ben Bergan
- ✓ 2. Deborah Meyer / 4970 150 LN / Deborah Meyer
- ✓ 3. Jesse Anderson / 4980 150 LN / Jesse Anderson
- ④ Edward Otterness / 4990 150th Ln / Ed Otterness
- ✓ 5. Kelly Provance / 4981 150th LN / Kelly Provance
- ✓ 6. April Miller Larson / 4960 150th Ln NW / April Miller Larson
- ✓ 7. Kris Urman / 4940 150th Ln NW / Kris Urman

GOAL:

-
- **Stop sign on intersection of 150th lane & Ute st**
- **Informal crosswalk on 150th lane**
- **Reduction of speed to 15 MPH on 150th lane**

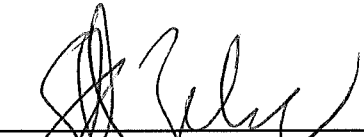
Petition for Traffic and Speed study as well as a Informal Crosswalk for:

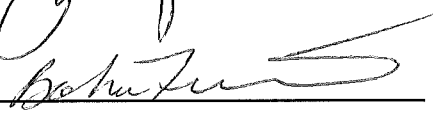
150th lane Ramsey Mn,55303

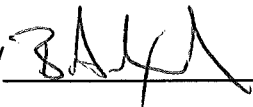
PRINT NAME

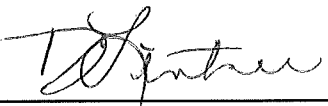
ADDRESS

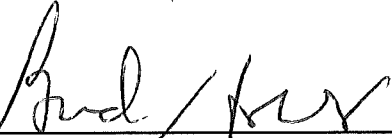
SIGNATURE

✓ 1. Scott Zehner / 15110 JRESTMW / 

✓ 2. Baha Faran / 1510 Tonto St / 

✓ 3. Bill Alexandre / 15111 Tonto / 

✓ 4. Diane Lentz / 15119 Tonto / 

✓ 5. BRAD HOLMBO / 15110 Tonto St / 

6. _____ / _____ / _____

7. _____ / _____ / _____

8. _____ / _____ / _____

9. _____ / _____ / _____

10. _____ / _____ / _____

Public Works Committee

5. 5.

Meeting Date: 05/15/2012

By: Tim Himmer, Engineering/Public Works

Title:

Discuss Trail Easement at 15620 Krypton Street NW

Background:

In January of 2012 staff was contacted by an individual that was considering purchasing the property at 15620 Krypton Street NW. The main topic of conversation was related to the existing bituminous trail that extends down the east property line and into the backyard. He was inquiring whether there was a purpose for this trail, and when it might be utilized in the future. Reviewing property files it was discovered that this trail was intended for a dual purpose; a maintenance access to the City's sanitary sewer system, and a pedestrian connection.

When WILDLIFE SANCTUARY 3RD was subdivided in 2003 the trail construction was an obligation of the development agreement (see attached development agreement excerpt), and was to be located along the common lot line between lots 5 and 6, Block 3. Extension of a gravity sanitary sewer was also a requirement of the project, such that an existing lift station could be eliminated when a future trunk extension was complete through a neighboring development to the north and west. During construction the sanitary sewer had to be realigned slightly due to environmental constraints, and additional sanitary sewer easements were granted for this new alignment at that time.

It appears the trail was constructed over the top of the sanitary sewer trunk line that will be used in the future, and not along the entire extents of the common lot line, as referenced. The separate recordable trail easement referenced in the development agreement does not appear to exist, therefore we currently only have rights to access the easement area for drainage and utility purposes.

This item was discussed by the Public Works Committee on February 21, 2012, with the direction being to leave things as is until such time that a pedestrian trail easement could be secured. There was also discussion that since this individual was not the property owner there was no ability to negotiate acquisition of such an easement. Staff made contact with the property owner to the east of this lot to determine whether that they would be open to the discussion of a pedestrian trail easement along the common lot line, as was originally proposed within the dedicated drainage and utility easement. The property owner expressed the desire to vacate a portion of the drainage and utility easement along the rear lot line, potentially in exchange for a pedestrian trail dedication along the west lot line. After reviewing the existing sanitary sewer in the rear yard it was determined that the City would not be able to accommodate this request, which was relayed to the resident in early April, and discussed terminated at that point.

City staff relayed this information back to the prospective lot purchaser of 15620 Krypton Street, who then asked that the attached letter be forwarded to the Public Works Committee and Mayor for consideration. It was also discussed that they would soon be closing on the property, which will be occurring on May 25th. They are concerned about having a trail through the center of his backyard forever and are requesting that the City relocate the trail into the easement along the common lot line, as it was originally intended. They understand the dual purpose of the trail and are accepting of its intended use, for utility maintenance and pedestrians, but would like to see it placed on the lot line as intended. The letter outlines a couple of proposed scenarios to resolve this matter within their property and are seeking Committee and Council reaction.

Notification:

Staff has sent notice to both property owners regarding this meeting.

Observations:

From a public works perspective a paved access is preferred for utility maintenance in these situations because we often receive complaints from residents after we access their property with heavy equipment and rut up/damage their lawns and/or irrigation systems. Currently there is no need to access the sanitary sewer in this location, because it will not be utilized until the adjacent area to the north and west develops, or the City decides it wants to construct this gravity system. It will most likely remain in place until such time that development of the adjacent land occurs and the final trunk alignment is reviewed with a land use application. Staff believes it would even be appropriate to require the adjacent future development to be responsible for revisions to the sanitary sewer system that would support their project, and also to construct approximately 100' of trail along the common lot line as a pedestrian connection (if necessary).

A pedestrian trail in this location is currently shown on the City's Master Park and Trail Plan, so this matter will need to be addressed at some point.

Funding Source:

There is no funding request associated with this matter, to date staff time has been used for research and communications.

Staff Recommendation:

Staff would like to know if the Public Works Committee has changed it's stance on resolving this matter in the short term, and whether an agreement can be reached with the property owner on their proposal letter.

Committee Action:

Based upon discussion.

Attachments

[Location Map](#)

[Property Aerial](#)

[Wildlife Sanctuary 3rd Plat](#)

[Development Agreement Excerpt](#)

[Property Owner Letter to the Committee](#)

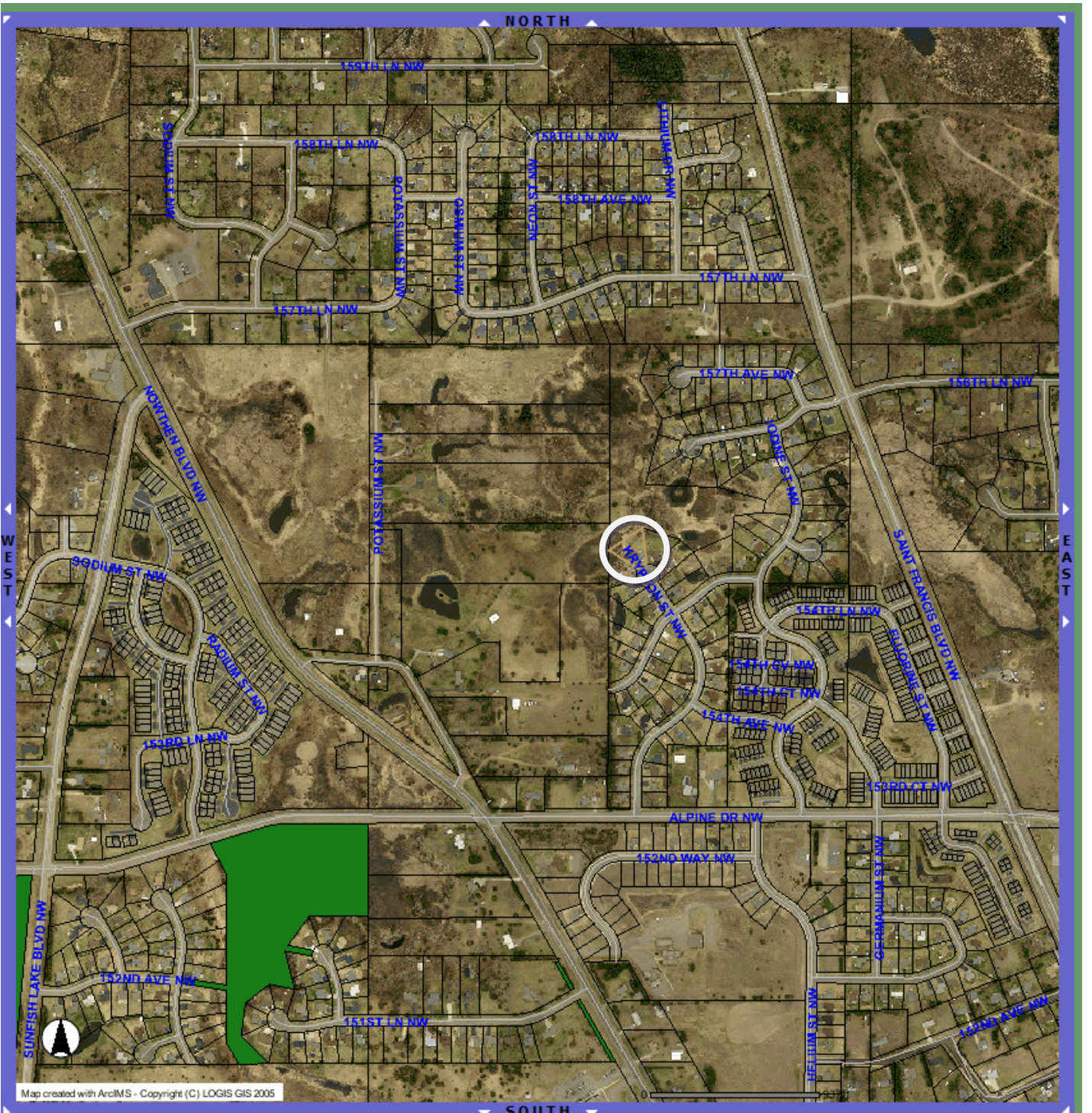
[Sanitary Sewer Alignment](#)

[Master Park and Trail Map](#)

Form Review

Inbox	Reviewed By	Date
Brian Olson	Kathy Schmitz	05/11/2012 10:48 AM
Kurt Ulrich	Kurt Ulrich	05/11/2012 11:52 AM
Form Started By: Tim Himmer		Started On: 05/08/2012

Final Approval Date: 05/11/2012

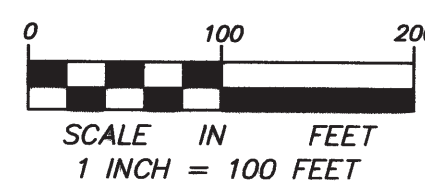


15620 Krypton Street NW Location Map



15620 Krypton Street NW

WILDLIFE SANCTUARY THIRD ADDITION

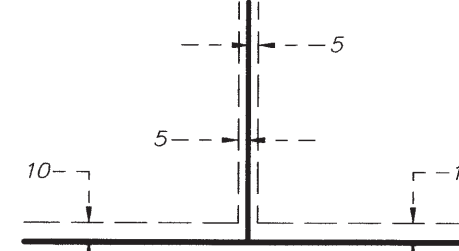


FOR THE PURPOSES OF THIS PLAT, THE SOUTH LINE OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 23, TOWNSHIP 32, RANGE 25 IS ASSUMED TO HAVE A BEARING OF SOUTH 88 DEGREES 59 MINUTES 07 SECONDS WEST.

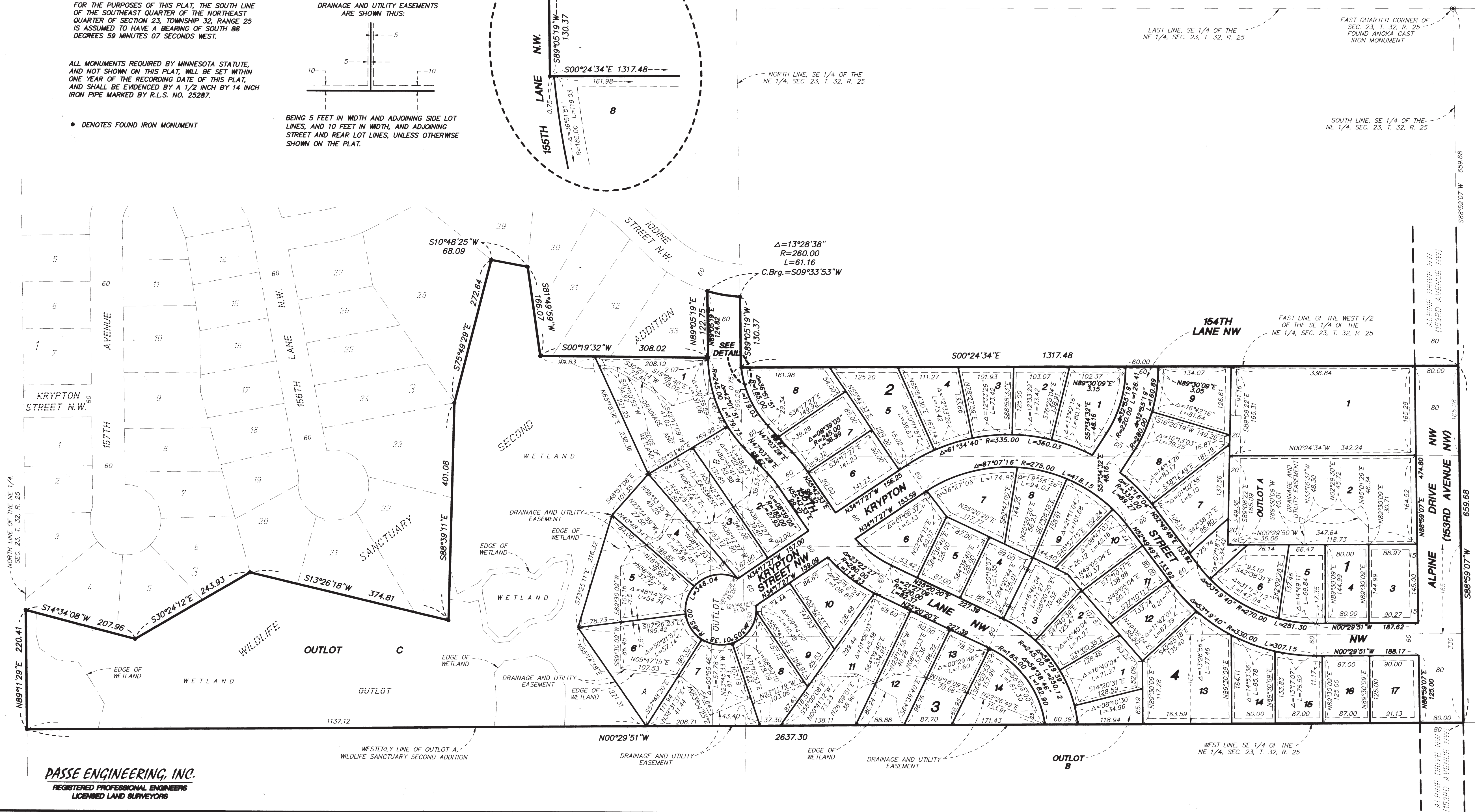
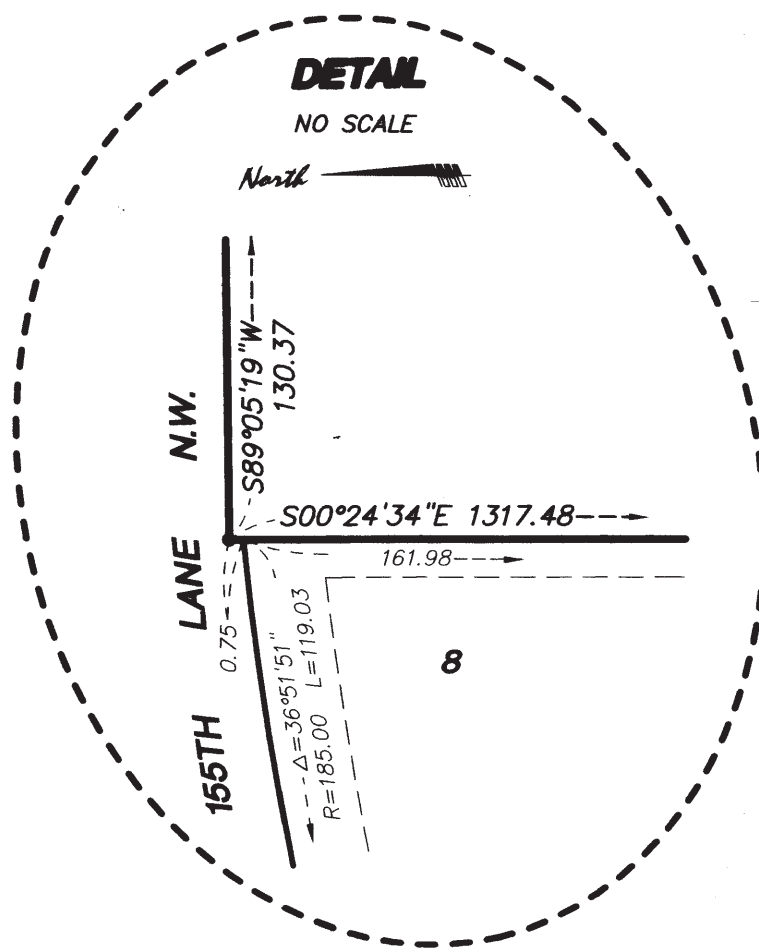
ALL MONUMENTS REQUIRED BY MINNESOTA STATUTE, AND NOT SHOWN ON THIS PLAT, WILL BE SET WITHIN ONE YEAR OF THE RECORDING DATE OF THIS PLAT, AND SHALL BE EVIDENCED BY A 1/2 INCH BY 14 INCH IRON PIPE MARKED BY R.L.S. NO. 25287.

• DENOTES FOUND IRON MONUMENT

DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS:



BEING 5 FEET IN WIDTH AND ADJOINING SIDE LOT LINES, AND 10 FEET IN WIDTH, AND ADJOINING STREET AND REAR LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.



PASSE ENGINEERING, INC.
REGISTERED PROFESSIONAL ENGINEERS
LICENSED LAND SURVEYORS

**SECTION V
TRANSPORTATION AND LANDSCAPING**

17. **Park Trail Development and Fees.** The City Council has established a trail development fee in the amount of Four Hundred Seventy Five Dollars and no cents (\$475.00) per lot. The three (3) existing homesteads are exempt from this fee. The amount of trail fees due on the Plat is Twenty One Thousand Dollars Three Hundred Seventy Five Dollars and no cents (\$21,375.00) (45 lots x \$475.00 per lot). The **DEVELOPER** herein agrees to construct a sidewalk along one side of the Krypton Street N.W. cul-de-sac to the common property line of Lots 5 and 6 of Block 3. The **DEVELOPER** also agrees to construct an 8 foot wide bituminous trail along the entirety of the common property line between Lots 5 and 6 of Block 3. The **CITY** herein agrees to credit the trail development fees due on the **Plat** in an amount equal to the surface costs associated with the trail and sidewalk segments described in this paragraph. The amount of the credit shall be One Thousand Eight Hundred Sixty Dollars and no cents (\$1,860.00). Therefore, a payment in the amount of Nineteen Thousand Five Hundred Fifteen Dollars and no cents (\$19,515.00) is due to the **CITY** for this **Plat**.

The **DEVELOPER** herein agrees to provide the City with a separate document, in recordable form, granting the City a fifteen foot (15') wide easement for trail and access purposes on the common property line between Lots 5 and 6 of Block 3.

18. **Sidewalk Construction.** The **DEVELOPER** herein agrees to construct and pave, in accordance with **CITY** standards, a five (5) foot wide concrete sidewalk with pedestrian ramps in locations prescribed by the **CITY**, not to exceed 5% in grade, along the east side of Krypton Street N.W., and the south side of 155th Lane N.W. and 154th Lane N.W. The costs associated with sidewalk construction are not eligible as a credit towards the Trail Development Fees and/or Park Dedication requirements due on the **Plat**.

19. **Tree and Sod Planting Plan.** Sodded boulevards, in addition to yard trees in accordance with the Final Tree Plan dated March 27, 2003, revised April 17, 2003, are required for each lot in the **Plat** prior to issuance of a Certificate of Occupancy. The **DEVELOPER** is required to submit a Final Tree Plan for **CITY** approval that identifies existing tree growth within the **Plat** that will be protected during construction, and the location and species of the new plantings. The trees to be protected must be identified on the grading plan, and the plan must require the installation of 'tree save fences' prior to land clearing or grading. In addition, the requirement for this Plan shall be fulfilled by the **DEVELOPER** as follows:

- a) Minimizing the impact of construction on trees in accordance with Minnesota Extension Service publication "Protecting Trees From Construction Damage" (Publication #NR-FO-6135-S).
- b) For trees intended to be planted between the sidewalk and the street, the specific locations must be staked in advance of planting and approved by the **CITY**. In the event the weather is not conducive to tree or planting sod in the boulevard at the time of Certificate of Occupancy, the Building Permit holder shall place a cash deposit in

Josh & Shawna Dvorak
17131 Nixon Drive NW
Elk River, MN 55330
February 26, 2012

City of Ramsey
Public Works and City Council Members
7550 Sunwood Dr NW
Ramsey, MN 55303

Dear Mr. Himmer:

We wanted to thank you for all of the support you have provided in our pursuit to resolve the issue with the path in the backyard of our future home. We, as the potential homeowners of 15620 Krypton Street NW have developed three proposed scenarios for the dual-purpose utility maintenance and pedestrian trail located on this property. We believe it is best to form a partnership with the city and provide a solution that is consistent with the original plan, but will also be a beneficial and cost effective solution for all parties involved; the city, us as the future homeowner, and the taxpayers of the City of Ramsey.

This correspondence outlines the three potential scenarios for this dual-purpose trail though the backyard at 15620 Krypton Street NW. It outlines the benefits to the city and the homeowner, the concessions that would be made by both, the responsibilities for each, and the estimated costs.

OBJECTIVE

We are proposing a partnership with the City of Ramsey to move the utility path currently located across the middle of the backyard to a straight line following the lot line as documented in the original plans in a way that would meet the needs of all parties involved.

SCENARIO ANALYSIS

Scenario one (most optimal for all involved):

To assist the city achieve their goal for the development of a interconnected pedestrian trail system throughout the city, we would agree to sign the agreement allowing this trail to reside on our property. We suggest the sale of the land to the city at 50% of the fair market value ⁽¹⁾ \$1,365.64 (7.5 * 199 * 1.83 *.50). In this scenario the city would obtain full use of 7.5 ft. of land along the eastern lot line. The City would be responsible for the removal and disposal of the current pavement crossing the yard, back to the easement along the property line. The homeowner would be responsible for restoration of the lawn following the removal. To provide access to service the current and future utility line, a manhole could be installed on the paved trail. As discussed with the city engineer and public works committee, this is a reasonable request and would satisfy the needs of the city.

Though this partnership, the benefits to the city would be:

- City would obtain the legal rights for a pedestrian trail in addition to the utility access needed along the property lot line

- City would not be responsible for lawn restoration
- Pavement removed can be recycled for the pavement needs of future paths, reducing the cost for disposal and materials
- City pays only 50% of fair market value for the pedestrian trail access rights

Though this partnership, the benefits to the homeowner would be:

- Path would be straight, preserving integrity of the backyard
- Homeowner would have less security risks with the path directed away from the property and further from the home vs. in the middle of the backyard (i.e: vandalism, theft, break-ins, etc.)
- Homeowner would have path moved to a more acceptable location

Scenario Two:

This scenario would entail the city waiting for the need to arise for the pedestrian trail development, leaving the path as is until an unknown future date. At that time, the city would be required to approach the property owner to make an offer for the purchase of property for this new use. Due to the delay in resolution for the homeowner, it is uncertain if the property would be made available for the pedestrian access. If the homeowner were to agree to selling the access to the city for a pedestrian trail, the homeowner would require the original design specifications, locating the path along the property line as stated in scenario one, and would require the city to be responsible for removing and disposing of the current pavement, the lawn restoration, and the payment for 100% of the lands full market value.

Just some of the downfalls of this scenario are:

- A higher cost to the City and taxpayers (the City would be responsible for the removal and disposal of pavement as described in scenario one in addition to the cost of lawn restoration)
- Additional cost for the purchase of the property (the City would also be required to pay 100% of fair market value vs. 50% as offered in scenario one)
- The path would be a nuisance for homeowner for extended period of time

Scenario Three:

This scenario would entail the city forcefully obtaining land through eminent domain. This law is used for government utilities, roadways, etc. which provide for the greater need of the community. (Not specifically designed for trails) This scenario would be a long, drawn out process as the city would first have to receive judgment proving that easement is in greater interest of the community adding court costs and time. Homeowner would then have the right to contest which would bring suit back to court adding to the overall cost and time. Upon settlement, assuming the city obtains the rights to the easement, the city would then make offer to

the homeowner for the purchase of the easement. Not inclined to work with the city homeowner would decline the offer bringing the matter back into the legal system where through constitutional law, the judge would rule for the city to pay fair market value at that point in time. Currently this would be approximately \$1.83 per square foot to purchase, or approximately 60-70% of purchase price to obtain easement.

The downfalls of this scenario would be as follows, but not limited to:

- City and homeowner would incur added expense
- This could be a long, drawn out process delaying the plans for the city to move forward with future use of the trail
- City would pay more than 50% which is offered in scenario one
- Depending on easement granted, the city could potential be responsible for removal and disposal of pavement in addition to lawn restoration

CLOSING

I feel I should provide some context around why this is so important for us to find a fair and reasonable resolution to the situation. After being raised in Ramsey, where my parents still reside, I feel that this community with the strong family values is where we want to live and raise our family. We having been looking for a home like this for over a year and we were very excited to find this home. The only thing holding us back is the current location of this trail. As our offer has been accepted by the current homeowner and is now in the hands of the bank, we are ready to move forward provided we can come to an agreement with the future of this trail.

We understand your hesitation to work with us since we do not yet own this home and would like to confirm that any of the solutions above are contingent upon our purchase of this home. Also, please know that we would like to have a resolution and agreement made soon so we can abandon our pursuit for the purchase of this home if necessary.

We appreciate the opportunity and time to work alongside the city to obtain the most beneficial option for all parties involved. If you wish to discuss further please don't hesitate to contact us.

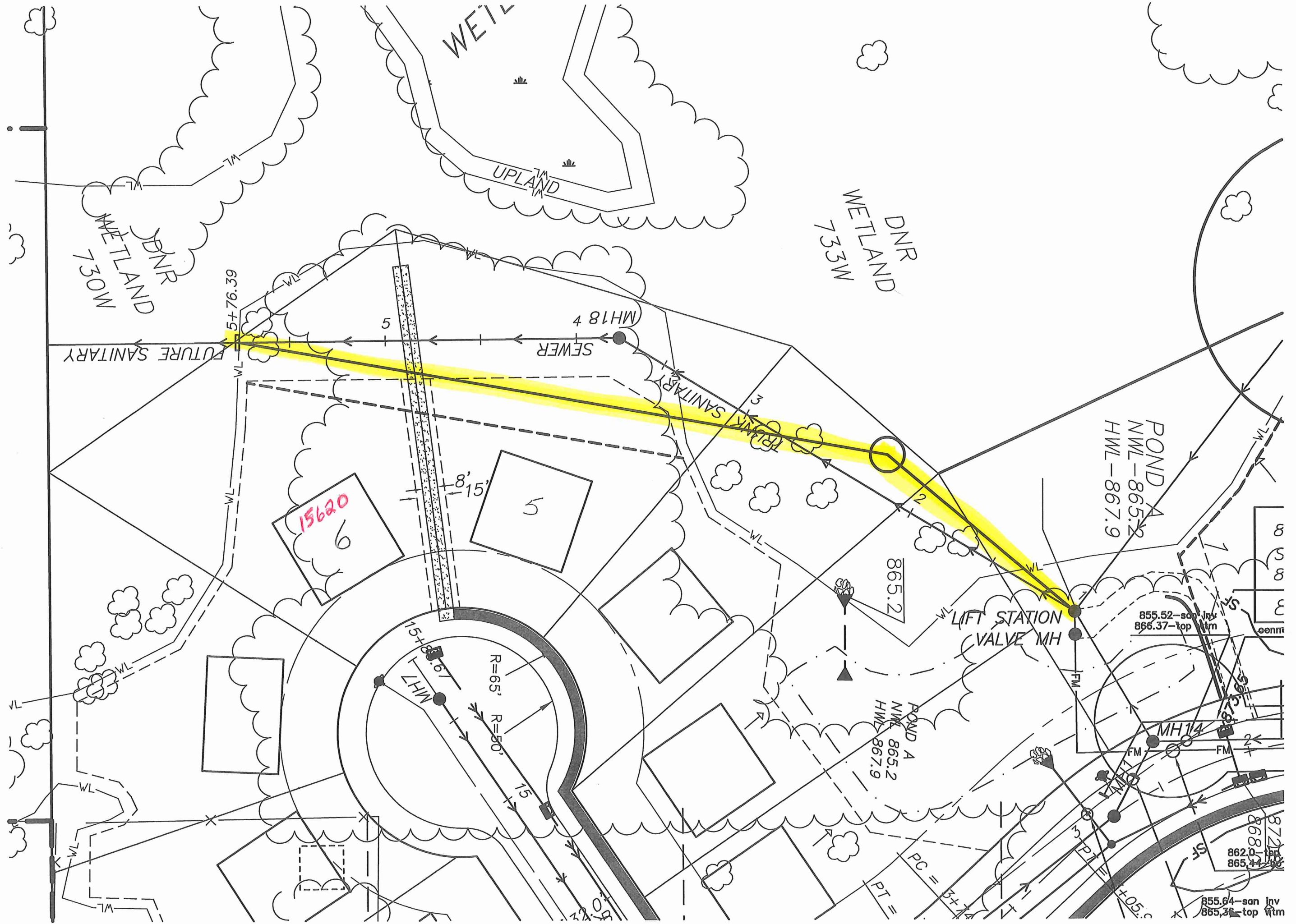
Sincerely,



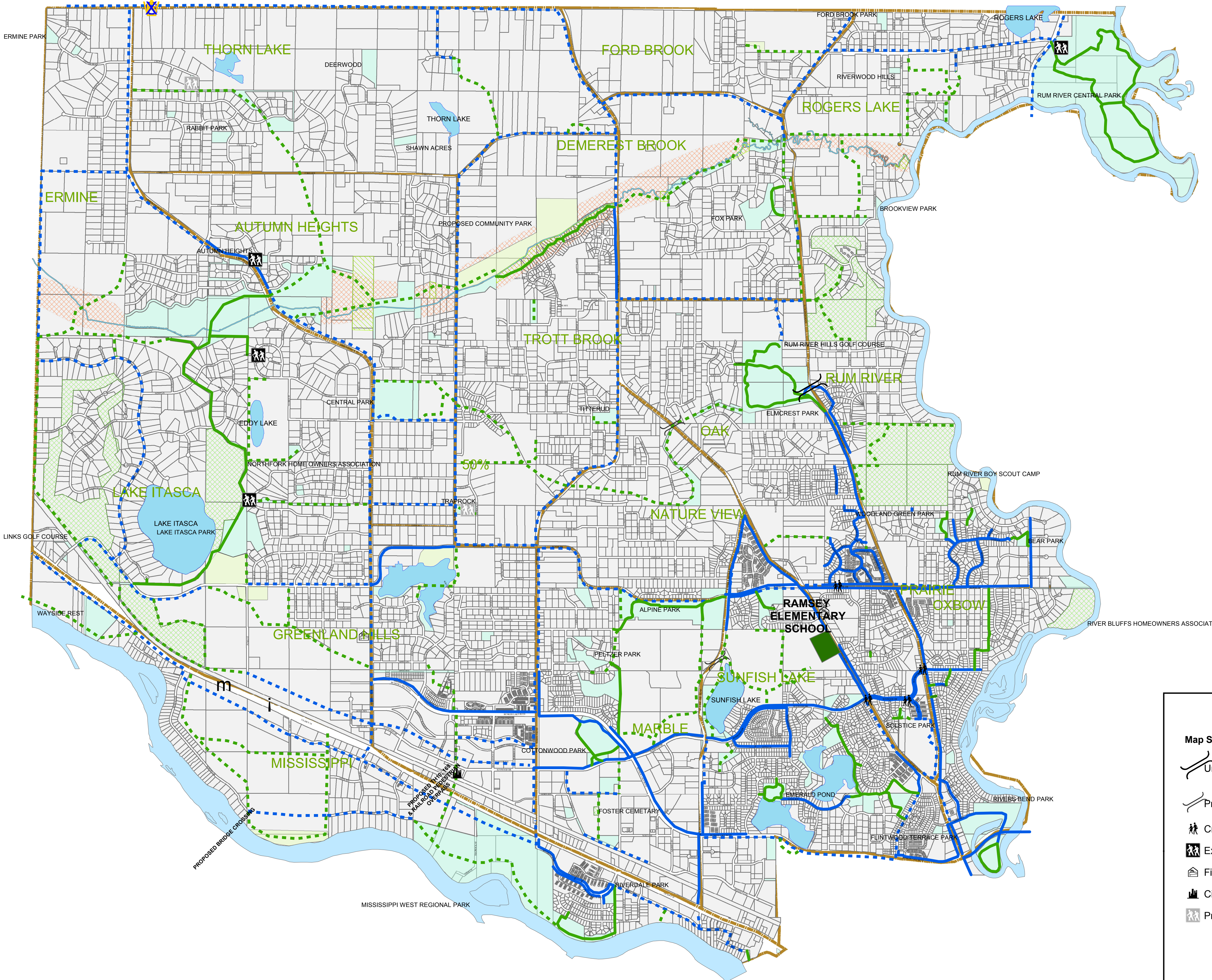
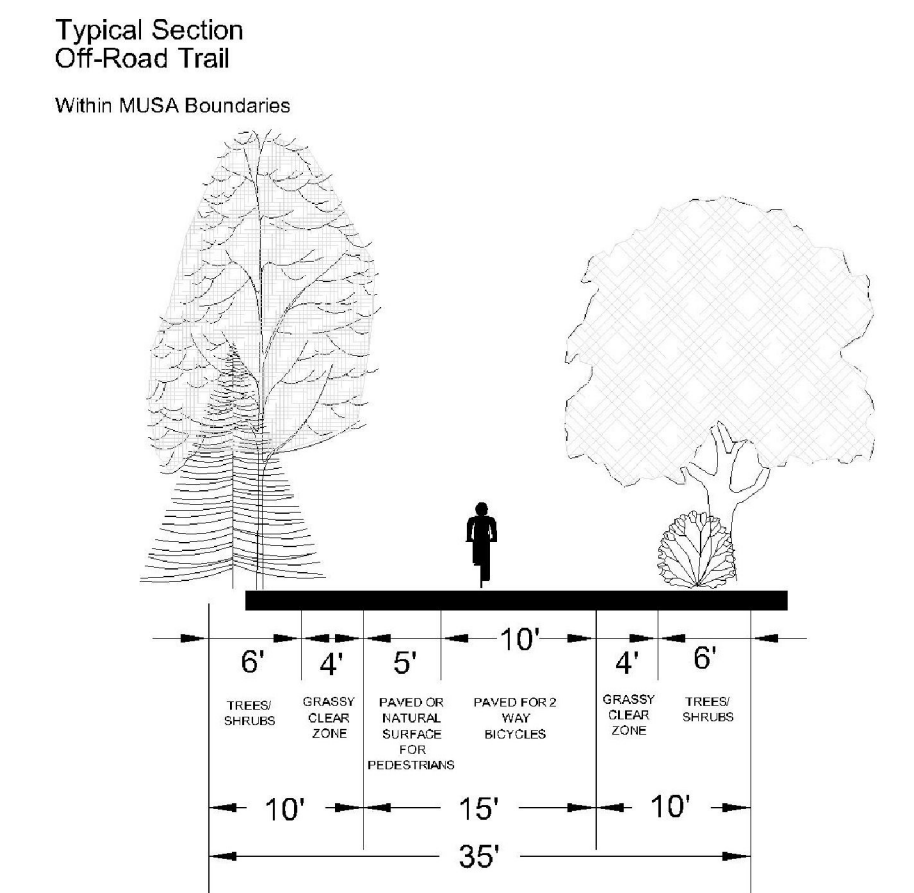
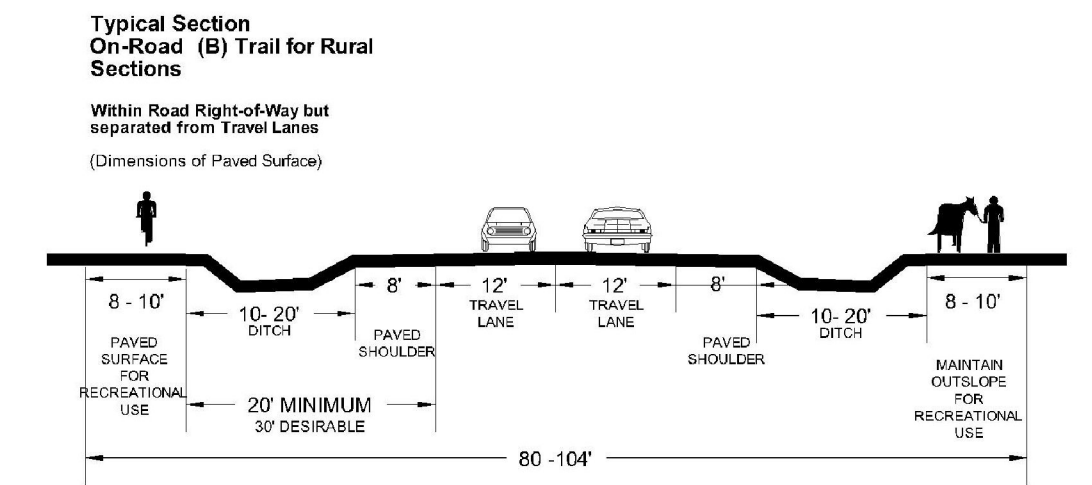
Josh & Shawna Dvorak

Cc: Mayor Bob Ramsey
Cc: Public Works Committee

(1) Estimate based on- numbers provided of city documentation, could vary slightly



City of Ramsey Master Park and Trail Plan



Legend

Map Symbols	Existing Trails
Underpass	Off-Road
Proposed Underpass	On-Road (Separated)
Crosswalk	Proposed Trails
Existing Trailhead	Off-Road
Fire Station	On-Roadway (separated)
City Hall	Conservation Easements
Proposed Trailhead	Parks
	Quasi-Public
	Existing Parks
	Proposed Park
	TROTT BROOK SPECIAL PROTECTION CORRIDOR
	Ramsey Recreation Districts

Public Works Committee

5. 6.

Meeting Date: 05/15/2012

Submitted For: Grant Riemer

By: Grant Riemer, Engineering/Public Works

Title:

Winter Maintenance Summary

Background:

With the winter of 2010-2011 being one of the worst on record, 2011-2012 was without a doubt one of the mildest. Attached to the case is a comparison of the two seasons. In the 2011-2012 season there were four 2” snow events and one 6”-8”event that took two days to clean up. The last storm consisted of several false start times from the weather service, combined with high moisture content to make for a very frustrating time for everybody. Most drivers compared it to plowing concrete. People I spoke with in surrounding communities dealt with the same problems, late start, heavy snow and equipment breakdowns. The two equipment breakdowns that delayed plowing for us were a broken serpentine belt and a hydraulic hose rupture on separate trucks. Not big ticket items, but time consuming. Most of the complaints received during the storm were related to plowing time. With the combination of problems mentioned above, some areas weren’t plowed out till late afternoon. Overall for the season we had approximately 75 calls with probably 60 coming from the last snow fall. The breakdown of calls for the year was:

6-Mailbox damage

8- Sod damage

61-Misc. The majority of these calls came in the last event and were questions about when plowing would be done, why is plowing taking so long, etc...

For the 2012-2013 we will be making some changes to the plowing program. Some route changes will be made to speed up the plowing in the COR area, seasonal help will plow a majority of the trail system and contracted services will be used around the Municipal Center and possibly the fire stations. One other possible change would be the introduction of an Automatic Vehicle Location (AVL) system for the plow fleet. The biggest change though is the salt shed will be full at the beginning of the season, and that is a first for us!

Notification:

Observations:

Funding Source:

N/A

Staff Recommendation:

Informational only

Committee Action:

Based on discussion

Attachments

Budget Comparison

Form Review

Inbox	Reviewed By	Date
Brian Olson	Brian Olson	05/08/2012 09:58 AM
Kurt Ulrich	Kurt Ulrich	05/10/2012 01:58 PM
Form Started By: Grant Riemer		Started On: 04/24/2012 12:43 PM

Final Approval Date: 05/10/2012

Snow Removal Budget Comparison

	Cost center	2010-2011	2011-2012	Diff (\$)
Wages				
Full time regular	6102-0312	\$71,159.15	\$22,049.47	\$49,109.68
Full time OT	6103-0312	\$30,724.77	\$8,341.00	\$22,383.77
On call Temp	6105-0312	\$3,777.00	\$1,617.00	\$2,160.00
Fuel				
Diesel	6225-0312	\$28,849.39	\$14,040.74	\$14,808.65
Gas	6223-0312	\$4,205.58	\$744.00	\$3,461.58
Parts (in house repairs)	6257-0312	\$15,993.70	\$21,041.59	-\$5,047.89
Parts (outsourced repairs)	6388-0312	\$2,308.23	\$3,263.13	-\$954.90
Sand	6261-0312	\$2,000.00	\$1,988.71	\$11.29
Salt	6263-0312	\$76,013.33	\$74,336.63	\$1,676.70
				Diff
Salt used		1,600.00	400.00	1,200.00
Sand used		400.00	120.00	280.00
Full plow		16.00	6.00	10.00
Minor plow		20.00	6.00	14.00

Diff (%)

222.725%

268.358%

133.581%

105.469%

465.266%

-23.990%

-29.263%

0.568%

2.256%

300.000%

233.333%

166.667%

233.333%

Public Works Committee

5. 7.

Meeting Date: 05/15/2012

Submitted For: Grant Riemer

By: Grant Riemer, Engineering/Public Works

Title:

The Use of AVL Systems in Public Works

Background:

AVL or Automatic Vehicle Locator systems have been around since the late 1990's in public works. Fleet managers wanted a way to track their vehicles in a real time application and to improve service to their residents. With today's technology, prices have come down considerably. Systems can be bare bone and provide just real time location on a map, to just about anything you can imagine. In a public works application some common uses are snow removal, refuse collection, street sweeping, etc.... Sensors can be mounted to let you know if the plow is down, is the sander on, engine diagnostics, what type and how much chemical is being applied and numerous other data streams. An AVL system would also feedback information on where the truck was in its route, direction the truck is traveling and percentage of route completed. Staff could easily spot any roads that could have been missed or give residents an estimate on when they could expect to be plowed out. Information would be monitored by PW staff and could provide information to residents on line. AVL systems also have the capability of being integrated into other software programs that may be already in use. With the use of an on board camera the driver can take a quick snap shot of a maintenance problem, have the GPS mark it, and develop a work order from the information provided.

There are 3 vendors on the CPV (Cooperative Purchase Venture) list for the State of Minnesota that sell AVL systems. Force America, Ameritrak, and Location Technology. Staff contacted Location Technology and arranged a short webinar presentation to view their product line. Location Technology also was given an inventory of our snow removal fleet and has provided a cost estimate for startup and system maintenance. That information attached to the case. The abbreviated version of the costs are as follows:

Upfront costs for hardware and operator training for 15 snow removal vehicles-\$9112.00

Recurring monthly costs for system-\$259.60/month \$3115.00/yr

The base units can also be moved from vehicle to vehicle, so when snow season is over, the AVL equipment could be moved to sweeping and mowing equipment if desired.

Notification:

Observations:

Funding Source:

General Fund Cost Center 6580-0311

Staff Recommendation:

AVL would be a useful tool in our public works operation. The data gathered would help streamline PW operations and provide useful information for staff and residents as well.

Committee Action:

Direct staff to continue to gather information and pricing for consideration in the 2013 budget.

Attachments

AVL Cost Estimate

Form Review

Inbox
Brian Olson
Kurt Ulrich

Reviewed By
Kathy Schmitz
Kurt Ulrich

Date
05/11/2012 10:48 AM
05/11/2012 11:47 AM
Started On: 04/24/2012 12:48 PM

Form Started By: Grant Riemer

Final Approval Date: 05/11/2012



INTELLIGENT MOBILE BUSINESS AND FLEET MANAGEMENT SOLUTIONS

Proposal For

The City of Ramsey, MN Public Works

Navigo GPS/AVL Fleet Management System

Submitted By

Location Technologies, Inc.

4/25/2012

6214 NW Kelly Drive
Parkville, MO 64152
Ph: 816.741.3169
F: 816.741.3405
www.loctech.com
info@loctech.com

© Location Technologies, Inc., All rights reserved.

Parties Involved

Proposed

City of Ramsey, MN
14100 Jaspar Street NW
Ramsey, MN 55303

Grant Riemer, Street Supervisor
griemer@ci.ramsey.mn.us
Phone (763) 433-9863

Proposing Company

Location Technologies, Inc. (LTI)
6214 NW Kelly Drive
Kansas City, MO 64152

Eric Cowger, President
ecowger@loctech.com
Phone (816) 741-3169 x110
Fax (816) 741-3405

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4/25/2012

Grant Riemer, Street Supervisor
City of Ramsey, MN
14100 Jaspar Street NW
Ramsey, MN 55303

Dear Mr. Riemer,

Location Technologies, Inc. (LTI) is pleased to provide the City of Ramsey, MN the attached proposal for a Navigo GPS/AVL Fleet and Operations Monitoring System for snow and ice control management.

LTI has manufactured and installed AVL and Wireless Data Systems around the world for nearly 20 years. We specialize in developing solutions for Public Works, Public Safety, and Transportation. We have 100's of satisfied public sector clients across the country in addition to a number of commercial clients.

We are proposing our Navigo GPS/AVL Fleet Management Solution for this project. The equipment and software proposed herein is fully compliant with the specifications of the project and we accept the terms and conditions given to provide a system.

LTI intends to continue our position as a leader in fleet management through a combination of participation in industry organizations, continued product improvement, and keeping abreast of current trends in all of the various technologies surrounding the industry. For example, the LT6 GPS/AVL Modem is literally the 6th generation of our GPS/AVL Modem devices.

As systems integrators and experienced engineers our approach to all projects is to partner with the customer to provide the best system to meet the particular needs of a customer and not try to 'force fit' a canned solution. From start to finish you will find that we will not only be responsive to your stated requirements but will also be flexible and able to handle changes in scope and requirements.

We sincerely believe that we are offering the overall best proposal for the following reasons:

- Unparalleled experience in the industry.
- Proven, field tested equipment.
- Full support from company management for the successful completion of project.
- A modular equipment approach that offers the greatest flexibility and maintainability.
- A financially strong, stable, and debt-free company with nearly 20 years experience.
- We are a fully certified Sprint Business Partner.

In closing, we would like to thank you again for the opportunity to provide a proposal for this important project and to ask you to please contact us should you require further information.

Sincerely,



Eric Cowger, President
(816) 741-3169 x110
ecowger@loctech.com

Executive Summary of Proposal

For the City of Ramsey, MN (“City”) we are proposing our Navigo GPS/AVL Fleet Management System. The proposed Navigo GPS/AVL Fleet Management System is a solution that provides vehicle performance data, location tracking, operations monitoring, and reporting via a user-friendly web interface. Location Technologies, Inc. is proposing and is prepared to supply all project management, installation, and implementation services necessary to deliver a working solution.

The Proposed Navigo GPS/AVL Fleet Management System will provide the City with an automated real-time GPS/AVL system that is simple to operate and will reliably collect and disseminate data in a useable format based on information provided by on-vehicle sensors, monitors, and other sources (i.e., weather data, operator-generated data). This accumulated operations data can be used to plan maintenance activities and direct the maintenance vehicles to carry out their planned activities. The proposed system will give the City a holistic, department wide view of its operations and allow it to streamline its maintenance and operations functions by using aggregated data to make informed decisions simply and efficiently.

Location Technologies, Inc. takes a unique operations-centric approach to GPS/AVL Fleet Management. We are pushing the boundaries of GPS/AVL fleet management systems past the vehicle and on to the entire operation. Managers of fleet-based operations have been limited by the dot-on-a-map mentality for too long. We are pioneering a next-generation GPS/AVL fleet management approach that envisions the role of our systems as great aggregators of whole operations data, and as such must openly accumulate, interface, and extend all the operations data that is relevant to the tasks being performed. Operations managers need information from numerous sectors of their operations in order to make the correct decisions. These areas include environmental data, traffic data, geographic data, Route data, vehicle data, fleet data, operations data, inventory/asset data, HR/personnel data, fiscal data, and others.

The proposed NAVIGO GPS/AVL Fleet Management System is extremely beneficial in the management and daily operations of a statewide maintenance fleet program by providing:

- Tools to better monitor maintenance systems, including data necessary for managers and operators to make informed and timely operational decisions (e.g., understanding the necessary amount of de-icing chemicals to apply to particular stretches of road);
- Tools to better track the resources (vehicle, personnel, materials, etc) used to maintain specific roadway segments.
- Planning information to other stakeholders such as City and regional transportation agencies or metropolitan planning organizations with adjoining responsibilities;
- Useful traveler information for dissemination to the public (i.e., icy road alerts).

LTI is proposing, at the very high level, the following items:

In-Vehicle Hardware

- LT6 GPS/AVL CDMA Modem
- LT Vehicle Diagnostic Bus Interface Module
- Interface assemblies for Snow/Ice Control

Network Servers

- LT Wireless Data Server Software
- LT Events Engine
- .NET Web Services (3rd Party Interface)

Management Software

- LT Navigo Explorer WebMap Platform
- Public Works Management Module
- Fleet Management Module
- 3rd Party Dispatch & Mgmt SW Interface Module

Field Communications

- CDMA or GPRS Wireless Data Communications

The proposed City GPS/AVL Fleet Management System will give the following functionality:

- Vehicle Tracking
- Field Communications
- In-Vehicle Information Management
- Work Order Management and Dispatch Monitoring
- Maintenance Decision Making
- Inventory and Asset Management
- Data Archiving and Reports

In order to maximize the use of the equipment and the annual investment in communications the proposed Navigo GPS/AVL Fleet Management System will have the ability to move a device from vehicle to vehicle within the City fleet. This feature allows the same device to move from winter operations (plowing, sanding) to summer operations (mowing, weed, spraying and/or paint striping).

The GPS/AVL Fleet Management Systems offered by Location Technologies, Inc. help communities and agencies all across the United States to achieve many of their Environmental Protection Policy goals by minimizing vehicle emissions through reductions in fossil fuel use, reducing vehicle idle times, speeding, unauthorized use, and keeping vehicles in proper operating condition through automated vehicle diagnostic data reporting.

Experience

Dubuque, IA Public Works

John Klostermann
Street/Sewer Maintenance Supervisor
(563) 589-4250
City-wide AVL System including street maintenance and sanitation vehicles

Pierce County Public Works

Bruce Wagner
Road Operations Division Manager
Tacoma, WA
(253) 798-6051
Large Metro-area County (Tacoma, Seattle)
Multiple Vehicle types

Johnson Co KS Public Works

Bob Swanson
Maintenance Supervisor
Olathe, KS
(816) 806-8707
Large Metro Area County (Kansas City)
Multiple Vehicle Types/Operations

Kansas City Board of Public Utilities

Ron Wilson
Kansas City, KS
(913) 573-9459
Large Utility Service includes Water, Gas, Electric

Overland Park, KS Public Works

Mike Ross
Supervisor
Overland Park, KS
(913) 895-6038
Large Metro Area City (Kansas City)
Multiple Vehicle Types/Operations

Washington Department of Transportation

Debbi Achord
Project Manager
(509) 633-0629
AVL System for State DOT with combination Radio/Cellular System, Interface to MDSS
Multiple Vehicle types/Operations

Hydro Pure Technologies

Nelena Nelson
505-334-1765
Aztec, NM
Large Commercial Water Supplier in the 4-corners area of Nevada, New Mexico, Colorado, Arizona

Personnel

The primary staff for this project, and their estimated percentage of time required over the duration of the project are Project Manager: Eric Cowger (15%) and Project Engineer: Glenn Courtney (10%).

Eric Cowger

President

Mr. Cowger has over 20 years of experience in the electronics industry. He has served in a variety of management and lead technical positions at several companies. These include Vice President of Engineering for Information Technologies, Inc., Design Engineering Manager at Thomson-Wilcox (now Thales), and senior engineer at Rockwell Collins Avionics.

Education: BS Electrical Engineering, Kansas State University, 1984
MS Electrical Engineering, University of Iowa, 1986

Glenn Courtney

Principal Engineer

Mr. Courtney has over 25 years of varied experience in the navigation and radio communications industry. He has served on numerous national standards committees and is recognized nationally as an expert in the field of navigation. Mr. Courtney has been involved in the successful design and implementation of several large-scale data communication systems in a variety of industries including Rail, Public Safety, Construction, Avionics, ground-based Nav-Aids, and Fleet Management.

Education: Electrical Engineering, University of Missouri, 1981

Fern Tsukada

Lead Software and Firmware Engineer

Ms Tsukada is our lead Software Engineer. She has broad experience in the development and implementation of large database related applications, data communications applications, and embedded software.

Education: BS Computer Science, Park University, 1995
BS Electrical Engineering, California State University, Long Beach, 2000

All key employees who are associated with this project will have sufficient time and resources available to complete all work and obligations that are specified within the negotiated contract.

Location Technologies, Inc. and its key employees maintain registrations and relationships with numerous professional and industry organizations. These organizations include the American Public Works Association, Canadian Public Works Association, National Emergency Number Association, Association of Public Communications Officials, American Public Transportation Association, American Public Power Association, American Engineering Association, International Wireless Convention, and many more. Location Technologies, Inc. engineering staff and key employees have attained several certifications and credentials through these associations in the course of continuing education and professional development.

Location Technologies, Inc. (LTI) is organized in a traditional functional matrix fashion where individual project and product managers may pull on resources from the functional groups. In the event of the loss of key employee(s) LTI is sufficiently staffed and experienced to continue successful completion of work and obligations as stated in the negotiated contract.

Project Approach

For the City of Ramsey, MN (“City”) we are proposing our Navigo GPS/AVL Fleet Management System. The proposed Navigo GPS/AVL Fleet Management System is a solution that provides vehicle performance data, location tracking, operations monitoring, and reporting via a user-friendly web interface. Location Technologies, Inc. is proposing and is prepared to supply all project management, installation, and implementation services necessary to deliver a working solution.

The Proposed Navigo GPS/AVL Fleet Management System will provide the City with an automated real-time GPS/AVL system that is simple to operate and will reliably collect and disseminate data in a useable format based on information provided by on-vehicle sensors, monitors, and other sources (i.e., weather data, operator-generated data). This accumulated operations data can be used to plan maintenance activities and direct the maintenance vehicles to carry out their planned activities. The proposed system will give the City a holistic, department wide view of its operations and allow it to streamline its maintenance and operations functions by using aggregated data to make informed decisions simply and efficiently.

When in real time vehicle tracking mode the LT6 will send position and monitored input operations data packets over the Internet from the wireless network to our hosted LT Wireless Data Server software operating on a secure, designated AVL Server. Information received will include position, heading, speed and input status if status wires are connected to the modem. These packets are then decoded, time tagged and logged, and made available for manipulation from any internet browser with an HTTP connection. Mobiles can be programmed to transmit on a timed basis, on distance traveled, on event, or on command. The Logger Module (SW) of the LT Wireless Data Server monitors the size of the active log table and may be periodically burned to a more permanent medium such as CD and stored indefinitely for future retrieval and analysis. The active log is always available for immediate replay and analysis. The LT Wireless Data Server will reside outside the City network and remotely Interface with existing City resource management software. Garage supervisors and others can monitor fleet performance and generate stand-alone reports in near real-time via any standard, up-to-date web browser by logging into the Navigo Explorer WebMap. Supervisors can review and edit data and have the ability to transfer information to the Resource Management System and other systems including GIS.

Our Navigo Explorer WebMap Platform standard map views cover all of North America with the ability to import your existing GIS information in its native format. The Navigo Explorer WebMap Platform can import data from the City’s Geospatial Infrastructure. On a periodic basis or on user command the map will refresh the position of the vehicle icons by refreshing its view of the vehicle position table maintained by the LT Wireless Data Server.

Field Communications

Field communications will be cellular using a 3G or better digital network for data transmission to and from the participating vehicles. The proposed field communication solution is satisfactory not only for initial deployment, but also for future expansion in the state. The proposed solution is scalable to the entire City maintenance fleet using commercial-off-the-shelf equipment.

Operations Status and Monitoring

A key feature available for Garage Supervisors is the ability to monitor the condition of the vehicle and material usage in near real-time. In-vehicle systems can provide the status of a number of vehicle and equipment conditions, including but not limited to:

- Status of vehicle equipment
- Vehicle speed
- Engine diagnostics
- Available on-board materials for dispersion

Vehicle routes, whether assigned to one vehicle or a group of vehicles, are able to be played back over a defined period of time for review by system operators and managers. This feature allows for review of

vehicle paths and operations as part of overall maintenance system function review processes. The proposed Navigo GPS/AVL Fleet Management System is able to track any fleet vehicle relative to its expected location at a desired system site at any time, including an estimate of arrival time based on current position and current speed.

Asset, Equipment, and Materials Management

Tracking material quantities allows system operators/managers to determine the appropriate amount of materials already loaded or to be loaded on maintenance vehicles. This system also tracks rate of material usage and amount of coverage possible based on remaining on-board material. The locations where materials are deployed or where activities such as plowing, mowing or road repair/maintenance are performed can be automatically geo-coded as maintenance vehicles respond. This information provides an accurate, historical log of all maintenance functions performed at any point within the network.

Keeping track of equipment necessary for maintenance functions can be done efficiently. The proposed Navigo GPS/AVL system has the capability to identify and document various pieces of maintenance equipment, facilities and roadside features. This system can be used to determine and document the location of existing maintenance equipment, facilities and a variety of roadside features. Maintenance personnel can view equipment inventory locations on-screen by type of equipment and region where equipment is stored. They can also easily identify equipment through the use and storage of maintenance equipment ID information.

Example unique inputs from snow plows:

- Plow position (up/down)
- Wing position (up/down)
- Under body position (up/down)
- Material Application(liquid/granular)
- Air Temperature
- Pavement temperature
- Odometer
- Fuel Mileage
- Total amount of material used
- Wind Direction
- Wind Speed

A number of these inputs can be added as future enhancements to the system; however, the ability to monitor over sixteen unique inputs to the data controller will allow for the expansion of the system as the City evaluates technology enhancements and operational requirements for the GPS/AVL System.

Environmental Conditions

Environmental conditions affect fleet operators and affect system performance. On-board systems that display the condition of the roadway on which the vehicle is traveling, show current weather conditions including wind speed and visibility (which greatly affect rate and flow of material dispersion upon the roadway and/or safety) or provide other real-time information for the operator are extremely valuable resources and available within the proposed Navigo GPS/AVL System.

System Architecture

The proposed NAVIGO GPS/AVL Fleet Management System includes an in vehicle device, connected to a data controller to collect in-vehicle, operational, and GPS data. This in vehicle device will have an interface with on-board diagnostics (OBD) which monitor engine operations through the vehicle bus. The in vehicle device will also connect to a vehicle data controller. This controller will monitor the specialized sensors on each of the state vehicles.

Alert Communications & Messaging

- Vehicle to Vehicle
- Vehicle to Center (Main Operations)
- Vehicle to Other (i.e., nearby devices, roadside DMS)
- Group Text Messages
- Individual Text Messages
- Blanket Alerts (i.e., Amber Alert)

Data Archiving and Reporting

System data can be archived and a number of reports can be customized to provide City management with accurate and up-to-date system performance statistics.

Reports that are standardized, including utilization, historical weather, roadway conditions, mileage, materials coverage, job completion and others, can be quickly accessed through existing report configurations. As necessary, City staff can use the user interface to select specific data and generate ad hoc reports at any time. City staff can interface directly to the database select specific data and generate specialized reports.

Power

Power for the data controller and the in-vehicle device are come from a power terminal. The additional power draw is not expected to be significant, however, separate fuses for installed GPS/AVL equipment is included. All in-vehicle devices being proposed are engineered to perform under extreme weather conditions and under normal rugged driving conditions while in operation. These in-vehicle units provide connectivity to all sensors and any external GPS antennas and/or equipment.

Communication System

The proposed City Navigo GPS/AVL Fleet Management System will communicate over a cellular data network. CDMA is the data service available over the Sprint wireless data service. The coverage area for CDMA covers the entirety of the City's operational footprint. A monthly fee is required for use of this service and is included in this proposal. Depending upon implementation the monthly fee will be contracted through the Sprint Corporation or Location Technologies, Inc. Location Technologies, Inc. is a certified Sprint Business Partner.

All data formats are the same between the different communication schemes. This allows the user to mix and match communication schemes across their fleet as appropriate.

LTI Hosting Services*

Location Technologies, Inc. Hosting Services utilize the Amazon Elastic Compute Cloud (Amazon EC2) web service to provide resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers. This web service interface allows for scaling, obtaining, and configuring capacity with minimal friction. It provides complete control of computing resources and operates on Amazon's proven computing environment. Amazon EC2 offers a highly reliable environment where replacement instances can be rapidly and predictably commissioned. The service runs within Amazon's proven network infrastructure and datacenters. The Amazon EC2 Service Level Agreement commitment is 99.95% availability for each Amazon EC2 Region.

Security

Amazon EC2 includes web service interfaces to configure firewall settings that control network access to and between groups of instances. When launching Amazon EC2 resources within Amazon Virtual Private Cloud (Amazon VPC), LTI can isolate instances by specifying the IP range, and connect to existing IT infrastructure using industry-standard encrypted IPsec VPN.

*Citation: < <http://aws.amazon.com/ec2/> > (accessed 11/3/ 2010).

LT6 GPS/AVL Modem

The LT6 GPS/AVL Modem is the backbone of the Navigo GPS/AVL Fleet Management System. Each vehicle to be monitored will utilize an LT6 AVL Modem device. GPS antenna options include a combo GPS/Cellular bulkhead mount antenna, mag-mount, and trunklip-mount antennas. The LT6 GPS/AVL Modem is capable of multiple and/or “dual” communication methodologies using either or both Cellular Data Network (GSM/CDMA), Bluetooth, WiFi (80211“x”) technology, or passive ‘log and dump’ protocols to transmit accumulated AVL and operations data.



The LT6 is capable of monitoring and reporting a variety of analog and digital inputs. There are also up to four analog outputs available for remote control. This generic I/O capability is fully software configurable. Examples might include door lock control, ignition circuit defeat, light and emergency switch monitor, temperature, shock, and humidity. Standard interface packages are available for street maintenance vehicles such as plows, spreader, vacuum, and sweeper vehicles. Each AVL device may monitor up to 8 generic digital inputs. The 8 inputs may be used to trigger various events on the map. Digital inputs may be programmed to plot paths, display messages, mark spots on the map, or change the vehicles color. Six inputs may be used to monitor analog levels in the vehicle. An example would be battery voltage. Similar map actions as described for digital inputs are available when a given input drops below or rises above preset levels. Four remote controlled outputs are available to perform functions such as remote vehicle disable, flash lights, honk horn, unlock doors. All LTI GPS Modules use a state of the art SIRFIII high-sensitivity 20 Channel GPS receiver to ensure fast time-to-first-fix times and continuous tracking in the most challenging environments. The LT6 also hosts two RS-232 ports for connection to external peripherals such as laptop computers, text messaging terminals, and simple push button status heads. LTI offers laptop software for mobile data messaging, mobile mapping, remote database operation, LT MDT Mobile Data Terminal, and the LT MDC.

Physical Specifications:

Size: Extruded Aluminum Casing 5.5"x6"x1.5"
Power Requirements: 200mA at a 9-16VDC input
GPS Antenna Options: DualBand, trunklip, mag, bulkhead
Serial Interface: 2 RS-232 Msg. Slotting: Up to 62.5 mSec
Digital Inputs: 8 Analog Inputs: 6 Digital Outputs: 4

GPS System:

SIRFIII Chipset 20 parallel channels
RTC crash auto recovery 0.1 sec. reacquisition time
SBAS (WAAS, EGNOS, MSAS) support.
NMEA-0183 compliant protocol/custom protocol
Extremely fast TTFF at low signal levels

Garmin Navigation Device Integration

Several Garmin devices allow us to interface with them through their Fleet Management IO. This allows us to control in-vehicle guidance, multiple stop optimization, driver log-in and statusing, and generic messaging on these functional and economical devices.

LT Vehicle Diagnostic Bus Interface

LTI gives a standard list of possible parameters to monitor from vehicle maintenance bus setups including OBDII or J1708/1939 (heavy duty vehicles). Not all parameters will be available with all vehicle types.

- Throttle Position
- Road Speed
- Power Takeoff Status
- % Accelerator Pedal Position
- Fuel Level
- Average Fuel Rate
- Engine Speed
- Total Idle Hours
- Total Idle Fuel Used
- Total Vehicle Distance
- Total Vehicle Hours
- Total Engine Hours
- Instantaneous Fuel Rate
- Instantaneous Fuel Economy
- Average Fuel Economy
- Total PTO Hours
- Seatbelt Status
- Any Vehicle Maintenance Codes

LT Asset Tracking

Location Technologies, Inc. utilizes an asset tracking device designed to provide the user with a once per day daily locate. The device has been specifically engineered to update itself and then go back to sleep enabling this self contained battery powered device to last a minimum of 1 year without need to replace the battery. This device can be affixed to any asset, designed to provide intelligent monitoring of non-powered mobile and fixed assets. The Asset Tracker is a water resistant device, pursuant to the IP-66 code rating. This rating specifies that the device is protected against dust and high pressure jets of water.

Because it was designed to be installed exposed to the environment the GPS and Cellular antennas are completely integrated.

Spreader Controller Interface

Some Spreader Control Manufacturers require that certain components, modules, or keys be in place for data. For example the Force America Controller requires a key to enable data output. Certain Component Tech models require an additional add-on communication board. Other models may need firmware updates and/or calibration. If required prior to signing a contract we will inspect each of the vehicles to determine exactly what will be required for each of the controller types.

LT Plow Monitor

The LTI Blade Position Sensor is a rugged device for sensing blade position in winter road maintenance equipment. The Sensor has been specifically designed to survive the demanding environment of snow fighting and road surface treatment equipment. The heavy steel case is powder coated and the sensor is protected by a thick walled steel tube filled with potting compound.

Specifications:

Display Screen: 7 inch TFT LCD
Resolution: 800*4800 (1,152,000) pixels
Aspect ratio: 16:9
OS: Windows CE 5.0
CPU: Samsung S3C2410A,266 MHz
Memory: 64MB Flash ROM + 64 MB SDRAM
Data Storage: SD card/USB Flash memory
Expansion Slot: SD card, SD/IO (Up to 4GB)
USB 1.1(USB Host and Devide)
Internal Speaker: 1W
Working Temperature: -10 - +65 deg
Storage Temperature: -25- +80 deg

Key features:

7 inch TFT LCD with touchscreen
Windows CE 5.0 Operating System
External A/V Input
Memory with SD Card
2 USB Input
1 RS232 input
Earphone Output
Multi-language OSD

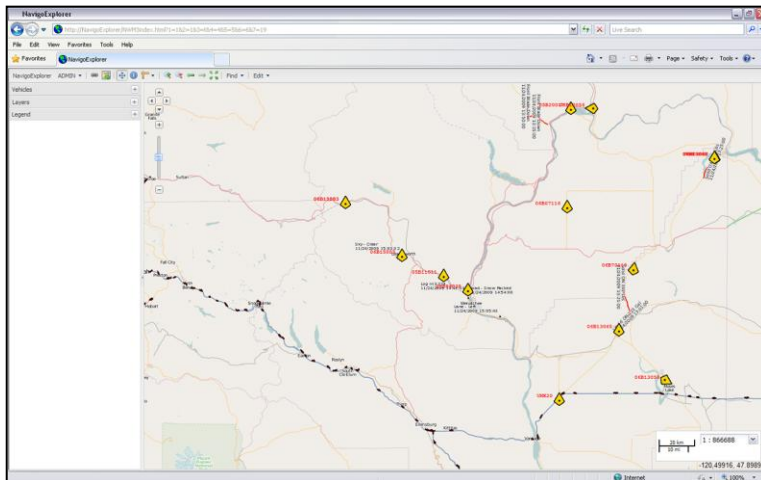
Power: AC/DC 12V Supp/Dir 12V dc
Dimension (mm): 188L*114W*35H



Mounting requires only two holes to be drilled into any mechanical surface that move angularly with the blade or on the blade itself. The sensor will require a minimum of 15° of movement between the up and down position of the blade to reliably indicate position. The adjustment slot provides 35° of adjustment, allowing the sensor to be mounted in a wide variety of locations and orientations.

Navigo Explorer WebMap Platform Software

The Navigo Explorer WebMap Platform includes standard map views that cover all of North America and allows you the ability to import your existing GIS information, often in its native format or using WMS. Like the Desktop Map vehicle position and status are displayed using colored icons with unique labels. On a periodic basis or on user command the map will refresh the position of the vehicle icons by refreshing its view of the vehicle position table maintained by the LT Wireless Data Server.



Our Navigo Explorer WebMap platform is available for user hosting or you may subscribe to our own internally hosted system. If you have data coming from a variety of device types or you have special archiving requirements or third party software interface requirements then we would suggest a user-hosted configuration. All two-way radio based systems must be user hosted.

Additionally, logging, replay, bread crumbing, and reporting options allow users to analyze every aspect of their fleets operations through analysis of the data logs. The ability to track and record status changes, switch closures, and sensor readings makes using the Navigo Explorer WebMap for reporting and analyzing your fleet's activities a very powerful tool. The Navigo Explorer WebMap provides all of the standard map features one would expect from a desktop mapping program including map display control tools (zoom, pan, etc.) along with vehicle display and reporting functionality.

The Navigo Explorer WebMap Platform is user credential controlled and allows for administrator control over user groups for assigning user operation permissions and data views. All reporting and operations management functionality is controlled by individual and user group credentials that are defined by administrative (management) users. The LT Wireless Data Server allows for third party software integration.

Our LT Wireless Data Server may be easily configured for use with third-party software integration and third-party AVL devices. Once the packet format is defined a unique port will be configured to receive and process packets from the third-party device. LTI also produces a wide variety of AVL devices and have solutions for virtually all municipal operations.

Map Features

- Integrates with all GIS including WMS, and SQL Based Systems
- Path Length and Area Measurements
- Point or Interpolation Geocoding
- Path or Road Mile post Geocoding
- Snow and Sweeper Route Matching and Automatic Status Updates
- Public Facing Web Display Options for Street Maintenance During Snow Events
- Completely Browser Based – No software required on the desktop
- Dozens of pre-canned reports
- Ability to Schedule Reports to run automatically
- Fast Short-term History (24 Hour) Vehicle Activity Display
- Integration with NEXRAD Radar Products – Storm Reflectivity and Precipitation Amounts
- Integration with Fleet Management Package including Vehicle Diagnostic Bus, Mileage and fuel use tracking, scheduled and unscheduled maintenance tracking.
- Updated and improved SQL-based Wireless Data Server with new condition and event based engine for automatic monitoring and control of fleet activity.

Broad and Comprehensive Report Manager

Dozens of reports detailing all aspects of the fleets operation are available. Many can be scheduled to be run automatically.

Time and Distance Traveled in Region Report: This report will calculate the total time spent and distance traveled within in the specified region. If for example the user selects State as the region type then the program will compute the time and distance the a vehicle has traveled in each state the vehicle has entered for the specified time period.

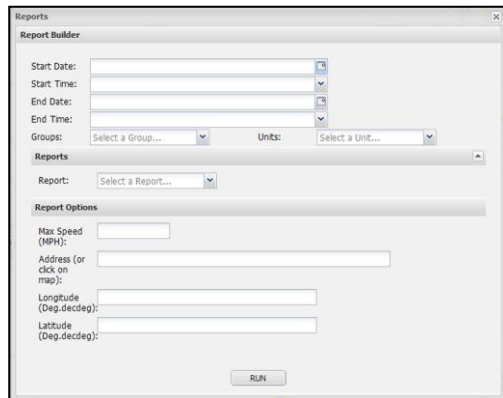
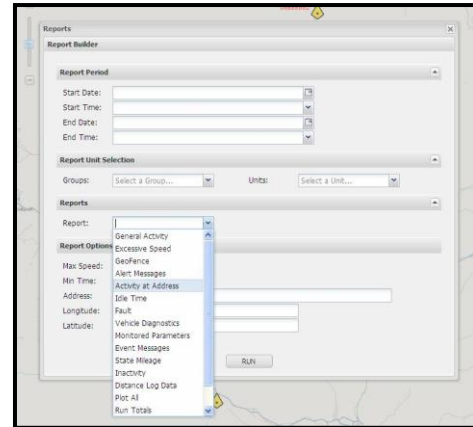
General Activity Report: This option will report all activity for the selected vehicle over the specified time period.

Activity at an Address Report: This report will calculate and display the amount of time a given vehicle spends within a specified radius of the entered address. For example the user could find how long a specific unit spent within 0.25 miles of 100 Main St two days ago.

Time Between Status Changes: This report option will calculate and display the time between successive status changes over the specified time period for fleets.

Error or Fault Messages Report: Reports all fault messages received over the specified time period.

Excessive Speed Report: Reports all occurrences of exceeding the given speed. This is shown for each position update.



Idle Time Report: This report will show all instances when a vehicle remains idle for a specified period of time.

Inactivity Report: This report will show all instances when a vehicle has failed to send a message of any sort over a specified period of time.

Stop and Start Report: This report will show all instances of start and stop messages from a given vehicle or vehicles.

Digital and Analog Status Report: Shows the time, value, and location of all externally monitored analog and digital; inputs to the AVL Modem.

Reports may be viewed in text form or on the Map Display. The user may also opt to have the map reverse geocode the vehicle coordinates giving an address and closest intersection for each report element.

AVL Specific Mapping Operations

GeoFence

A geofence is a geographic area a user may define for reporting purposes. Along with defining the specific map area the user can also specify certain actions the map will take when a vehicle enters or departs from the geofenced area. These include map center and text message. Ten geofence areas may be loaded directly in the AVL Modem. The modem will then automatically send an arrival and departure message when entering or leaving the programmed areas. These are especially useful for fixed locations that your vehicles return to such as parking areas, fueling, dumping, remote staging, or office locations.

Analog/Digital Input Monitoring

Each AVL device may monitor up to eight digital and six analog inputs. These generic inputs may be used to trigger various events on the map. For instance a digital input may be tied to a hydraulic pressure switch that indicates the up or down position of a snow remove blade. When the blade is down the system could be set to plot a blue path behind the vehicle. This would indicate that the path had been plowed. Digital inputs may be programmed to plot paths, display messages, mark spots on the map, or change the vehicles color. Analog inputs may be used to monitor analog levels in the vehicle. An example would be battery voltage. Similar map actions as described for digital inputs are available when a given input drops below or rises above preset levels.

Closest Vehicle Request

A simple point and click closest vehicle function is available that provides an ordered list of all vehicles closest to an indicated point on the map.

Map Follow

Any vehicle maybe selected for Map Follow, which forces the map to redraw on each position update from the specified vehicle. This keeps the vehicle in view at all times without requiring any interaction by the map user.

AVL Modem Commands

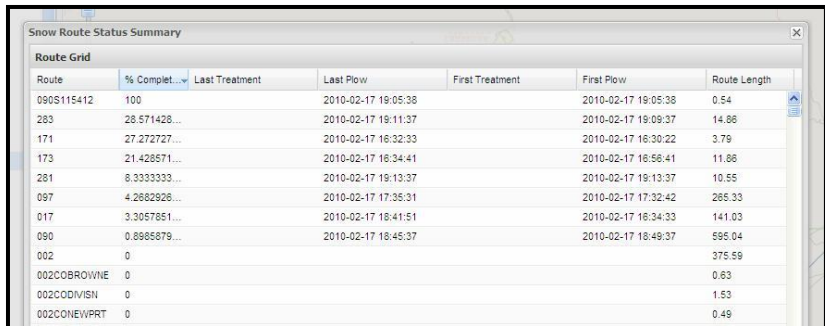
A variety of commands are available to the user to request information or force certain operating conditions on the AVL Modems. These include position polling, log downloads, remote turn off, and stop transmission requests to name a few.

In-Modem Coordinates

Up to 10 coordinates may be programmed into each modem that will cause the modem to automatically generate arrive at and depart from messages for each location. These should be set for fixed locations in your operating area. Examples include landfills, fuel locations, jails, hospitals, garage, parking lot, material storage facilities, etc. All arrival and departure messages are logged to allow you to run 'dwell time' reports at each location (time between arrival and departure).

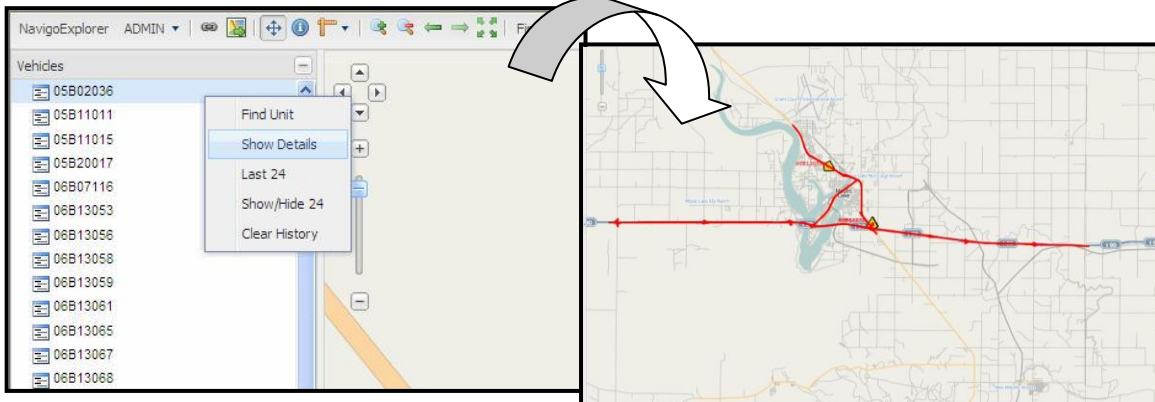
Intuitive Data Display Options

A Grid option is also available to view the percent completion of all routes in your area of responsibility.



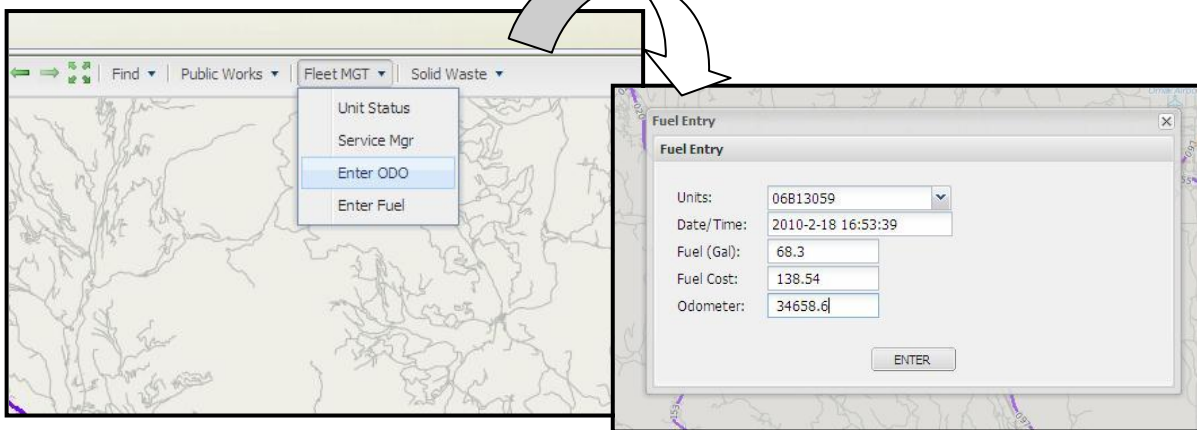
Route	% Complet...	Last Treatment	Last Plow	First Treatment	First Plow	Route Length
090S115412	100		2010-02-17 19:05:38		2010-02-17 19:05:38	0.54
283	28.571428...		2010-02-17 19:11:37		2010-02-17 19:09:37	14.86
171	27.272727...		2010-02-17 16:32:33		2010-02-17 16:30:22	3.79
173	21.428571...		2010-02-17 16:34:41		2010-02-17 16:56:41	11.86
281	8.333333...		2010-02-17 19:13:37		2010-02-17 19:13:37	10.55
097	4.2662926...		2010-02-17 17:35:31		2010-02-17 17:32:42	285.33
017	3.3057851...		2010-02-17 18:41:51		2010-02-17 16:34:33	141.03
090	0.8985879...		2010-02-17 18:45:37		2010-02-17 18:49:37	595.04
002	0					375.59
002COBROWNE	0					0.63
002CODIVISN	0					1.53
002CONEVPRT	0					0.49

Fast 24 Hour Activity Plots



Fleet Management Module Integration

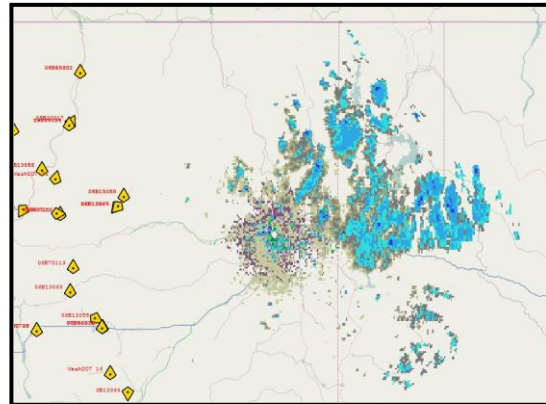
Quickly track fuel use and other Fleet Activity.



Integration with RWIS and Weather Radar products

The Navigo Explorer WebMap platform also allows for the overlay of commercial aerial imagery and real time weather information. You will be able to see your vehicle positions on top of images and street lines. This includes NEXRAD weather RADAR information.

Quickly display Storm intensities and Precipitation totals. Also shows all Weather Service produced Watch and Warning Boxes



Integration with Application Specific Modules

These include Public Works, Solid Waste Management, Transit Systems, Public Safety, Public Utility, and Work Order Management Systems.

Integration includes special handling of vehicle activities unique to the application. For example in the transit package the server automatically tracks the route compliance and ETA's to all scheduled stops for Fixed Route Bus fleets. The Solid Waste Package will track and display route exceptions such as can-not-out or yard waste in can and will assign and manage special pickup activity. Landfill activities are also tracked.

The work order package interfaces to in-vehicle personal navigation devices in the GARMIN line to allow for in-vehicle stop ordering, driver guidance, text messaging through the device, and stop ETA management.

SQL Based Wireless Data Server and Event Engine

The new LTWDS can utilize MS-SQL or the economical open-sourced MySQL.

Event Engine

The Event Engine will monitor all specified vehicle activities and take predefined actions based on the condition of the monitored activity. Conditions are defined for each vehicle and one or several events may be taken based on the condition.

Current Defined Conditions and Monitored Activity

- Engine On/Off
- Vehicle Start/Stop
- Equipment Fault
- Digital Input On/Off
- Analog Input On/Off
- Status Message Receipt
- In/Out of Geofenced Area
- On/Off Route
- Spreader ON/Off and rate
- Blade Up/Down
- Broom On/Off
- PTO On/Off
- Vehicle Speed
- Impact/Hard Brake
- Arrive/Depart from one of 10 Home Coordinates
- Operation outside of prescribed Operating Times
- Panic Switch
- Lights On
- Alarm On/Off
- Seatbelt
- Door Open
- Driver Log In/Out
- Text Message Received
- ETA Message Received
- Stop Order Message Received
- Painter On/Off
- Mower On/Off
- Sealer On/Off
- Sprayer On/Off
- Position Mark
- Vacuum On/Off
- Hopper Dump
- Hose Feedout Length
- Pump On
- Road or Air Temperature
- Wind Speed/Direction
- Compactor On/Off
- Pickup arm extend
- Siren/Lights On/Off
- Tilt Sensor
- In/Out of State Boundaries
- RFID Scans
- Passenger In/Out
- Engine Fault Message from Engine Diagnostic Bus
- Inactivity over a prescribed time period

Defined Actions That May Be Taken On Any Of The Above Conditions

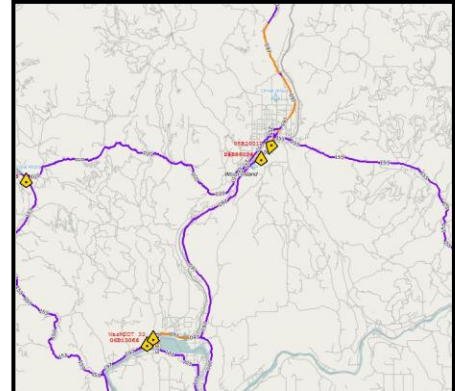
- Log Event
- Send an Email
- Send an SMS
- Plot Point
- Change Unit Symbol Color,
- Clear Output
- Query In-Modem Log
- Write out file
- Start Path
- Run Report and Email
- Disable a Vehicle
- Enable a Vehicle
- RouteUpdate-Solid Spread-Active
- RouteUpdate-liquid Spread-Active
- Clear In-Modem Log
- Poll Unit
- Hide Unit
- Unhide Unit
- Arm Alarm
- RouteUpdate-Reserved1-Active
- RouteUpdate-Reserved2-Active

- Start In-Modem Log
- Stop In-Modem Log
- Set Vehicle Output On – uses one of the 6 outputs available on each mode
- RouteUpdate-Blade-Active
- RouteUpdate-Sweeper-Active
- RouteUpdate-Reserved3-Active
- RouteUpdate-Reserved4-Active

Navigo Explorer WebMap and Public Works

With the Public Works option the user is able to monitor Route-based operations commonly performed. The Navigo Explorer will require a user supplied GIS layer that describes the operating routes. The Server software will then match Vehicle location to route line segments. The line segment will be updated with the time and activity of the vehicle. A range of colors are then assigned to each line segment to display the relative time since the last activity was performed on a given segment. Four colors are assigned to represent 0 – 6 Hours, 6 – 18 Hours, 18 – 24 Hours, and over 24 Hours. A fifth color is used to display the default or 'untouched' state.

For route based operations the Navigo Explorer will track monitored operating, atmospheric, and vehicle conditions. The server will automatically match the vehicles location to the nearest route segment when any of the monitored conditions listed above are active. The segment will be updated with the date and time and the condition of the monitored input. As vehicle and field events progress and operations are performed the Server will continually update the Route Layer database with current treatment times and amounts. To update the Map View with current Route Status the operator should select the Update Route item from the menu. The route display may be toggled off and on using a checkbox.



Using the Route Summary menu item will open a window showing all Routes. A column showing percent completion indicates the percentage of road segments have been treated for a given route. Segment completion is indicated by a valid Time and Date assigned to a segment. Material usage totals, distances travelled, and fuel usage may be reported using the ADMIN-Reports menu item and running the appropriate report from the Report Builder window.

Sweepers

All of the various brooms on a sweeper may be monitored for On/Off Status. The dumping of the hopper may also be monitored. If a sweeper route map layer is provided the user may use the automatic route matching functionality to track the completion status of each route. Specific Routes travelled and Hopper Dump Locations may be displayed using the Reports Builder.

Paint Trucks

On/Off Status of the Sprayer may be monitored on Paint Trucks. The path and distance travelled while spraying may be displayed using the Report Builder.

Weed Spraying

On/Off Status of the Sprayer may be monitored on Weed Control Trucks. The path and distance travelled while spraying may be displayed using the Report Builder.

Chipper/Sealers, Graders

On/Off Status of the Sealer Equipment and Graders may be monitored on the vehicles. The path and distance travelled while spraying may be displayed using the Report Builder.

Sanitary/Storm Sewer Maintenance

Hose feed out lengths may be monitored on vehicles along with pump status.

Public Safety

In the field of public safety, efficiency and performance translate to the safety and well-being of those you serve. Sheriffs, Chiefs, and Directors responsible for public safety depend on Location Technologies for accurate, detailed information that promotes quick assessment and action. With Intelligent Fleet Management and dispatch solutions from Location Technologies, public safety professionals leverage real-time intelligence on the operational efforts of the organization.

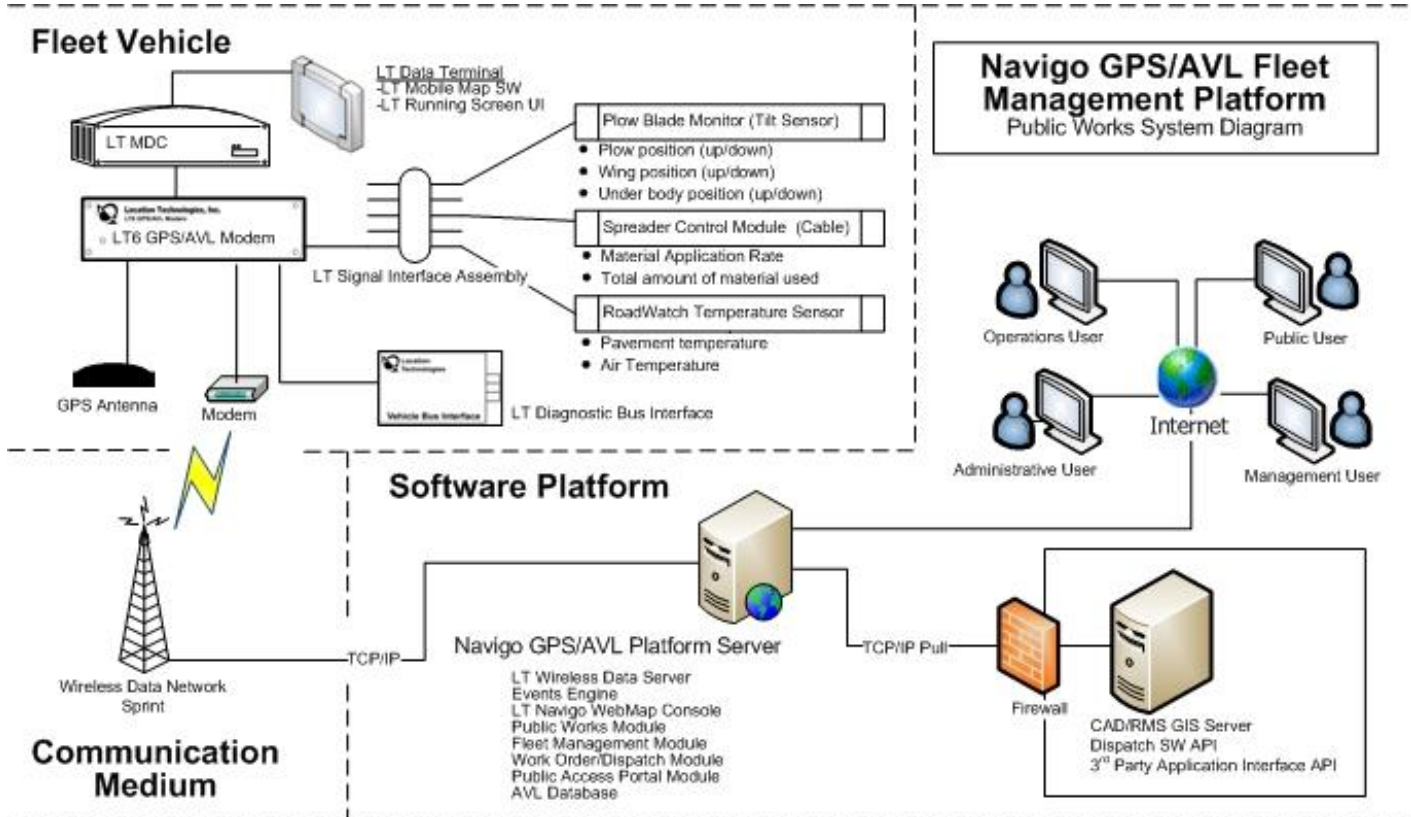
Our unique versatility and experience with operations of all shapes and sizes enables us to customize solutions for your unique needs. With a Location Technologies solution integrated seamlessly into your operation, you gain a level of awareness and flexibility that delivers safer, more efficient performance by empowering you and your public safety

professionals to deliver your very best. E911 support is available on Public Safety GPS/AVL Fleet Management systems implementing the LT 911 Server software. Computer Aided Dispatch (CAD) integration is available for certain 3rd party dispatching systems

Fleet Management

Vehicles equipped with our optional OBD interface can monitor all engine diagnostic information including engine fault codes as they appear. OBD data is polled on command or is automatically sent each time an engine fault occurs. We support the OBDII standard found on all cars and light trucks and the J1708 and J1939 standard used in heavy trucks, buses, and equipment. The Fleet Manager Package allows for the complete management of all scheduled and unscheduled service and repairs, tracks personnel, materials, and suppliers, and is also a browser-based application requiring no software to be loaded on the users workstation.

System Diagram



Implementation

Project Plan Development

Upon award of contract Location Technologies, Inc. (LTI) Project Managers will work closely with City Management on a jointly developed Project Plan Document. The LTI Project Manager will attend scheduled meetings during normal City business hours, Monday through Friday. LTI Project Managers are also available for online webinar meetings at the discretion of the City.

Software Configuration

Configuration of the Navigo Explorer WebMap Platform for the City GPS/AVL Fleet Management System is comprised of three interconnected tasks. These tasks are described below:

Load City GIS/Map data

LTI Project Managers will engage with the City Management Team and GIS Department to determine what Map Projections and Layers will be made available to the Navigo AVL System.

Load City vehicle and operations data

LTI Project Managers will engage with the City Operations and Fleet Management Team to acquire all necessary vehicle and operations data.

Configure City user/group credentials for Navigo AVL System access/functionality

LTI Project Managers will engage with the City Operations Management Team to determine the appropriate user/group credentials configurations for City staff.

System Report Configuration and Development

LTI Project Managers will engage with the City Operations Management and Fleet Management Team to set-up and configure system reports as identified in the mandatory requirements.

Software and Hardware Testing

LTI Project Managers will demonstrate that the GPS/AVL Fleet Management System successfully meets City business requirements using a City supplied test plan. LTI will remediate any critical or blocking issues before the System goes into full production.

Acceptance Field Testing

City end-users will conduct field testing the production GPS hardware and software solution noting any issues. LTI has read and understands its requirement to remediate any critical or blocking issues before the system is accepted.

Systems Documentation

LTI Project Managers will deliver a complete set of technical and end-user system documentation in electronic format to the City Operations Management and Fleet Management Teams.

Project Team

Location Technologies, Inc. (LTI) is organized in a traditional functional matrix fashion where individual project and product managers may pull on resources from the functional groups. In the event of the loss of key employee(s) LTI is sufficiently staffed and experienced to continue successful completion of work and obligations as stated in the negotiated contract.

Project Manager

Eric Cowger
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Engineering Manager

Glenn Courtney
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Project Support

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Engineering Support

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P: (816)741-3169 x113
ccowger@loctech.com

Support

Warranty, maintenance, and support is comprehensive, responsive, and benefits the City upon implementation and into the future. The vendor should describe how software maintenance and support is provided. Location Technologies provides technical and information technology support by phone Monday – Saturday 8:00am – 5:00pm CST and 24/7 support by email. Response time and escalation procedures are variable dependent upon support necessities. Software updates and upgrades are released as they become available. Software updates are available for download with an internet connection or can be shipped in CD/DVD-ROM format via US Mail or UPS/FedEx. The LT6 CDMA GPS/AVL Modem has many over-the-air programmable features as well as Ethernet/serial connectivity options for programming with our AVLCon software.

Training

All training sessions will be presented by Location Technologies, Inc. support and education specialists. Initial training programs will include hardware installation, hardware maintenance, software operations and software maintenance. These training sessions include onsite training for managers, dispatchers, operators and all support personnel and encompass all aspects of system use and maintenance.

Vehicle Hardware Maintenance and Installation Training

LTI Project Managers will engage the City Fleet Management Team to determine a feasible schedule and work plan for vehicle hardware installation training. Typical vehicle installations take one to two hours per vehicle depending upon location, vehicle, additional interface installation, and personnel availability.

Installation: LT Mobile Data Terminal GPS/AVL Unit

Location: On-Site

Duration: 60-120 minutes per vehicle*

Navigo User Training

LTI Project Managers will engage the City Operations Management and Fleet Management Teams to determine a feasible schedule for systems training. All training sessions will be presented by Location Technologies, Inc. support and education specialists. Initial training programs will include hardware installation and maintenance, software operations and software maintenance. These training sessions include onsite training for managers, dispatchers, operators and all support personnel and encompass all aspects of system use and maintenance.

Course: Training for Navigo Explorer WebMap Platform Management Users

Learner: Dispatch User; Management User

Location: On-Site

Duration: 2-3 hours*

Course: Training for LTI Navigo Mobile Map and Operations Users

Learner: Fleet Maintenance Personnel; Fleet Operations User

Location: On-Site

Duration: 2-3 hours*

Cost Breakdown

Upfront Hardware Costs				
Public Works Vehicle				
<u>Qty</u>	<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Total</u>
15	LT6 GPS/AVL Modem	Cellular Modem, Incl. 1yr Warranty	425.00	6,375.00
15	Cabling/Antennas	Combo GPS/Cellular, Mag-mount	55.00	825.00
28	LT Plow Monitor	HW & Cabling	59.00	1,652.00
4	LT Spreader Interface	HW & Cabling	65.00	260.00
15	LT Diagnostic Bus Interface	HW & Cabling (optional, not incl. in total)	325.00	4,875.00
Public Works Vehicle Hardware Total				\$ 9,112.00

Recurring Monthly Costs				
Monthly Per Vehicle Costs				
<u>Qty</u>	<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Total</u>
15	Navigo Unit Subscription	1.65 per vehicle/month	1.65	24.75
15	Wireless Data Plan	10.99 per vehicle/month	10.99	164.85
Monthly Per Vehicle Costs Total				\$ 189.60
Monthly Per Account Costs				
<u>Qty</u>	<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Total</u>
1	LT Hosting Service		35.00	35.00
1	Public Works Module		35.00	35.00
1	Fleet Manager Module	(Diagnostic Bus option only, not incl. in total)	35.00	35.00
Monthly Per Account Costs Total				\$ 70.00

Professional Services				
<u>Qty</u>	<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Total</u>
1	User Training	On-site, unlimited attendance	1,250.00	1,250.00
1	HW Maint. & Install. Training	On-site, unlimited attendance	1,250.00	1,250.00
15	Ext. LT6 12month Warranty	Annual, per device (After 1 st year)	30.00	450.00

Location Technologies, Inc. 12 Month Limited Warranty and Disclaimer

Limited Warranty

Location Technologies, Inc. (LTI) warrants all hardware products to be free from defective material and workmanship for a period of one (1) year from the original ship date from our factory. LTI agrees to repair or replace, at our sole discretion, a defective device that has been returned to LTI within the warranty period and has a proper RMA.

If service is required under this warranty:

1. Call 816-741-3169 or email: service@loctech.com to receive an RMA number. This number must be prominently displayed on the return box and on any shipping documents.
2. Send the device postage prepaid to the address listed below.

Note: All returned devices must be shipped in a static free container. This may be a static free bag within a regular cardboard box. The warranty may be immediately voided if the device is not protected from static discharge during shipping.

3. Location Technologies, Inc is not responsible for shipping damage.

This warranty does not extend to any LTI products that have been subject to misuse, neglect, accident, incorrect wiring, improper use, violation of instructions or operating parameters, damage caused by connected equipment, nor does the warranty extend to any units that have been altered or repaired by anyone other than LTI.

Limitation of Liability and Disclaimer

In no way shall LTI be liable for any loss, damage, fire, explosion, injury, including any incidental or consequential damages, or death as a result of operating and/or installing any LTI products.

ALL PRODUCTS SUPPLIED BY LOCATION TECHNOLOGIES, INC. ARE "AS IS" AND WITHOUT WARRANTIES EXPRESS OR IMPLIED. LTI DISCLAIMS ALL WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. LTI DOES NOT WARRANT THAT FUNCTIONS AND FEATURES CONTAINED IN OUR PRODUCTS WILL BE UNINTERRUPTED OR ERROR-FREE, THAT DEFECTS WILL BE CORRECTED. LTI DOES NOT WARRANT OR REPRESENT THE USE OF OUR PRODUCTS IN TERMS OF THEIR CORRECTNESS, ACCURACY, RELIABILITY, OR OTHERWISE.

For further information regarding product warranties and return procedures please contact us at

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Location Technologies, Inc
Service Dept.
6214 NW Kelly Drive
Parkville, MO 64152
1-816-741-3169
support@loctech.com

Location Technologies, Inc.
Standard Terms and Conditions

Hardware and Network Requirements:

Please note the following minimum PC hardware requirements for our Software Products. LTI products will work over Windows NT or Novell networks running TCP/IP.

PC's must be a Pentium class machine with a minimum of 400 MHz processor speed, 128 Mb (256Meg recommended) RAM, at least one open serial port and a minimum of 1 Gb free space on a fixed disk drive. The operating system should be Windows '9X, Windows 2000 or Windows NT Workstation version 4.0.

Payment Terms:

Software Purchases

Payment terms from LTI are net 30 days from date of shipment subject to credit approval. Purchases made from licensed distributors of LTI's products are subject to the distributors payment terms.

On-site Installation / Engineering / Training

Payment for services must be made net 30 days from the date of service. Expenses, including travel, lodging and meals will be billed.

Past Due Accounts

Past due accounts are subject to a surcharge of 1.5% per month. Past due services invoices will result in technical support services being suspended.

Acceptance of Products:

Opened software cannot be returned. Hardware products may not be returned except for repair. **You must request an RMA from LTI prior to returning any item** for restock or repair. A 15% restocking fee is required and no returns will be accepted after 30 days from date of shipment. Product acceptance is indicated by accepting delivery from your requested shipper unless otherwise provided for in a separate written agreement.

Training:

LTI will provide training as arranged per each individual contract. We follow a "train the trainer" format and require that all personnel receiving training have a familiarity with the Windows operating system.

Licensing:

All software products are licensed for use on a single machine only unless otherwise specified by written agreement.

Our Liability:

Location Technologies, Inc. is only responsible for the repair or replacement of our hardware products under the terms of the attached warranty document. Specifically, LTI is not responsible and shall be held harmless for the consequential damage or injury of any attached or associated equipment, property, or persons which may be associated with the use of our products.