RCWD
RICE CREEK WATERSHED DISTRICT

AUGUST						
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SEPTEMBER						
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RCWD BOARD OF MANAGERS REGULAR MEETING AGENDA

Wednesday, August 14, 2013, 9:00 a.m.

Shoreview City Hall Council Chambers
4600 North Victoria Street, Shoreview, Minnesota

Agenda

CALL TO ORDER

ROLL CALL

SETTING OF THE AGENDA

APPROVAL OF JULY 24, 2013 REGULAR BOARD MEETING MINUTES

CONSENT AGENDA

The following items will be acted upon without discussion in accordance with the staff recommendation and associated documentation unless a Manager or another interested person requests opportunity for discussion:

Table of Contents

PERMIT APPLICATIONS REQUIRING BOARD ACTION

No.	Applicant	Location	Plan Type	Recommendation
12-005	Xcel Energy	Arden Hills	Bridge / Culvert Crossing	APPROVAL
13-060	City of Mahtomedi	Mahtomedi	Bridge / Culvert Crossing	CAPROC 4 items

It was moved by Manager _____ and seconded by Manager _____, to approve the consent agenda as outlined in the above Table of Contents in accordance with RCWD District Engineer's Findings and Recommendations, dated August 7 & 8, 2013.

OPEN MIKE

Any RCWD resident may address the Board in his or her individual capacity, for up to three minutes, on any matter not on the agenda. Speakers are requested to come to the podium, state their name and address for the record. Additional comments may be solicited and accepted in writing. Generally, the Board of Managers will not take official action on items discussed at this time, but may refer the matter to staff for a future report or direct that the matter be scheduled on an upcoming agenda.

ITEMS REQUIRING BOARD ACTION

1. Water Quality BMP Cost-Share Applications
   a. A13-04: Juffer Lakeshore Restoration & Buffer (Reshanau Lake)
   b. R13-06: Menanteau Raingarden (Ramsey Conservation Ditch 4, Little Lake Johanna)

2. Consider Check Register Dated 8/14/2013, in the Amount of $117,929.08 Prepared by HLB Tautges Redpath.

ITEMS FOR DISCUSSION AND INFORMATION

1. Discussion on Draft Anoka County Ditch 72 Historical Review.
2. Discussion on New FEMA (Federal Emergency Management Agency) FIRMs (Flood Insurance Rate Maps) for Anoka County
3. District Engineer Update and Timeline
4. Manager's Update.

ADJOURNMENT

Approval of July 24, 2013 Regular Board Meeting Minutes

For Consideration of Approval at the August 14, 2013 Board Meeting.
Use these minutes only for reference until that time.

REGULAR MEETING OF THE RCWD BOARD OF MANAGERS

Wednesday, July 24, 2013

Lino Lakes City Hall Council Chambers
600 Town Center Parkway, Lino Lakes, Minnesota

Minutes

ROLL CALL

Present: President Patricia Preiner, 1st Vice-Pres. Barbara Haake, 2nd Vice-Pres. John Waller, and Treasurer Steve Wagamon.

Absent: Secretary Harley Ogata (with prior notice).

Staff Present: Administrator Phil Belfiori, Permit Coordinator/Wetland Specialist Nick Tomczik, Office Manager Theresa Stasica, Technician/Inspector Jordan Kudrna, Lake and Stream Specialist Matt Kocian, Technical Specialist/Permit Reviewer Chris Buntjer

Consultants: District Engineers Mark Deutschman, Houston Engineering, Inc. (HEI); District Attorney Louis Smith from Smith Partners.

Visitors: Joe Radach.

CALL TO ORDER

President Preiner called the meeting to order, a quorum being present, at 9:00 a.m.

SETTING OF THE AGENDA

District Administrator Belfiori added under Items Requiring Board Action a new number #4 Update on ACD 10-22-32 Rebid.

Motion by Manager Haake, seconded by Manager Wagamon, to adopt the agenda as amended. Motion carried 4-0.

READING OF THE MINUTES AND THEIR APPROVAL

Minutes of the July 8, 2013, Board of Managers Meeting Workshop Meeting. ***Motion by Manager Wagamon, seconded by Manager Haake, to approve the minutes as presented. Motion carried 4-0.***

Minutes of the July 10, 2013, Board of Managers Regular Meeting.
Permit Coordinator/Wetland Specialist Tomczik requested the following changes:

Line 83, Page 2, add the word "no" between had and jurisdiction.

Motion by Manager Wagamon, seconded by Manager Waller, to approve the minutes as amended. Motion carried 4-0.

CONSENT AGENDA

The following applications have been reviewed by the District Engineer and Staff and will be acted upon without discussion in accordance with the Engineer's Recommendation unless a Manager or the Applicant or another interested person requests opportunity for discussion:

Table of Contents

PERMIT APPLICATIONS REQUIRING BOARD ACTION

No.	Applicant	Location	Plan Type	Recommendation
13-029	MFC Properties	Lino Lakes	Final Site Drainage	CAPROC 7 items
13-030	Kwik Trip	Blaine	Final Site Drainage	CAPROC 5 items

Permit Coordinator/Wetland Specialist Tomczik stated the current fee schedule did not have a fee requirement for an amendment of a permit application, and in this particular case the Kwik Trip project 13-030, the Board previously approved it for CAPROC and then Kwik Trip came back to the staff to amend the Plan to utilize the new rules. He indicated the District does not charge an additional fee in these cases and he believes staff had brought this up some time ago and he wanted to make sure the Managers were aware of this.

Manager Haake stated it was fine that they were aware of it, but asked if the applicant was going through the same process as they did as if it was a brand new permit. She inquired how much more time was expended by staff in reviewing the amendment. Permit Coordinator/Wetland Specialist Tomczik responded the amendment review cost in this case was about $1,700. That aside, if the Managers wanted to take a broader look and amend the fee schedule in some way to address these situations then staff could assist.. He stated the current fee schedule was not set up where the District was reimbursed the actual cost and wanted the Managers to be aware of this.

Manager Haake indicated this was something they should probably discuss at some other time. She asked what the impact was of this project under the new rule. Permit Coordinator/Wetland Specialist Tomczik responded when they looked at any given site, the new standard changed and in this case was a smaller volume of water. He indicated the rule revision was across all permit types and there were, under the old rules, a number of different standards.

Manager Haake asked if this all evened out. Permit Coordinator/Wetland Specialist Tomczik replied that was correct as the intended net result of the rule change across all permit types was the same as the old rule.

Manager Waller stated one of the items for discussion was that residential housing did not have to have the restrictions that businesses had. He asked if the residential housing was still exempt and still had a different standard than businesses did. Permit Coordinator/Wetland Specialist Tomczik responded when a residential builder came in and wanted to build on a lot, provided that development was consistent with the original permit, the builder could proceed.

Manager Waller asked if residential was held to the same standards as businesses with respect to retention and volume control. Permit Coordinator/Wetland Specialist Tomczik replied that was correct on the front end as all projects that were over 10,000 sq. ft. needed to meet the development or redevelopment threshold.

Manager Waller stated one of the problems was the runoff that came off of the residential developments were greater, but they did hold the residential developments to the same standard as business development. Permit Coordinator/Wetland Specialist Tomczik responded the previous rule had a provision that allowed construction on the individual residential lot to proceed provided it was consistent with the past permit and that might have transcended a rule, but the new rule had a provision that talked about residential and now another section on industrial/commercial permits which was an attempt

to address the issue for both types of permits such as the concerns raised for projects like the Memory Care permit where a permit was issued and there was a lapse of time in development on the site.

President Preiner recommended they come back to this discussion at a workshop meeting.

Manager Waller stated he wanted to discuss this sooner rather than later because the residential areas were large in geography and had a lot of impervious surface. He indicated this had happened many years ago on his farm and this has not had attention to it and what they were doing with the goals of volume control and infiltration he believed they were pushing off these standards.

No.	Applicant	Location	Plan Type	Recommendation
13-040	McDonald's USA LLC	Lino Lakes	Final Site Drainage	CAPROC 5 items

Manager Haake asked if there was a way for someone to explain the MFC properties and the McDonalds.

Permit Coordinator/Wetland Specialist Tomczik responded 13-029 Main Street Shops was owned by the landowner who was putting in the initial infrastructure for the McDonald's site.

Technical Specialist/Permit Reviewer Buntjer stated these permits were part of the same development. He indicated the street and infrastructure was part of permit 13-029 and involved around 6,000 sq. ft and the applicant was proposing to build a NURP pond which was going to have water for irrigation and under permit 13-40 was the construction of McDonald's which was an acre of impervious and they proposed to utilize the stormwater BMP from permit 13-029 for that project. He noted the water reuse would provide about 6,000 cu. ft. of treatment and McDonald's would require about 3,000 of that. He stated staff was requiring the applicant to provide pumping record to demonstrate that they were actually infiltrating that amount of water. He indicated the application was proposing to do a very small amount of watering on a regular basis, about 0.10 inch and the applicant was also keeping track of rain events so they were not watering after it rained.

President Preiner asked what the project total acreage was. Technical Specialist/Permit Reviewer Buntjer responded the McDonald's was 1.24 acres and the Main Street Shops was almost 20 acres. He noted the disturbed area along the road was 4.5 acres.

Manager Waller stated he liked the idea of irrigation reuse. He asked how much of the parcel would be irrigated. Technical Specialist/Permit Reviewer Buntjer replied they were proposing to irrigate 0.65 acres.

Manager Waller stated that was like 100 ft. by 100 ft. Permit Coordinator/Wetland Specialist Tomczik stated the applicant was intending to irrigate to meet the District's standard and while crop production was a sideline benefit, they were only intending to irrigate to meet the District's rules. He stated other cities have done water reuse in the past.

Manager Haake asked if it was 20 acres and there were a McDonalds and other businesses, what would happen with future developments.

District Engineer Deutschman stated for today the decision was related to McDonalds, but the Managers have had some discussions regarding the tile comprising Ditch ACD 55 and its capacity. He noted the Managers had the Engineer look the issue of capacity again very recently and complete additional analyses. He stated one of the standards in the rule is for rate control and the applicant had to show that their peak rate of runoff post development did not exceed predevelopment rate, which the applicant had shown. The other important standards are related to volume control and ensuring lack of adverse impact to drainage, because of use of the public drainage system. With regard to drainage, the previous work

established a maximum rate of discharge for each parcel. The District Engineer wanted to make sure all of the other people could get water in the tile as well, so what staff has done from a review perspective is that they have asked the applicant to look at two things (volume control and incremental change in volume from the current condition) and comply with the most stringent. Right now, the applicant has a certain volume of water that can be put in the pipe and if they could design BMP's that maintain that in the future, they have to address the incremental increase or they can confine their discharge to those maximum rates on the map previously presented to the Board. He stated the applicant had to design their BMP's to the most stringent of the two requirements, which they have done. He stated one way to do this was the water storage system so storage would be on-site to handle the volume and be used as irrigation at opportune times. He indicated the applicant also had to report to the District how much water they were using and when. He stated the goal was that the applicant could not put any more water in the tile than they have historically.

Manager Haake stated they also understood that when something else came in, it would be first come, first serve. District Engineer Deutschman responded that condition was addressed with this permit by limiting the water put in the tile so the other people still had the right to drainage, but it was only for this part of Main Street Shops. Essentially there is no incremental increase in the volume of runoff for the 2-year event. The next business that came in would need to meet the same standards as McDonalds; i.e., limit the maximum rate to what is shown on the map and comply with the more stringent of the volume control standard or no incremental increase in volume for the 2-year event.

Manager Waller stated as this developed out and the water was retained and supplied at the appropriate times, how much acreage was going to be taken up for water reuse as this went on. He noted it needed to be made clear to the cities because one of the things he had noticed was that he believed a lot of City planning documents had been approved almost 40 years ago and have not been changed so when they decide to build, things have changed with the Clean Water Act and Wetland Conservation Act and these were things not anticipated 40 years ago. He indicated that was why he was asking how much acreage this was so Cities understood that there would need more open space to absorb that water. He believed this was important to be looked at. He stated development would continue north of this area and it was important to look at this.

Permit Coordinator/Wetland Specialist Tomczik stated the City has shown an interest and intent of a master plan for development in the area. He believed the developer was also interested in the ultimate plan and how it may benefit him to either do away with the irrigation system or come up with an alternative plan.

President Preiner noted the Cities were also required to update their Comprehensive Plan every ten years and the Cities would probably be looking at this. Manager Waller noted this did not just affect one City, but all of the Cities and this had to be looked at as a whole. He expressed concern that future developments would need to give up more of their property because their neighbor was going to have to deal with the water coming downhill.

No.	Applicant	Location	Plan Type	Recommendation
13-052	Centennial United Methodist Church	Roseville	Final Site Drainage	CAPROC 5 items

Motion by Manager Wagamon, seconded by Manager Haake, to approve the consent agenda as outlined in the above Table of Contents in accordance with RCWD staff and District Engineer's Findings and Recommendations, dated July 15, 16 & 17, 2013.

Manager Haake stated she saw some issues coming down the road and when someone was in an area already low and had wetlands, it was difficult to do development. She appreciated the Engineer and staff's attention to this.

District Engineer Deutschman stated they were dealing with these permits on an individual basis and he believed Manager Waller was correct in that future developments would have to store a lot of water, but in the short-term they were implementing the program, but long-term there was an issue that had to be dealt with.

Manager Waller stated this has been a long-standing problem and they needed to take a close look at this.

Permit Coordinator/Wetland Specialist Tomczik stated the current rule C had a 10,000 sq. ft. threshold, which was somewhat challenging to administer in phased projects such as these and staff would be looking at this issue.

Manager Waller noted 10,000 sq. ft. was not very big.

Manager Haake stated she understood what they were saying in that whenever anything was developed, it was important to keep the same water on the property both post and pre-development.

Motion carried 4-0.

OPEN MIKE – LIMIT 12 MINUTES. *Any RCWD resident may address the Board in his or her individual capacity, for up to three minutes, on any matter not on the agenda. Speakers are requested to come to the podium, state their name and address for the record. Additional comments may be solicited and accepted in writing. Generally, the Board of Managers will not take official action on items discussed at this time, but may refer the matter to staff for a future report or direct that the matter be scheduled on an upcoming agenda.*

There were no comments made at Open Mike.

ITEMS REQUIRING BOARD ACTION

1. Consider Grant Agreement with Minnesota Department of Natural Resources for Fridley/Locke Lake Raingarden (Phil Belfiori)

Administrator Belfiori stated as discussed in a workshop in July, 2011 there was an unusually heavy rain event, which caused a train to detail spilling fuel and corn into Locke Lake in Fridley. Due to the release of diesel fuel into public waters, the parties have agreed to pay $10,000 for natural resource damages. The funds were put into a Minnesota DNR remediation fund. After receipt of the funds, the DNR contacted the District looking for potential remediation projects that would be consistent with the impact. The Locke County Park Raingarden Project was identified as the best fit. The City of Fridley was interested in cooperating on the project. The funds would be transferred to the RCWD as a grant and the District would work with Anoka Conservation District to convert the site into a large raingarden/biofiltration basin.

Motion by Manager Waller, seconded by Manager Haake, to authorize the RCWD Administrator to execute the DNR grant agreement for the Locke County Park Raingarden Project. Motion carried 4-0.

2. Consider Hardwood Creek Restoration Project Partial Payment #3 (Phil Belfiori)

District Administrator Belfiori stated this was pay request #3 for the Hardwood Creek Restoration and Stabilization Project. He noted there had been significant progress made with the root establishment and reseeding. He stated this year there was a lot of vegetative work being done.

Motion by Manager Haake, seconded by Manager Wagamon, to approve partial payment request 3 to Sunram Construction, Inc. in the amount of $25,887.50. Motion carried 4-0.

3. Consider Jordell Street Culvert Project Final Pay Request (Phil Belfiori)

District Administrator Belfiori stated the final payment for the Jordell Street Culvert Project was being requested. He noted this was for a repair of a 24" culvert. At this time staff was requesting final payment in the amount of $1,589.25.

Motion by Manager Haake, seconded by Manager Wagamon, to authorize $1,589.25 as a final payment to Dunaway Construction for work completed under the contract. Motion carried 4-0.

***4.* Update on ACD 10-22-32 Rebid**

District Administrator Belfiori noted that passed out before the meeting was a document outlining options on ACD 10-22-32 rebid. He noted at the last meeting the Board rejected the bids. He indicated he has asked the District Engineer to come back with options related to the issues and based on the discussion, staff was looking for reconsideration by the Board to rebid the project.

District Engineer Deutschman stated the table passed out was their brainstorming for options to attempt to get a better price from a contractor. They believed the best way to go was to keep the pipe work with the grading work. He stated he was apprehensive about breaking these two items out as that would mean there would be two contractors to manage and they would have to make sure everything lined up correctly. He stated some tweaks had been made to the project manual to clarify things better. He stated they did not see anything in the project manual that was a major concern, but they were going to tweak some of the wording for clarity. He indicated they wanted to rebid this by the end of July. One of the things he believed would help was that they would leave the period open longer for the bids to the end of August. He indicated the contractors also had indicated they wanted more flexibility in the schedule to complete the work. In the original bid documents, they had a complete substantial completion by the end of November, but he heard from the contractors that everything was backing up and they did not believe there would be time to get it done by the deadline. He was recommending the District move the substantial completion date until sometime next summer, possibly the end of July so the contractor could fit the work in as they wanted. He noted this would also allow some winter construction, which he had some concern about but some of the contractors felt they could get the work done in the winter and early spring. He stated by being flexible, they were hoping to get a better price. He indicated he had looked at the engineer's estimate again and did end up raising it some, but not a lot. He stated they had checked their unit prices and did they due diligence and went up approximately five percent. He believed a lot of what they saw in the bids was that contractors were busy and really could not fit the work in.

Manager Waller stated in the past they had done ditch maintenance in the wintertime because the ground was harder and also the contractors did not have a lot of work in the winter. He believed this was probably a better deal to open this up a little longer and he believed this could make a big difference. District Engineer Deutschman responded routine maintenance had been done in the winter and in this case, there was quite a bit of clearing and removal of vegetation, which should be good winter work as long as the snow depths were not too great. He stated they were concerned about stuff coming out in chunks, stockpiling, and stabilization.

Manager Haake stated she agreed with the District Engineer's recommendation. She noted there might need to be an adjustment later once the bids came in as to the way to pay for this. District Administrator Belfiori stated he and the District Engineer had looked at the numbers and if the bids came in close to or at the revised engineer's estimate, the RCWD total approved budget for the project would likely not need to be revised.

Motion by Manager Haake, seconded by Manager Waller, to rebid the West bid project for ACD 10-22-32 repair as outlined by staff and the District Engineer. Motion carried 4-0.

4. Consider Check Register dated 07/24/13, in the amount of $234,540.03, prepared by HLB Tautges Redpath.
Motion by Manager Wagamon, seconded by Manager Haake, to approve check register dated 07/24/13, in the amount of $234,540.03, prepared by HLB Tautges Redpath. Motion carried 4-0.

ITEMS FOR DISCUSSION AND INFORMATION

1. State of the Lakes Report (Matthew Kocian)

District Administrator Belfiori stated he had asked Lakes and Stream Specialist Kocian to give the State of the Lakes report as he has in the past. He thanked Mr. Kocian for all of his hard work throughout the year and for the great work he does in monitoring and on water quality management projects. He noted this was a growing area and they would be really busy for the next few years.

Lakes and Stream Specialist Kocian presented the State of the Lakes in the District. He stated this Report was presented every other year and this was the third report.

2. Staff Reports

There were no comments.

3. August Calendar

There were no comments.

4. Manager's Update

Manager Waller stated Administrator Belfiori had invited him to attend a Washington County preparation meeting for this fall with the County Board of Commissioners. He noted he was not the only Manager there. He stated particularly the Commissioners wanted to know how money was collected and how it was spent. He believed this could be provided for the Commissioners.

ADJOURNMENT

Motion by Manager Haake, seconded by Manager Waller, to adjourn the meeting at 10:03 a.m. Motion carried 4-0.

CONSENT AGENDA

The following items will be acted upon without discussion in accordance with the staff recommendation and associated documentation unless a Manager or another interested person requests opportunity for discussion:

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PERMIT APPLICATIONS REQUIRING BOARD ACTION

No.	Applicant	Location	Plan Type	Recommendation
12-005	Xcel Energy	Arden Hills	Bridge / Culvert Crossing	APPROVAL
13-060	City of Mahtomedi	Mahtomedi	Bridge / Culvert Crossing	CAPROC 4 items

It was moved by Manager _____ and seconded by Manager _____, to approve the consent agenda as outlined in the above Table of Contents in accordance with RCWD District Engineer's Findings and Recommendations, dated August 7 & 8, 2013.

RICE CREEK WATERSHED DISTRICT
CONSENT AGENDA

August 14, 2013

It was moved by _____ and seconded by _____ to Approve, Conditionally Approve Pending Receipt Of Changes, or Deny, the Permit Application noted in the following Table of Contents, in accordance with the District Engineer's Findings and Recommendations, as contained in the Engineer's Findings and Recommendations, as contained in the Engineer's Reports, dated August 6 & 7, 2013.

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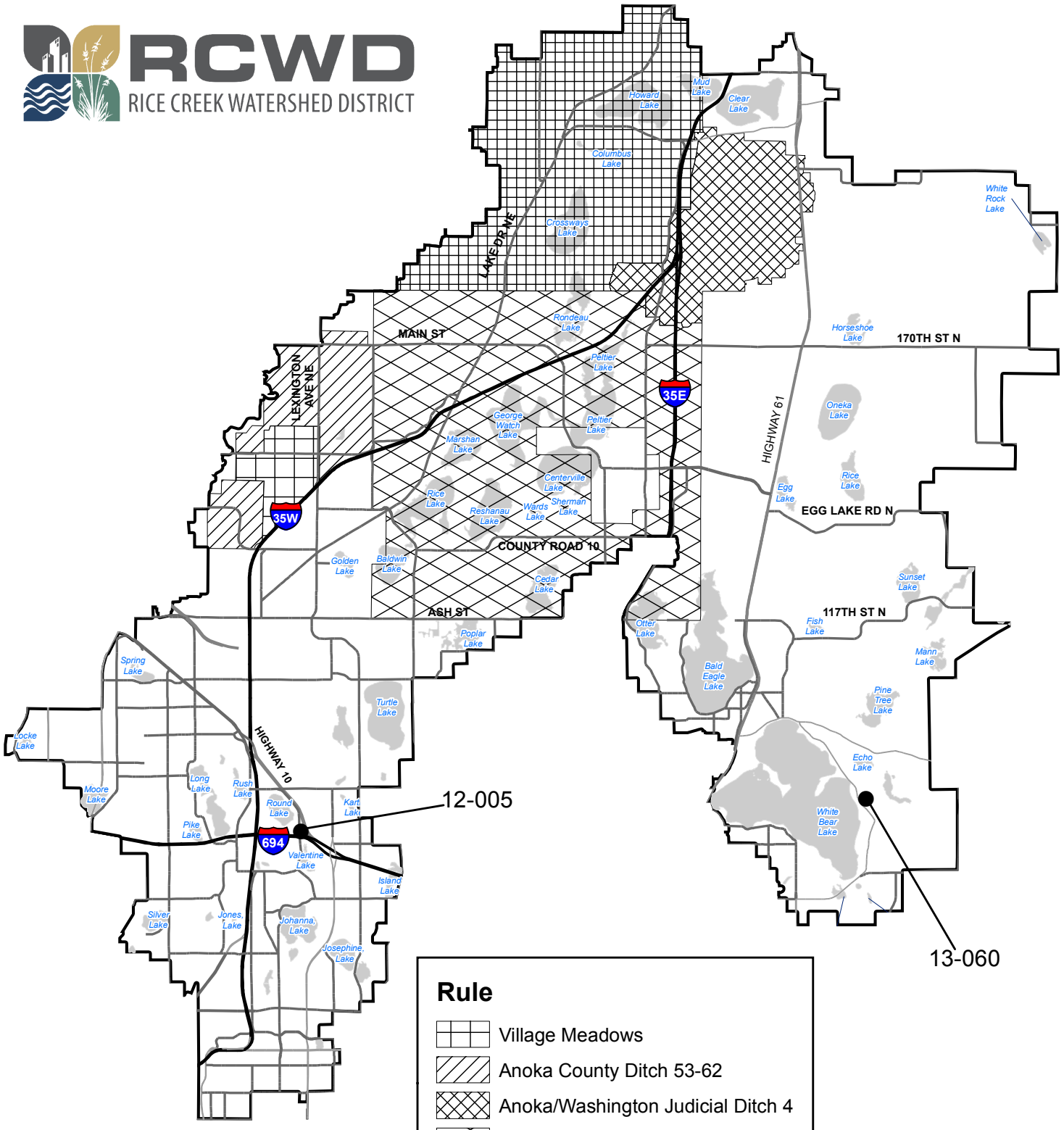
Rice Creek Watershed District



Permit Reviews
8/14/2013 Agenda

0 1 2 4 Miles

Houston Engineering Inc.
Maple Grove
P: 763.493.4522
F: 763.493.5572

N

RCWD
RICE CREEK WATERSHED DISTRICT

"WORKING DOCUMENT: This Engineer's report is a draft or working document of RCWD staff and does not necessarily reflect action by the RCWD Board of Managers."

Permit Application Number: 12-005
Permit Project Name: Driveway Maintenance - Xcel Energy Substation

Applicant:

James Fritz
Xcel Energy
414 Nicollet Mall, MP-8
Minneapolis, MN 55401
Ph: 612-330-6956
Fx: 612-330-6590
james.w.fritz@xcelenergy.com

Project Name: Driveway Maintenance - Xcel Energy Substation

Purpose: B/CC – Bridge / Culvert Crossing; The driveway entrance to the substation was washed out during a flood event along a tributary to Lake Valentine in the Spring of 2011. Xcel Energy has completed plans to permanently repair the crossing.

Site Size: Total disturbed area is 0.54 acres.

Location: Old Highway 10, just north of I-694., Arden Hills

T-R-S: SE ¼ Section 21, T30N, R23W

District Rule: D, E, G

Recommendations: APPROVAL

Stipulations: The permit will be issued with the following stipulations as conditions of the permit. By accepting the permit, applicant agrees to these stipulations

1. An as-built survey showing culvert sizes, locations and invert elevations is to be submitted to the District for verification of compliance with the approved plans before return of the surety.

Exhibits:

1. Email from City of Arden Hills dated 08-05-2013.
2. Email from RCWD Engineer Buntjer, dated 08-05-2013.
3. HydroCAD reports (pre and post) from Xcel Energy dated 08-02-2013 and received 08-05-2013.
4. HydroCAD transmittal email from Xcel Energy dated 08-05-2013.
5. RCWD Permit Application dated 06-11-13 and received 06-14-2013.

6. Transmittal Letter with driveway and culvert information from Xcel Energy dated 06-11-2014 and received 06-14-2013.

7. 11" x 17" Plan Sheet prepared by Xcel Energy not dated and received 06-14-2011.

8. Email from Xcel Energy with erosion control information dated 07-18-2013.

9. Various email correspondences between Xcel Energy and RCWD discussing options for restoration (various dates – see permit file #12-005).

10. RCWD Review File #12-003R

Findings:

1. Description – In July 2011, a rain event exceeding 7 inches in 4 hours fell on most of the RCWD. A culvert crossing owned by Xcel Energy (Northern States Power) over the Round Lake outlet channel (to Lake Valentine) in Arden Hills washed out. Xcel Energy completed emergency repairs to the crossing to maintain access to their substation. Upon review, RCWD staff found that the repair was inadequate and that the replacement culvert was too small and placed too high and was impounding water upstream of the crossing. Xcel Energy was directed to apply for a RCWD permit and permanently repair the crossing or remove it completely.

   Subsequently, MnDOT began construction on I-694 directly south of this site. Xcel Energy and MnDOT worked together to look at the entire drainageway as a whole and Xcel has finally completed plans, as promised, to permanently repair the washed out crossing. Plans include replacement of two culverts on the property and reconstruction of two driveways (one is asphalt and one is gravel). In total approximately 7,000 square feet of impervious surface will be reconstructed. Additionally, Xcel Energy is proposing a grading plan to remove sediment that was deposited in and around the drainageway during the washout while increasing the floodplain storage area between the two driveways.

2. Stormwater – Rule C does not apply to this project. Less than 10,000 square feet of impervious surface is being reconstructed.

3. Wetlands – During RCWD staff inspections in 2011 and 2012, wetlands were observed to the north and south of this site. Due to the washout and subsequent emergency actions taken by Xcel, it was unclear if wetlands existed adjacent to the drainageway between the driveways or not (deposited sediment from the washout prevented this observation). The net result of this project will repair any wetlands that may have existed and should result in a net gain. RCWD staff has determined that no wetland impacts are being proposed by this project.

4. Floodplain – The 100-year regulatory floodplain elevation of Valentine Lake (downstream) is 880.7 feet (NAVD 88 datum). Some excavation work is proposed below this elevation and the culvert inverts are below this elevation. After review of the grading plan, RCWD staff has determined that this project will result in a net gain in floodplain storage area. The amount of storage increase has not been quantified and is not critical to this project. The proposed project meets the requirements of RCWD Rule E.

5. Erosion Control – This project will disturb 0.54 acres of land through the replacement of two culverts, grading between the culverts and the reconstruction of portions of two driveways. Construction is planned to start in mid-August 2013 and be completed by the end of the growing

season. A combination of seed/mulch, silt fence and other erosion and sediment control devices (as needed in the field) are proposed for the site. Riprap will be placed around the culvert end section aprons to minimize scouring and erosion near the culverts. RCWD staff has suggested that Xcel Energy use BWSR seed mix 34-261 to re-vegetate the site, although others would be appropriate. An NPDES permit is not required for this project. The proposed measures meet the requirements of RCWD Rule D.

6. Bridges and Culvert Crossings – The north crossing is the one that failed in July 2011. The dimensions of that original culvert are unknown. Xcel Energy originally placed a 31-foot 18" CMP in this location as an emergency repair. RCWD staff directed Xcel Energy to replace this culvert with a culvert at least 24" in diameter and, most critically, matching the invert elevations to the original channel so as to not artificially impound water upstream, while maintaining positive flow through the site to the south crossing. Xcel Energy submitted HydroCAD reports on 08-05-2013 that show a 24" RCP has more than enough capacity to convey the 100-year storm event without impounding water upstream of the crossing. RCWD Engineer Buntjer reviewed this report on 08-05-2013 and concurred with their model. Xcel Energy is proposing to install a 67-foot 27" RCP with aprons with inlet and outlet invert elevations of 880.27 feet and 879.75 feet, respectively. The proposed culvert size and inverts meet the requirements of RCWD Rule G.

   While not originally required, Xcel Energy is also taking this opportunity to replace the culvert under the south crossing as its age is unknown and condition is poor. The existing 48-foot 44" arch culvert is being replaced with a new 66-foot 44" arch culvert. The invert elevations of the inlet and outlet will be 879.00 feet and 878.52 feet, respectively, very closely matching the existing condition. The proposed design of this culvert meets the requirements of RCWD Rule G.

7. Documenting Easements and Maintenance Obligations – Per an email dated 08-06-2013, the City of Arden Hills is not requiring that the applicant place easements over onsite floodplain. No other easements or maintenance obligations are required for this project.

8. Previous Permit Information – RCWD Review File #12-003R: Original complaint and notice to Board of Managers in February 2012.

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

Chris Buntjer 8-8-13

Chris Buntjer
MN Reg. No 48745

WORKING DOCUMENT: This Engineer's report is a draft or working document of RCWD staff and does not necessarily reflect action by the RCWD Board of Managers.

Permit Application Number: 13-060
Permit Project Name: Hamline Lake Outlet Replacement

Applicant:

Monica Heil
City of Mahtomedi
600 Stillwater Road
Mahtomedi, MN 55115
Ph: 763-287-7187
Fx: 763-541-1700
mheil@wsbeng.com

Consultant:

Earth Evans
WSB
701 Xenia Ave S Suite #300
Minneapolis, MN 55416
Ph: 763-231-4877
eevans@wsbeng.com

Ryan Spencer
WSB
701 Xenia Ave S, Suite 300
Minneapolis, MN 55413
Fx: 763-541-1700
rspencer@wsbeng.com

Project Name: Hamline Lake Outlet Replacement

Purpose: B/CC – Bridge / Culvert Crossing; To replace the failing Hamline Lake outlet with a functional 24" RC pipe.

Site Size: 12,020± ft^2 of disturbed area, with no new impervious surface and <10,000 ft^2 reconstructed impervious surfaces.

Location: Hamline Lake, Mahtomedi

T-R-S: NW ¼ Section 20, T30N, R21W

District Rule: D, F, G

Recommendations: CAPROC

It is recommended that this Permit Application be given Conditional Approval Pending Receipt of Changes (CAPROC) and outstanding items related to the following items.

Rule D – Erosion and Sediment Control

1. Per Rule D.4(c), submit the name, address and phone number of party responsible for maintenance of all erosion and sediment control measures.
2. The applicant must include perimeter erosion control measures on the grading and erosion control plan sheet (e.g., silt fence, compost logs).

Administrative

3. Permit application must be signed by the successful bidder
4. Send one final, signed full sized plan set to the District, and e-mail a pdf copy to both the District and the District Engineer.

Stipulations: The permit will be issued with the following stipulations as conditions of the permit. By accepting the permit, applicant agrees to these stipulations:

1. An as-built survey of the culvert size and inverts is to be submitted to the District for verification of compliance with the approved plans.

Exhibits:

1. Plan set (5 pages) including sheets 1-5 of 5, dated 3-17-2013 and received 7-9-2013.
2. Permit application, dated 7-9-2013 and received 7-9-2013.
3. RCWD Submittal Checklist, undated and received 7-9-2013.
4. Appendix A: Wetland Alteration Documents, dated 6-14-2013 and received
5. Appendix B: Watershed map, and HydroCAD modeling including the 1, 2, & 100-year rain events for the existing and proposed conditions.
6. File 13-024R.

Findings:

1. Description – The project involves the replacement of a failed 24-inch culvert crossing at Quail Street in Mahtomedi, just down-stream of Hamline Lake. The project proposes to abandon the existing culvert in place, and replace it with a 24-inch RCP. The new outlet will remain in the same location, and the new inlet will be moved approximately 30 feet to the west and be set at the existing invert elevation of 943.22 feet. The existing wood skimmer structure at the inlet will be replaced with a new precast RCP structure. See further description below in Finding 6. The project will disturb approximately 12,020± ft^2 of area, and 1,350± ft^2 of impervious surface.
2. Stormwater – Less than 10,000 ft^2 of impervious surface will be added or reconstructed; therefore, Rule C requirements do not apply to this project. However, the project does propose to construct a rain garden approximately 100 feet west of the proposed culvert outlet.
3. Wetlands – The applicant provided a level 1 wetland delineation for the project. The wetland delineation information was provided to the TEP. RCWD approved the wetland delineation on 6-28-2013. The applicant also submitted a utility exemption application for the intended culvert replacement. This application was also noticed to the TEP. The TEP commented that the work, as described, likely falls under the utility exemption (8420.0420, Subp. 6) and therefore does not require replacement provided that the conditions under 8420.0410 are followed. The culvert to be replaced is part of the City's stormsewer system and is part of the City's MS4 permit. RCWD staff recommends approval of the utility exemption conditional on 8420.0410 - proper erosion control, no blockage of fish passage and compliance with all applicable federal, state and local requirements. This decision is not intended to regulate activities under the jurisdiction of the DNR, except to the extent that DNR finds the decision consistent with their requirements.
4. Floodplain – There is no regulatory floodplain elevation on this site.
5. Erosion Control – Proposed erosion control methods must be included on the plan sheets as required by finding 2 above. The site is proposed to be re-vegetated with seed and erosion control blanket within 7 days for all disturbed areas. Less than 1 acre will be disturbed by this project and an NPDES permit is NOT required for the project. The information listed under the Erosion and Sedimentation Control Recommendations needs to be submitted. Otherwise, the project complies with RCWD Rule D requirements.
6. Bridges and Culvert Crossings – The applicant has proposed to replacing the culvert using a modified alignment, but maintaining the same invert elevation on Hamline lake, which will not adversely impact the flow rate, and will maintain the existing flow capacity. The existing pipe will be will be abandoned in place with sand and concrete. This culvert is considered by the DNR to be within a public water, and provides drainage for public waters. Navigation capacity is not applicable. The project will not change the size of the pipe, which complies with the requirements of Rules G.3(b) and (c). The proposed 8.3 ft^3 of class III rip-rap at the culvert outlet, and compliance with Recommendation 2 above will comply with G.3(d).

7. Drainage Systems – No public drainage systems are present on this site, or will be impacted by this project.
8. Documenting Easements and Maintenance Obligations – None required.
9. Previous Permit Information – RCWD file 13-024R contains wetland delineation and impact information about the site.

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

Chris Buntjer 8-7-13

Chris Buntjer
MN Reg. No 48745

ITEMS REQUIRING BOARD ACTION

1. Water Quality BMP Cost-Share Applications
    a. A13-04: Juffer Lakeshore Restoration & Buffer (Reshanau Lake)

Date: August 8, 2013
To: RCWD Board of Managers
From: Kyle Axtell, Water Resource Specialist
Subject: A13-04 Amy Juffer – Lakeshore Restoration & Buffer (Reshanau Lake) Water Quality BMP Cost-Share Application

A13-04 Amy Juffer

- Location: 6701 E. Shadow Lake Drive, Lino Lakes
- Project Type: Lakeshore Restoration & Buffer (Reshanau Lake)
- Total Eligible Project Cost: $5,114.23 (Anoka SWCD Estimate)
- RCWD Cost-Share Request: $2,557.12 (50%)

BACKGROUND

This project, located at 6701 E. Shadow Lake Drive in Lino Lakes proposes stabilization and restoration of a 90 linear foot shoreline on Golden Lake in Circle Pines. Approximately 30 linear feet of the shoreline is actively eroding and in need of major stabilization while the remainder will receive only a buffer planting. A combination of erosion control blanket, native plantings, minor re-grading and biolog installation is slated for different sections throughout the project.

Reshanau Lake is approximately 336 acres in size, impaired for nutrients (phosphorus) and it is designated as a RCWD Tier 3 lake in the 2010 Watershed Management Plan. The RCWD, in conjunction with lake residents, have been actively managing curlyleaf pondweed populations in the lake in an effort to reduce internal phosphorus loading. A TMDL for the Lino Lakes Chain of Lakes (including Reshanau Lake) is nearly complete.

The Anoka Conservation District has estimated that the total project cost (including a 10% contingency) will be $5,114.23. The landowner has submitted an application to encumber up to $2,557.12 in cost-share funding for this project, not to exceed 50% of eligible project expenses. The landowners have expressed interested in completing the work themselves, which will likely reduce the final project cost.

This proposal was considered by the RCWD Citizen Advisory Committee at its meeting held on August 7, 2013. The CAC discussed the application and passed a motion recommending that the RCWD Board of Managers approve this project for up to $2,557.12 in cost-share funding, not to exceed 50% of eligible project expenses.

RECOMMENDATION

RCWD's Citizen Advisory Committee and Staff recommend that the RCWD Board of Managers approve Water Quality BMP Cost-Share funds for Amy Juffer's lakeshore restoration project.

Proposed motion:

> Manager _____ moves to approve RCWD Water Quality BMP Cost-Share Contract A13-04 for Amy Juffer's lakeshore restoration project, up to $2,557.12, not to exceed 50% of eligible project expenses, in accordance with established program guidelines.

ANOKA CONSERVATION DISTRICT
1318 McKay Drive NE, Suite 300
Ham Lake, MN 55304
Phone: (763) 434-2030 Fax: (763) 434-2094
www.AnokaNaturalResources.com

MEMO

To: **RCWD Citizen Advisory Committee**

From: **Mitch Haustein, Conservation Specialist**

Date: **July 11, 2013**

Re: **Juffer cost-share application – Reshanau Lake**

The following summarizes the cost-share grant request for a lakeshore restoration project at the Juffer residence on Reshanau Lake in Lino Lakes.

Project Description:
The project is located on the eastern shore of Reshanau Lake in Lino Lakes and will restore and stabilize the property's lakeshore. Approximately 30 linear feet of eroding shoreline will be stabilized by installing biologs and erosion control blanket. The entire 90 feet of shoreline, with the exception of a path for access to the water and dock, will be planted with native species as a buffer averaging 10-15 feet wide. The project will reduce the amount of sediment that gets washed into the lake, filter runoff from the yard, and provide critical shoreline habitat.

Eligible Expenses: $5,114.23 in materials and labor including 10% contingency.

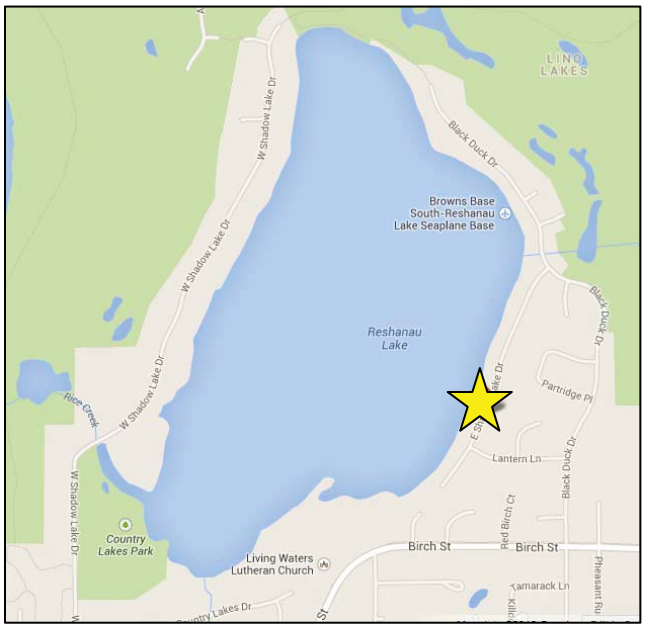
Item	Estimated Expense	Max Grant (50%)	Amount Recommended
Materials	$2,199.30	$1,099.65	$1,099.65
Labor	$2,450.00	$1,225.00	$1,225.00
Subtotal	$4,649.30	$2,324.65	$2,324.65
10% Contingency	$464.93	$232.47	$232.47
Total	**$5,114.23**	**$2,557.12**	**$2,557.12**

Staff Notes
Any alterations to the project plan must be approved by the Anoka Conservation District in order to be eligible for reimbursement. Landowner in-kind contribution will be accepted and valued at $10/hr for unskilled labor (site prep, planting, etc.) and $20/hr for skilled labor (installing bio-logs, operating machinery, etc.) at the discretion of ACD. Landowner labor will only serve as in-kind match funding and shall not be reimbursed. Reimbursement may not exceed the cost of eligible purchased supplies and materials and contracted labor.

Recommendation: **Approve cost-share grant for up to $2,557.12.**

AMY JUFFER – RESHANAU LAKE

6701 E. Shadow Lake Dr., Lino Lakes



Juffer – Shoreline Restoration

6701 E. Shadow Lake Rd
Lino Lakes, MN 55014

client:

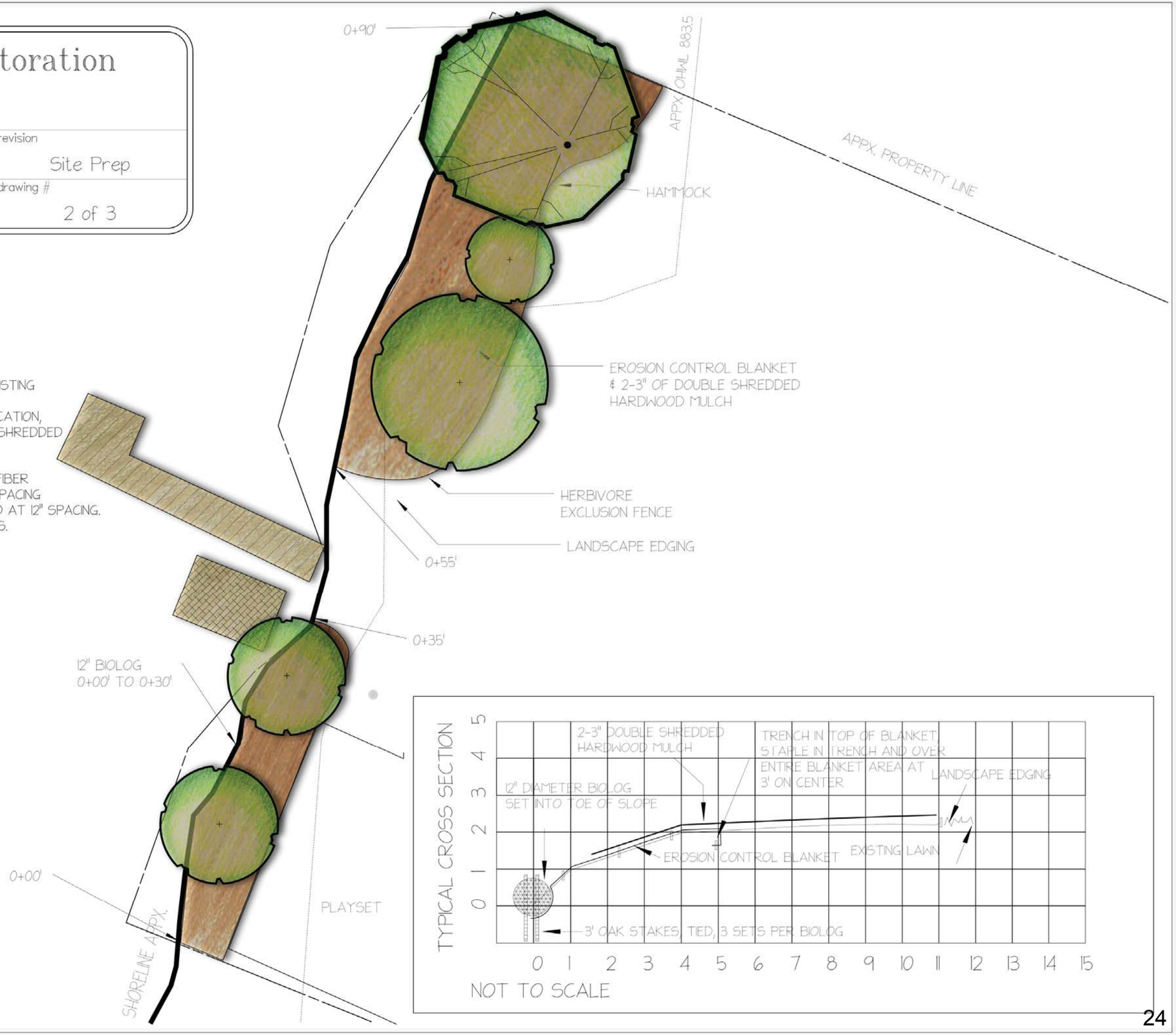
scale	date	revision
1" = 10'-0"	July 2013	Site Prep
drawn by	checked by	drawing #
A. Diehl - ACD	M. Haustein - ACD	2 of 3

0 5 10 20
SCALE IN FEET

N

SHORELINE RESTORATION OUTLINE:

1. MARK PERIMETER OF SHORELINE RESTORATION AREA.
2. REMOVE UNWANTED WOODY PLANTS.
3. USE AN AQUATIC SAFE (E.G. SHOREKLEAR) HERBICIDE TO KILL EXISTING VEGETATION.
4. AFTER WAITING A MINIMUM OF ONE WEEK AFTER HERBICIDE APPLICATION, INSTALL EDGING AND EROSION CONTROL BLANKET, APPLY DOUBLE SHREDDED HARDWOOD MULCH TO THE ENTIRE AREA AT 2" - 3" DEPTH.
5. INSTALL BIOLOG TO STABILIZE SHORELINE.
6. INSTALL PLANTS IN EROSION CONTROL BLANKET BY SPREADING FIBER WEAVE ENOUGH TO INSERT PLANT PLUG, PLANT AT AN AVERAGE SPACING OF 18", LOBELIA, PENSTEMON, ZIZIA AND ASCLEPIAS MAY BE PLANTED AT 12" SPACING.
7. PROTECT WITH A PERIMITER OF FENCING TO EXCLUDE HERBIVORES.



RESHANAU LAKE NOTES
WAVE ENERGY AT SHORELINE 0.9 ' (LOW)
DNR OHWL 883.5

Juffer – Shoreline Restoration

6701 E. Shadow Lake Rd
Lino Lakes, MN 55014

client:

scale	date	revision
1" = 10'-0"	July 2013	Planting
drawn by	checked by	drawing #
A. Diehl - ACD	M. Haustein - ACD	3 of 3

0 5 10 20
SCALE IN FEET

N

NOTES:

1. EVENLY DSTIBUTE PLANTS WITHIN PLANTING ZONE; GROUP INDIVIDUAL SPECIES TO CREATE ACCENT CLUSTERS
2. PLANT AT AN AVERAGE SPACING OF 18", LOBELIA, PENSTEMON, ZIZIA AND ASCEPIAS MAY BE PLANTED AT A 12" SPACING
3. PLANT QUANTITIES ARE DESIGNED FOR PURCHASE IN INCREMENTS OF SIX.
4. PLANT QUANTITIES MAY BE INCREASED TO MAXIMIZE VOLUME DISCOUNTS.

Key	Qty	Botanical Name	Common Name
Other Plants			
Ac	18	Anemone canadensis	Canada Anemone
Ai	48	Asclepias incarnata	Swamp Milkweed
Cl	96	Carex lacustris	Lake Sedge
Cs	42	Carex sprengelii	Long Beaked Sedge
Dl	22	Diervilla lonicera	Dwarf Bush Honeysuckle
Em	36	Eupatorium maculatum	Spotted Joe-Pye Weed
Ls	36	Lobelia siphilitica	Great Blue Lobelia
Pd	18	Penstemon digitalis	Smooth Penstemon
Rs	36	Rudbeckia subtomentosa	Sweet Black Eyed Susan
Sp	96	Spartina pectinata	Prairie Cordgrass
To	30	Tradescantia ohiensis	Spiderwort
Za	12	Zizia aurea	Golden Alexanders

Anoka Conservation District
MATERIAL & COST ESTIMATE

Juffer
6701 E. Shadow Lake Rd
Lino Lakes, MN 55014
Shoreline Restoration

LF: 90
SF: 900
Date: 1-Jul-13

Materials

Item	Qty	Unit	Unit Cost	Amount	Potential Source
Site Prep: Chemical App. - Rodeo/Roundup or alt	900	sq-ft	$ 0.05	$ 45.00	Beisswenger's, Fair's, Dundee
Herbivore-Exclusion Fence (4' green plastic safety fence)	230	lin-ft	$ 0.36	$ 82.80	Menards, Homedepot, Lowes, etc
C125 Erosion Control Blanket (6.6' x 108', or equal)	900	sq-ft	$ 0.13	$ 117.00	ACD, Brock White, (651) 647-0950
6" Netting Pegs (bio-stakes)	1	box	$ 74.00	$ 74.00	Brock White, (651) 647-0950
Twice-Shredded Hardwood Mulch (3" depth)	9	cu-yd	$ 27.00	$ 229.50	Central Wood Prd, NRG, MN Mulch & Soil
Coconut Bio-Log (10' x 12" dia. (9lb/ft))	30	lin-ft	$ 7.80	$ 234.00	Brock White, (651) 647-0950
Wood Stakes (2" x 2" x 48" - hardwood)	160	each	$ 0.75	$ 120.00	Brock White, (651) 647-0950
Edging (Black Plastic: 1/8" x 4" x 50')	120	lin-ft	$ 0.60	$ 72.00	Menards, Homedepot, Lowes, etc
Native Plant: 1" plug	468	each	$ 1.25	$ 585.00	Native Plant Supplier
Native Shrub: 2 Gallon	22	each	$ 20.00	$ 440.00	Native Plant Supplier
Deliveries (Mulch, Plants, Rock, Soil, etc)	2	job	$ 100.00	$ 200.00	Suppliers/Contractors
			Subtotal	$ 2,199.30	

Labor

Mobilization	1	job	$ 250.00	$ 250.00	Landscape/Excavation Contractor
Material Installation (2 person crew/ 10hr day)	2.00	job	$ 1,100.00	$ 2,200.00	Landscape/Excavation Contractor
			Subtotal	$ 2,450.00	

Project Total

Materials Estimate	$	2,199.30
Labor Estimate	$	2,450.00
Project Estimate	$	4,649.30
:-10%	$	4,184.37
:+10%	$	5,114.23

Water Quality BMP Cost-Share Program
Project Screening Form

Project / Landowner Name: Amy Juffer	
Project Address: 6701 E. Shadow Lake Dr. City: Lino Lakes	
County: ☒ ANOKA ☐ RAMSEY ☐ HENNEPIN ☐ WASHINGTON	BMP Type(s): Shoreline Restoration
Application Date: 11 July 2013	BMP Effective Life: 5 years
Violation or Permit Requirement: ☐ YES ☒ NO	Reviewer: Mitch Haustein

Projects are screened for potential grant eligibility based on the following criteria. (0 = low, 10 = high)

1. **a.** Is the project tributary to a PCA-listed impaired water (not mercury) or a RCWD Tier I or Tier II waterbody?

   0 **(NO)** 5 **(YES, within subwatershed)** ☒ 10 **(YES, direct connection)**

   b. If NO, is the project tributary to a lake, stream, ditch, or DNR-Protected Water Wetland (PWW)?

   ☒ 0 **(NO)** 3 **(YES, within subwatershed)** 6 **(YES, direct connection)**

2. **Water Quality Improvement:** Improves and protects water quality through implementation of Best Management Practices (BMPs).

   0 1 2 3 4 5 6 7 ☒ 8 9 10

   Comments: _____

3. **Surface Water Rate and Volume Control:** Implements controls to reduce and/or minimize the rate and volume of water that drains off of the property.

   0 1 2 3 4 5 ☒ 6 7 8 9 10

   Comments: _____

4. **Erosion and Sediment Control:** Implements controls that minimize erosion and/or sedimentation to downstream waters.

   0 1 2 3 4 5 6 7 ☒ 8 9 10

   Comments: _____

5. **Wildlife Habitat Improvement:** Creates or improves wildlife habitat through native plantings or other restoration efforts.

   0 1 2 3 4 5 6 ☒ 7 8 9 10

   Comments: _____

6. **Public Outreach:** Willingness of applicant to allow signage, tours and site visits. Publically visible site. Diversity of practices.

   0 1 2 ☒ 3 4 5 6 7 8 9 10

   Comments: _____

Total Score: 42

Minimum Eligibility = 30

b. R13-06: Menanteau Raingarden (Ramsey Conservation Ditch 4, Little Lake Johanna)

Date: August 8, 2013
To: RCWD Board of Managers
From: Kyle Axtell, Water Resource Specialist
Subject: R13-06 Diana & Dario Menanteau – Raingarden (RCD4, Little Lake Johanna) Water Quality BMP Cost-Share Application

R13-06 Diana & Dario Menanteau

- Location: 2711 Sheldon Street, Roseville
- Project Type: Raingarden (RCD4, Little Lake Johanna)
- Total Eligible Project Cost: $5,727.85 (RCD approved contractor bid)
- RCWD Cost-Share Request: $2,863.93 (50%)

BACKGROUND

This project, located at 2711 Sheldon Street in Roseville proposes a 265 square foot raingarden in Roseville to treat roof, driveway and overland runoff before it drains via storm sewer to Ramsey County Ditch 4, eventually discharging to Little Lake Johanna. The RCD4 drainage system has serious, documented volume problems. Fortunately, this project is situated in an area of native sandy soil (Zimmerman complex) in the City of Roseville and an under-drain will not be necessary.

The landowner has already obtained two contractor bids for this project. The low bid of $5,727.85 from Outdoor Lab has been approved by the Ramsey Conservation District. The landowner has submitted an application to encumber up to $2,863.93 in cost-share funding for this project, not to exceed 50% of eligible project expenses.

This proposal was considered by the RCWD Citizen Advisory Committee at its meeting held on August 7, 2013. The CAC discussed the application and passed a motion recommending that the RCWD Board of Managers approve this project for up to $2,863.93 in cost-share funding, not to exceed 50% of eligible project expenses.

RECOMMENDATION

RCWD's Citizen Advisory Committee and Staff recommend that the RCWD Board of Managers approve Water Quality BMP Cost-Share funds for the Menanteau raingarden project.

Proposed motion:

> Manager _____ moves to approve RCWD Water Quality BMP Cost-Share Contract R13-06 for Diana and Dario Menanteau's raingarden project, up to $2,863.93, not to exceed 50% of eligible project expenses, in accordance with established program guidelines.

Ramsey Conservation District

1425 Paul Kirkwold Drive
Highway 96 & Hamline Avenue
Arden Hills, MN 55112
Telephone 651-266-7270
Fax 651-266-7276
www.ramseyconservation.org

To: RCWD Citizens Advisory Committee
From: Ryan Johnson: Urban BMP Specialist
Date: 26-Jul-13
Re: Menanteau Cost Share Application

Project:
Diana & Dario Menanteau
2711 Sheldon Street
Roseville, MN 55113
Raingarden Installation

Background:
The proposed project is to install a raingarden in the front yard to intercept water draining from the 0.15 acres (27% impervious) of rooftop, driveway, and turf grass (including neighboring houses). The raingarden will capture water before it enters the street which then drains into RCD #4 and flows north to Little Lake Johanna. The total project size is 265 sq-ft with 6-9" of ponding depth and it will intercept a 1" Type II rainfall.

Little Lake Johanna is listed as a RCWD Tier 2 lake, and Lake Johanna is a Tier 1.

The owner hired a contractor to install the trench grate while the drive is redone, and also to complete the excavation and backfilling. The owner will be doing the planting.

Funding Request:
Contractor Material & Labor Bid: $5,727.85
Cost Share Request: $2,863.93 (50% project cost)

Recommendation:
It is my recommendation that this project be awarded Cost Share in the amount of $2,863.93, or 50% of the eligible project costs, whichever is less.

The raingarden will function very well to reduce the amount of volume and pollutants leaving the property. The In-Situ Soils are Urban Land Zimmerman Complex which has a 2.5+"/hr infiltration rate if the compaction in the raingarden is minimized or removed.

The homeowners are very excited about the project.

Parcel selection

Centerline

N

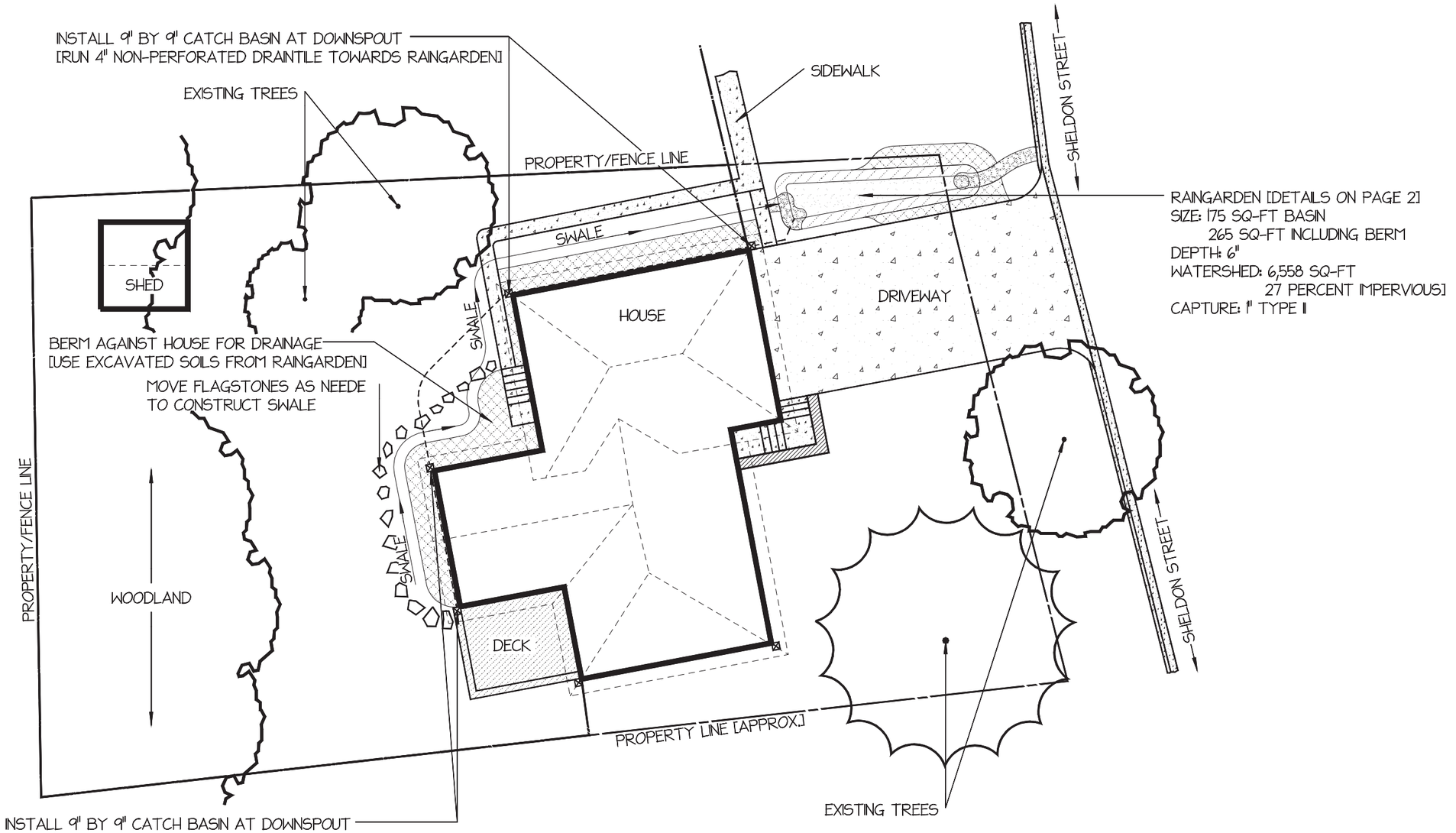
0 20 40 Feet

Diana & Dario Menanteau
2711 Sheldon Street
RV, 55113 RCWD

Ramsey Conservation District

SITE PLAN

SCALE: 1" = 16'-0"



NOTES:
-CALL THE RCWD (763-398-3070) OR RCD (651-266-7275)
WITH ANY QUESTIONS

N

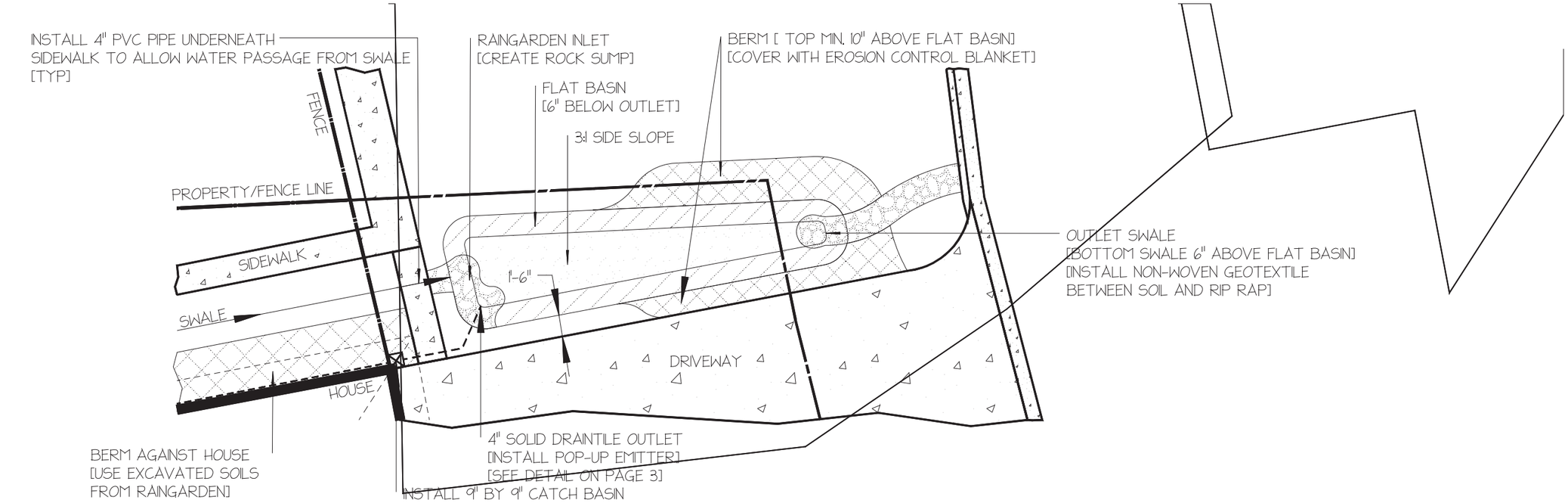
SITE PLAN

DIANA AND DARIO MENANTEAU
2711 SHELDON STREET, ROSEVILLE, MN 55113

DEVELOPED AND PROVIDED BY: RICE CREEK WATERSHED DISTRICT [RCWD] AND RAMSEY CONSERVATION DISTRICT (RCD)	PAGE: 1 OF 3
	DATE: 14-JUNE-13
	SCALE: NA
	ORIGINAL: 11" x 17"

RAINGARDEN LAYOUT

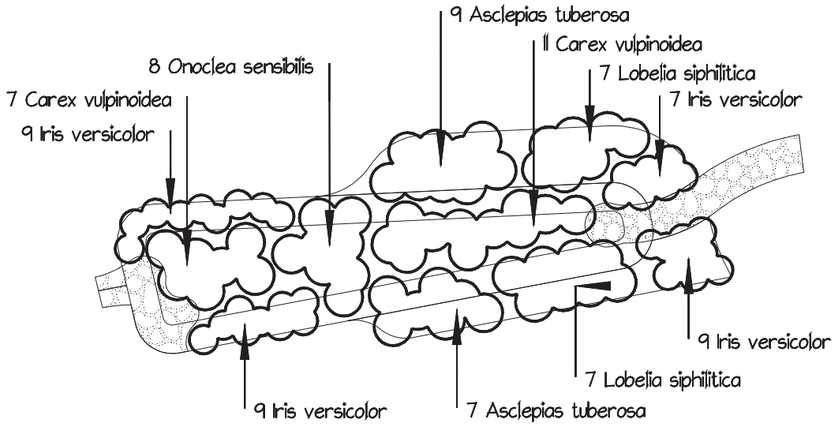
SCALE: 1" = 8'-0"



RAINGARDEN PLANTING

SCALE: 1" = 8'-0"

Qty	Botanical Name	Common Name	Size/Condition
Perennials and Annuals			
16	Asclepias tuberosa	Butterfly Weed	Plug 1"
18	Carex vulpinoidea	Fox sedge	Plug 1"
34	Iris versicolor	Blue Flag Iris	Plug 1"
14	Lobelia siphilitica	Great Blue Lobelia	Plug 1"
8	Onoclea sensibilis	Sensitive Fern	Plug 1"



NOTES:

-CALL THE RCWD (763-398-3070) OR RCD (651-266-7275) WITH ANY QUESTIONS
-GENTLY BREAK UP ROOT BALL TO ENCOURAGE NEW GROWTH
-PLANT DIRECTLY THROUGH MULCH AS SHOWN ON PLAN
-WATER IMMEDIATELY AFTER PLANTING
-ENSURE PLANTS GET 1" OF WATER PER WEEK THROUGH THE FIRST FULL GROWING SEASON
-WEED AS NEEDED
-REPLACE PLANTS AS NEEDED

N

RAINGARDEN LAYOUT & PLANTING

DIANA AND DARIO MENANTEAU
2711 SHELDON STREET, ROSEVILLE, MN 55113

DEVELOPED AND PROVIDED BY:
RICE CREEK WATERSHED DISTRICT [RCWD]
AND
RAMSEY CONSERVATION DISTRICT (RCD)

PAGE: 2 OF 3
DATE: 14-JUNE-13
SCALE: NA
ORIGINAL: 11" x 17"

outdoor
LAB Landscape Design LLC
address: 147 Tenth Street, St. Paul, Minnesota 55101
email: chuck@outdoorlab.net phone: 651•202•3662

Landscape Estimate

Project Manager: Chuck Hanna
Job Name: Diana Menteau
Street Address: 2711 Sheldon Street
City, State, Zip: Roseville, MN 55113
Telephone (home): -
Telephone (cell): -
Job Description: Raingarden

Original Proposal Date: July 4, 2013
Revised Date:
Bill To:
Street Address:
City, State, Zip:
Email Address:

Item	Description	Qty	Estimate
Demo	Excavate 3 CY soil, Use soil for burms as shown on plan. Dispose of additional soil. Rip 12" under basin.		
Install	Instal 4 - 9" x 9" Catch basinat the bottom of down spouts, 110 LF of solid 4" Draintile, 1 - Emitter in raingarden		
Install	Install 1-10ft schedule 40 PVC pipe under sidewalk to open into raingarden		
Install	Install 1.5 CY MNDot Grade II Compost: Till into basin		
Install	Install Burm 10" above basin. Cover brum with Erosion Control Fabric		
Install	Install Inlet Sump and Outlet, 1.5" River rock over non-woven geotextile		
Install	Install 100 LF of Bullet Edging Color TBD		
Install	Install 90 2" plugs as per planting plan		
Install	Install 2.5 CY Shredded Hardwood Mulch		
		Estimate Total	$5,727.85

Outdoor Lab Landscape Design LLC, Project Manager Date

Client's Signature Date

The undersigned agrees to the scope of work, price, and payment terms described above.
Payment Terms: A deposit of 1/2 down is required to schedule a project. The lead designer will pick up the final balance on the day the project is completed.

Plant materials are subject to availability and substitutions may be made as necessary. All trees and woody plant materials are warranted for one year from the date of the projects completion.
Warranty does not cover lack of proper care, animal, vehicle, storm, drought, vandalism or human caused damage. Outdoor Lab Landscape Design LLC proposes to furnish material and labor complete in accordance with the above description of work to be completed and cost estimate. All work is to be completed in a workman like manner according to standard practices. Any alteration or deviation from the above description of work to be completed involving additional cost will be executed only upon written order and will be charged over and above this estimate. All labor and material is conclusively accepted as satisfactory unless expressed in writing within 60 days of performance. All agreements are contingent upon strikes, accidents or delays beyond our control. Damage to driveways, underground structures (wires, cables, irrigation) is the responsibility of the party accepting this agreement. Measures shall be taken on the part of Outdoor Lab Landscape Design, LLC to ensure the site is prepared to prevent foreseeable damage due to weather during the installation period. Any delays or damage to landscaped area due to weather may be charged over and above this estimate.
This agreement gives consent to Outdoor Lab the use of photograph of work completed by Outdoor Lab for training, literature and marketing of Outdoor Lab

PLEASE TAKE NOTICE; ANY PERSON OR COMPANY SUPPLYING LABOR OR MATERIALS FOR THIS IMPROVEMENT TO YOUR PROPERTY MAY FILE A LIEN AGAINST YOUR PROPERTY IF THAT PERSON OR COMPANY IS NOT PAID FOR THE CONTRIBUTIONS.
UNDER MINNESOTA LAW, YOU HAVE THE RIGHT TO PAY PERSONS WHO SUPPLIED LABOR, EQUIPMENT, OR MATERIALS FOR THIS IMPROVEMENT DIRECTLY AND DEDUCT THIS FROM OUR CONTRACTORS PRICE, OR WITHHOLD THE AMOUNTS DUE THEM FROM US UNTIL 120 DAYS AFTER THE COMPLETION OF THE IMPROVEMENT UNLESS WE GIVE YOU A LIEN WAIVER SIGNED BY PERSONS WHO SUPPLIED ANY LABOR OR MATERIAL FOR THE IMPROVEMENT AND WHO GAVE YOU TIMELY NOTICE.

Estimate Number: E13-064

EARTH WIZARDS, INC.
Balancing Urban Development and Water Conservation

ESTIMATE

Customer

Name	**Diana Menanteau**		
Address	2711 Sheldon Street		
City	Roseville	MN	ZIP 55113
PROJECT	RAIN GARDEN		

Company

Date	7/9/2013
Estimator	S. Anderson
Designer	J. Lochner
	RCD

Quantity	Unit	Description	Unit Price	TOTAL
1	ls	Mobilization	$ 350.00	$ 350.00
1	ls	Fence Post Removal and Replacement for Equipment Access to Backyard	$ 350.00	$ 350.00
4	ea	Catch Basins	$ 225.00	$ 900.00
110	lf	Draintile	$ 10.00	$ 1,100.00
1	ls	Draintile Connectors	$ 250.00	$ 250.00
8	hrs	Grading	$ 110.00	$ 880.00
4	cy	Excavation & Berming	$ 125.00	$ 500.00
2	cy	Disposal	$ 50.00	$ 100.00
1.5	cy	Soil Amendments	$ 100.00	$ 150.00
2.5	cy	Mulch	$ 100.00	$ 250.00
0.5	tons	River Rock	$ 150.00	$ 75.00
1	packet	Mulch Mat	$ 75.00	$ 75.00
100	lf	Edging, Pavers	$ 7.50	$ 750.00
90	ea	Plug Plantings	$ 7.00	$ 630.00
3	hrs	Project Management (complimentary for RCD Design)	$ -	$ -
3	ea	Deliveries	$ 125.00	$ 375.00
6	hrs	Site Cleanup	$ 65.00	$ 390.00
				$ -
		Not Included: Turf Restoration, additional rock and poly where catch basins and		$ -
		draintile to be installed, sizing/modelling of rain garden		$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
			TOTAL	$ 7,125.00

Thanks for the opportunity to look at your property and bid your project!

Water Quality BMP Cost-Share Program
Project Screening Form

Project / Landowner Name: Diana & Dario Menanteau	
Project Address: 2711 Sheldon Street City: Roseville	
County: ☐ ANOKA ☒ RAMSEY ☐ HENNEPIN ☐ WASHINGTON	BMP Type(s): Raingarden
Application Date: 26-Jul-13	BMP Effective Life: 5
Violation or Permit Requirement: ☐ YES ☒ NO	Reviewer: Ryan Johnson

Projects are screened for potential grant eligibility based on the following criteria. (0 = low, 10 = high)

1. **a.** Is the project tributary to a PCA-listed impaired water (not mercury) or a RCWD Tier I or Tier II waterbody?

   0 **(NO)** ☒ 5 **(YES, within subwatershed)** 10 **(YES, direct connection)**

   b. If NO, is the project tributary to a lake, stream, ditch, or DNR-Protected Water Wetland (PWW)?

   ☒ 0 **(NO)** 3 **(YES, within subwatershed)** 6 **(YES, direct connection)**

2. **Water Quality Improvement:** Improves and protects water quality through implementation of Best Management Practices (BMPs).

   0 1 2 3 4 5 ☒ 6 7 8 9 10

   Comments: _____

3. **Surface Water Rate and Volume Control:** Implements controls to reduce and/or minimize the rate and volume of water that drains off of the property.

   0 1 2 3 4 5 ☒ 6 7 8 9 10

   Comments: _____

4. **Erosion and Sediment Control:** Implements controls that minimize erosion and/or sedimentation to downstream waters.

   0 1 2 3 4 ☒ 5 6 7 8 9 10

   Comments: _____

5. **Wildlife Habitat Improvement:** Creates or improves wildlife habitat through native plantings or other restoration efforts.

   0 1 2 3 4 ☒ 5 6 7 8 9 10

   Comments: _____

6. **Public Outreach:** Willingness of applicant to allow signage, tours and site visits. Publically visible site. Diversity of practices.

   0 1 2 3 ☒ 4 5 6 7 8 9 10

   Comments: _____

Total Score: 31

Minimum Eligibility = 30

Items Requiring Board Action

2. Consider Check Register Dated 8/14/2013, in the Amount of $117,929.08 Prepared by HLB Tautges Redpath.

Rice Creek Watershed District
Check Register
July 24, 2013 - August 14, 2013
To Be Approved at the August 14, 2013 Board Meeting

Check #	Date	Payee	Description	Amount	
19045	07/24/13	**VOID**-Houston Engineering, Inc.	June Engineering	70,474.52	
19067	07/24/13	**VOID**-Star Tribune	Recruitment Expense	1,705.40	
19081	07/24/13	Houston Engineering, Inc.	June Engineering	$70,474.42	**Issued 7/24/13**
19082	07/24/13	Star Tribune	Recruitment Expense	1,345.40	**Issued 7/24/13**
19083	07/24/13	Harley Ogata	Re-issue/Check #18844	1,146.52	**Issued 7/24/13**
19084	08/01/13	Postmaster	Postage Expense	662.00	**Issued 8/01/13**
10704	07/24/13	Guidant/Boston Scientific	Re-issue/Check #10682	15,000.00	**Issued 7/24/13**
Dir.Dep.	08/15/13	Kyle J. Axtell	08/15 Payroll	1,380.66	
Dir.Dep.	08/15/13	Philip J. Belfiori	08/15 Payroll	2,507.04	
Dir.Dep.	08/15/13	Jessica R. Bromelkamp	08/15 Payroll	1,522.36	
Dir.Dep.	08/15/13	Christopher R. Buntjer	08/15 Payroll	1,810.42	
Dir.Dep.	08/15/13	Aaron R. DeRusha	08/15 Payroll	1,574.98	
Dir.Dep.	08/15/13	Matthew J. Kocian	08/15 Payroll	1,574.98	
Dir.Dep.	08/15/13	Jordan M. Kudrna	08/15 Payroll	1,029.64	
Dir.Dep.	08/15/13	Elizabeth M. Hosch	08/15 Payroll	1,515.11	
Dir.Dep.	08/15/13	Thomas E. Schmidt	08/15 Payroll	1,919.69	
Dir.Dep.	08/15/13	Theresa M. Stasica	08/15 Payroll	1,684.43	
Dir.Dep.	08/15/13	Nicholas A. Tomczik	08/15 Payroll	2,174.59	
EFT	08/15/13	Internal Revenue Service	08/15 Federal Withholding	6,005.66	
EFT	08/15/13	Minnesota Dept. of Revenue	08/15 State Withholding	1,002.89	
EFT	08/15/13	ING Retirement Services	08/15 Deferred Compensation	260.00	
EFT	08/15/13	PERA	08/15 PERA	3,338.29	
Total				**$117,929.08**	

Items for Discussion and Information

1. Discussion on Draft Anoka County Ditch 72 Historical Review.

Preliminary For District Review

MEMO

(External Correspondence)

To: Phil Belfiori
District Administrator, RCWD

Date: July 24, 2013

Cc: Tom Schmidt
John Kolb
File 5555-209

HoustonEngineering Inc.

From: Lisa Odens
Chris Otterness, P.E.

Through: Mark Deutschman, PhD., P.E.

Subject: Anoka County Ditch (ACD) 72
Historical Review

INTRODUCTION

The purpose of this memorandum is to provide the Rice Creek Watershed District (RCWD) with a historical review of the Anoka County Ditch 72 (ACD 72) system and to describe the components of the current system necessary to maintain historic function believed equal to when the drainage system was originally constructed and subsequently improved, and to establish the "As Constructed and Subsequently Improved Condition (ACSIC[1]). Anoka County conveyed jurisdiction of this public drainage system to the RCWD in 1974. Documented and undocumented modifications to the ACD 72 system have occurred since construction. These documented and undocumented modifications have affected the alignment and function of the public drainage system.

Another previous memorandum, dated April 5, 2007 by Emmons and Olivier Resources (EOR) determined an "Official Profile" (i.e. ACSIC) for this public drainage system. This memorandum is intended to build upon the previous analysis and provide an independent perspective in advance of proceeding with routine maintenance and a more detailed alternatives analysis for repair of the ACD 72 system and for use in drainage proceedings (e.g., consolidation). This memorandum describes how the current alignment resulted from the original constructed condition and the required key components of the system necessary to provide current and future function equivalent to the historic function.

RELATIONSHIP TO DRAINAGE SYSTEM MAINTENANCE AND REPAIR

This memorandum establishes the as-constructed and subsequently improved condition as the basis for repair (see definitions) of the public drainage system. The repair report is expected to include the evaluation of additional alternatives intended to provide an efficient public drainage system capable of serving current agricultural and municipal drainage, understand how the system performs relative to future municipal stormwater management needs,

[1] Note: The U.S. Army Corps of Engineers uses the term "as-built" to describe the originally constructed condition of the public drainage system. The terms as-built and ACSIC are synonymous (see definitions).

6901 E Fish Lake Rd Ste 140 **Maple Grove** MN 55369 ● Ph. 763.493.4522 ● Fax 763.493.5572

and address issues related to the volume of runoff, water quality, and flooding. The repair report may include alternatives which adjust the elevation of the tiles, open channels, and culverts, realign or abandon portions of the public system, or evaluate similar modifications as authorized by MS 103E. The range of alternatives evaluated within the repair report is based in part upon discussions with landowners and other interested parties.

DEFINITIONS

This memorandum defines the condition and therefore by inference the capacity (i.e. the original design flow rate in cubic feet per second and quality of drainage) of the public drainage system using three definitions:

As-Designed / Established Condition: The geometry of the public drainage system as designed in 1922, including all subsequent designs for legal[2] repairs and alterations. A repair or alteration is considered legal if formally authorized is some legal or drainage proceedings. The plan and profiles for ACD 72 established the dimensions, length, flow direction and grade elevations for the Main Trunk and each of the branches. The As-Designed / Established Condition may or may not reflect the As-Constructed and Subsequently Improved Condition and is generally shown on construction plans and engineering drawings.

As-Constructed and Subsequently Improved Condition: The geometry of the public drainage system as constructed in 1923, including all subsequent legal repairs and alterations. Often, survey data (and only rarely as-built drawings) show that the alignment, profile and geometry (i.e., cross sectional area) of the existing public drainage system is altered from the As-Designed / Established Condition.

The definition of As-Constructed and Subsequently Improved Condition is intended to establish the condition to which the system can legally be repaired consistent with the definition in MS 103E.701, which states:

> The term, "repair" means to restore all or a part of a drainage system, as nearly as practicable to the same condition as originally constructed, and subsequently improved, including resloping of ditches and leveling of waste banks if necessary to prevent further deterioration, realignment to original construction if necessary to restore the effectiveness of the drainage system, and routine operations that may be required to remove obstructions and maintain the efficiency of the drainage system. "Repair" also includes:
>
> 1) incidental straightening of a tile system resulting from the tile-laying technology used to replace tiles; and

[2] Documentation may not always be available to determine whether a repair is legal. Circumstances may exist where natural events or unknown human activities, including undocumented drainage authority activities or activities verbally authorized by the drainage authority , have created changed conditions lasting a sufficient period of time such that people or entities have relied on them when making decisions about the public drainage system. Reasonable discretion on the part of the drainage authority, combined with engineering analysis, is then used to define the as-constructed and subsequently improved condition as well as the "repaired condition."

2) replacement of tiles with the next larger size that is readily available, if the original size is not readily available.
3) Recent survey data show that the alignment, profile and geometry (i.e., cross sectional area) of the existing public drainage system is altered from the As-Designed / Established Condition. Alterations to the public drainage system alignment, profiles and geometry from the As-Designed / Established Condition likely resulted from the use of less accurate survey methods and construction techniques than currently exist and because of the need to "fit" the drainage system to the existing topography. Alterations to the public drainage system that were not performed per the requirements of MS 103E (i.e., ditch law) or its predecessors are not considered part of the As-Constructed and Subsequently Improved Condition.

Repaired Condition: The condition to which the RCWD Board of Managers repairs the public drainage system. If the capacity of the Repaired Condition exceeds the ACSIC, the work is considered an improvement under MS 103E and its predecessors. The Board may decide for a variety of reason to repair the public drainage system to some condition less than the As-Constructed and Subsequently Improved Condition.

Maintenance: The primary difference between maintenance and repair, is that maintenance activities are generally completed at a select (more isolated) location or locations along portions of the public drainage system, rather than a drainage system-wide assessment, analysis, recommendation and alteration that occurs in association with a repair proceeding. Maintenance activities are those that generally occur at a specific location or some portion of the system.

Maintenance generally includes activities such as vegetation management, the removal of open channel and tile blockages (e.g., beaver dams, sediment), the replacement of tile ruptures, the installation of tile inlets and access manholes, the replacement of portions of a tile system, the stabilization and repair of slopes and spoil material, and the removal of sediment up to the repair condition. Maintenance activities are usually exempt from wetland permitting requirements under the Wetland Conservation Act and Section 404 of the Clean Water Act.

LOCATION, GENERAL DESCRIPTION AND HISTORY OF THE PUBLIC DRAINAGE SYSTEM

Location

The ACD 72 public drainage system is located within the Middle Rice Creek planning region of the District (**Figure 1)** in Sections 11, 12, 13, and 14 of T 31N, R 22W, within the City of Lino Lakes, Anoka County (see **Figure 2** for benefitted lands). The land (i.e., drainage area) that contributes runoff to the public drainage system is approximately 463 acres (42 of which drains to ACD 72 depending on the condition of drain tile). The drainage area includes a number of different land uses and cover types such as wetlands, agricultural fields, forest and rural and urban residential housing. The public drainage system drains into Peltier Lake. The benefitted area and assessment values for ACD 72 were filed in 1923.

History of the Public Drainage System and Documented Modifications

Anoka County Ditch 72 was established and constructed in 1923. This drainage system consisted of a Main Trunk, seventeen branches, and fifty five laterals (see **Figure 3)**. The clay tiles ranged in diameters of 5 to 8 inches in the laterals, 5 to 14 inches in the branches, and 8 to 15 inches in the Main Trunk.

For the next 38 years, the majority of the system remained largely unchanged. The construction of I-35E in the 1960s required minor alignment changes to Branch 11 and several laterals and the abandonment of Branch 11, Laterals 4H, 6, and 7, which were documented in legal proceedings.

In 1979 RCWD approved permit 79-58 for Rehbein's Peltier View Land Development in the South ½ of the South ½ of the SE1/4 of Section 11. The development was constructed in 1986. At this time a ditch and weir structure at 77th St E were constructed over the Branch 1 tile. Although the ditch and weir are located directly above the public drainage system tile, they are not considered part of the public drainage system. The Branch 1 tile is still intact underneath these structures.

In 2002 a complaint filed with the RCWD documented an area prone to flooding downstream from the weir structure on Branch 1 at the 77th St E crossing. As a result, the Branch 1 tile line was cleaned hydraulically, unapproved tile openings were closed, and sediment was removed from the outlet. Portions of the tile system were televised at this time.

In 2003 Eaglebrook Church was permitted by the RCWD and constructed, near the intersection of Branch 1 and the Main Trunk. At this time, Branch 1 along the western edge of the property was realigned and reestablished as Main Trunk and replaced with 15-inch RCP. The junction of the Main Trunk with Branch 1 was reestablished southwest of Eaglebrook church. The Main Trunk was replaced along the southern edge of the property with 15-inch HDPE. A drainage and utility easement was recorded along the realigned Main Trunk. To legally document these modifications, RCWD Resolution 2003-005 (October 8, 2003) partially abandoned and realigned the Main Trunk, Branches 2-9, Laterals 1-3 of Branch 1, and Lateral 1 of Branch 9, and an easement was recorded in favor of the District along the new realignment. The most downstream 450± linear feet of Branch 1 were reconstructed along the existing alignment using the same size pipe (10-inch) at a slightly steeper grade.

Current Alignment of the ACD 72 System

This portion of the memorandum describes the current condition of the public drainage system as observed "on-the-ground" as determined by a review of the available records, field survey data, aerial imagery and other available evidence. The stationing used to describe the alignment is derived from the existing As-Constructed and Subsequently Improved Alignment (which deviates from the As-Designed alignment in some cases) proceeding from downstream to upstream. The current, functional alignment of the ACD 72 public drainage system is shown in **Figure 4**.

Main Trunk

The alignment begins at Station 0+00 at Peltier Lake. From Station 0+00 to 7+53, the Main Trunk alignment extends to the southeast as open channel, to the east side of Eaglebrook Church. The Main Trunk continues south as 15-inch

RCP to Station 15+97 where it intersects Branch 1. The Main Trunk continues east through 15-inch HDPE to Station 26+84. The main trunk continues south east, intersecting Branches 10, 11, 12, 13, 14, 15, 16, and 17 at Stations 35+28, 42+06, 45+19, 45+19, 49+05, 56+01, 65+76, and 66+78, respectively. The alignment then proceeds northeast until it terminates at Station 69+30.

Branch 1
Branch 1 intersects the Main Trunk at Station 15+98. The alignment proceeds southeast as 10" clay tile, intersecting Lateral 4 at Station 4+53. The alignment proceeds southeast crossing 77th St E at Station 8+80. South of 77th St E the alignment proceeds south, intersecting Lateral 5, 6, 7, 8, at Stations 10+61, 15+31, 15+31, and 16+08, respectively. The alignment continues southeast as 8" clay tile. At Station 20+35 the alignment continues east as 6" tile, intersecting Laterals 9. 10, 11, 12, and 13 at Stations 21+35, 21+35, 23+33, 24+83, and 25+33, respectively.

Branches 2, 3, 4, 5, 6, 7, 8, and 9
These branches were abandoned in 2002 as part of the construction of Eaglebrook Church.

Branch 10
Branch 10 intersects the Main Trunk at Station 35+28. The alignment proceeds south as 6" clay tile, intersecting Lateral 1 at Station 1+50 and terminating at Station 3+50.

Branch 11
Branch 11 intersects the Main Trunk at Station 42+06. The alignment intersects Lateral 1 at Station 0+00 and continues north east as 8" clay tile. At Station 10+00 the alignment proceeds east as 10" clay tile, intersecting Laterals 2, 3, and 4 at Stations 16+02, 18+85, and 21+79. The alignment continues northeast, intersecting Lateral 5 at Station 26+67, and crossing Interstate 35E. The alignment continues north as 8" clay tile, intersecting Lateral 8 and Lateral 9 at Stations 35+03 and 37+06. The alignment continues east, intersecting Lateral 10 at Station 51+87, and terminating at Station 54+00 as 6" clay tile. Laterals 5, 6, 7, 9, and portions of Lateral 4 were abandoned during the construction of interstate 35W. Lateral 4 includes 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4I ranging in size from 5-6".

Branch 12
Branch 12 intersects the main trunk at Station 45+19. The alignment proceeds to the southwest as 5" clay tile and terminates at Station 8+00.

Branch 13
Branch 13 intersects the main trunk at Station 45+19. The alignment proceeds to the south as 5" clay tile, intersecting Branch 13A at Station 5+48 and terminating at Station 7+00.

Branch 14
Branch 14 intersects the main trunk at Station 49+05 and continues south east as 5" clay tile and terminates at Station 3+00

Branch 15
Branch 15 intersects the main trunk at Station 56+01. The alignment continues to the east as 6" clay tile and intersects Lateral 1 at Station 2+71. The alignment continues east as 5" clay tile and terminates at Station 8+71

Branch 16
Branch 16 intersects the main trunk at Station 65+76 and proceeds north as 5" clay tile, terminating at Station 5+98.

Branch 17
Branch 17 intersects the main trunk at Station 66+78 and proceeds south as 6" clay tile, terminating at Station 4+00.

ANALYSIS OF CURRENT FUNCTION WITHIN A HISTORICAL CONTEXT

System Modifications Affecting Function

In many portions of the public drainage system, the existing open channel and tile alignment, profile, and cross section have experienced modifications from the As-Designed / Established Condition. **Figure 4 s**hows the current network of public[3] tiles and open channels (which drain stormwater into and through the ACD 72 public drainage system), as identified by aerial photos, LiDAR topography, and field surveys.

In general, the alignment of the Main Trunk upstream of 20th Ave N has changed little from its original construction. However, the Main Trunk from the current tile outlet upstream to approximately Station 26+83 has been fully modified for its entire length as a result of development. The Main Trunk tile system in this area has been replaced by 15-inch RCP and 15-inch HDPE (As-Designed alignment consisted of 14-inch and 10-inch clay tile).

As-Constructed and Subsequently Improved Profile of the ACD 72 System

Ideally, the historical data necessary to determine the As-Constructed and Subsequently Improved Condition would include the construction as-built plans with a verifiable datum or benchmark, legal descriptions and surveyed maps of the original ditch alignment, and documentation of all subsequent changes to the ditch alignment and profile. Unfortunately, rarely are as-built plans available which can be tied to the original construction benchmark. As is the case with ACD 72, the original design plans are typically based on an assumed datum with a no longer existing benchmark (if one is provided at all).

To determine an as-constructed profile for public drainage systems like ACD 72, we assume the project was constructed as designed (reflected by the engineer's plans) and approximate the constructed profile using a datum conversion based on the same locations surveyed today and as shown on the construction plans; i.e., we matched elevations. By matching many locations we can determine an "average" datum adjustment.

[3] The representation of whether a portion of the drainage system is public or private is based at this time solely upon available written documentation and reference herein to "public" or "private" should not be construed as actual ownership over that portion of the drainage system. The reference to public means the drainage authority is responsible for exercising authorities over this portion of the system under the drainage code.

Available Plan Data

In 1922, a profile drawing for the proposed ACD 72 was created, detailing grades and elevations for the Main Trunk and each of the branches and laterals. The grades listed in these profiles were based on an assumed (non-sea level) datum. In 2007, EOR conducted an analysis to determine a datum adjustment for the 1922 profiles by correlating surveyed shots of 13 exposed tile locations to the corresponding historic profile elevations.[4] The datum conversion determined in this report was 802.3.

Datum Adjustment Based on Tile Survey

HEI conducted a survey of exposed tile locations (including inlets, inspection ports, outlets, and blow-outs) in the spring of 2013 to verify the alignment and profile of the system. Seventeen exposed tile locations were surveyed along the Main Trunk, Branch 1, Branch 11, and several Branch 11 laterals. The surveyed tile inverts at these locations were compared to the corresponding elevations from the 1922 historic profile and their differences averaged (see **Table 1**). Surveyed locations in close proximity to new construction were removed from the calculation because it is not known if the elevations were affected. A standard deviation was then computed from these differences, to identify outliers (values greater than one standard deviation from the average). After removing these outliers from the dataset, three potential values for a datum conversion were then evaluated by subtracting the surveyed invert elevation from the design elevation using the datum conversion, then computing a root mean square error for the dataset. A small portion EOR points were included in the analysis at locations not coinciding with the new survey. The points surveyed along Branch 1 consistently suggest a conversion factor differing from the Main Trunk and other branches. Consequently, the Branch 1 survey points were isolated and a distinct conversion factor for Branch 1 was calculated, using the same methods as previously described.

The datum conversion providing the least root mean square error is 802.8 for the Main Trunk and Branch 11, and 801.9 for Branch 1. The Main Trunk conversion of 802.8 is 0.5 higher than the datum conversion computed in the 2007 EOR memorandum. The EOR memo calculated one conversion factor for the whole system, rather than isolating Branch 1. Additionally, the EOR calculations include survey points in close proximity to new construction. These differences in calculation methods account for the differences between the 2007 conversion and newly calculated conversion. **Table 1** and **Table 2** outline the recent calculations.

[4] ACD 72 Original Profile Assessment – Technical Memorandum, Emmons & Olivier Resources, April 5, 2007.

Table 1: Datum Conversion Analysis - Main Trunk and Branches (excluding Branch 1)

Source	Branch	Station	Invert Elevation (Surveyed)	1922 Plan Elevation	Plan Elevation with Conversion			Difference Compared to Plan		
Conversion					802.7	802.8	802.9	802.7	802.8	802.9
HEI	Main Trunk	3297	894.78	92.10	894.80	894.90	895.00	0.02	0.12	0.22
EOR	Main Trunk	3307	894.55	92.10	894.80	894.90	895.00	0.25	0.35	0.45
HEI	Main Trunk	3494	894.42	92.18	894.88	894.98	895.08	0.46	0.56	0.66
HEI	Main Trunk	3571	894.80	92.27	894.97	895.07	895.17	0.17	0.27	0.37
HEI	Main Trunk	3777	895.67	92.63	895.33	895.43	895.53	-0.34	-0.24	-0.14
EOR	Main Trunk	3781	895.80	92.64	895.34	895.44	895.54	-0.47	-0.37	-0.27
HEI	Main Trunk	3817	895.84	92.70	895.40	895.50	895.60	-0.45	-0.35	-0.25
HEI	Main Trunk	4184	896.20	93.34	896.04	896.14	896.24	-0.16	-0.06	0.04
HEI	Main Trunk	4187	896.49	93.34	896.04	896.14	896.24	-0.45	-0.35	-0.25
EOR	Main Trunk	4441	896.14	93.62	896.32	896.42	896.52	0.18	0.28	0.38
HEI	Branch 11	2772	906.05	103.14	905.84	905.94	906.04	-0.21	-0.11	-0.01
HEI	Branch 11	2809	906.32	103.17	905.87	905.97	906.07	-0.45	-0.35	-0.25
HEI	Branch 11 Lateral 4A	98	906.42	103.70	906.40	906.50	906.60	-0.02	0.08	0.18
HEI	Branch 11 Lateral 4A	98	906.46	103.70	906.40	906.50	906.60	-0.05	0.05	0.15
HEI	Branch 11 Lateral 4A	562	907.19	104.20	906.90	907.00	907.10	-0.29	-0.19	-0.09
HEI	Branch 11 Lateral 7	0	906.54	103.30	906.00	906.10	906.20	-0.54	-0.44	-0.34
Mean Square Error								0.328	0.297	0.298

Table 2: Datum Conversion Analysis - Branch 1

Source	Branch	Station	Invert Elevation (Surveyed)	1922 Plan Elevation	Plan Elevation with Conversion			Difference Compared to Plan		
Conversion					801.8	801.9	802.0	801.8	801.9	802.0
HEI	Branch 1	6+65	892.75	90.64	892.44	892.54	892.74	0.10	-0.22	-0.12
HEI	Branch 1	9+32	893.80	91.69	893.49	893.59	893.79	0.09	-0.21	-0.11
EOR	Branch 1	15+41	895.73	93.11	894.91	895.01	895.21	0.01	0.21	0.31
EOR	Branch 1	15+44	895.81	93.12	894.92	895.02	895.22	0.00	0.13	0.23
Mean Square Error								0.228	0.194	0.208

Using the datum conversion of 802.8 with the 1922 profiles of the Main Trunk and Branch 11, and a datum conversion of 801.9 with the 1922 profile of Branch 1 , an As-Constructed and Subsequently Improved profile was determined for the Main Trunk and branches. **Figures 10** and **Figure 11** show the As-Constructed and Subsequently Improved profile for the Main Trunk, Branch 1 and Branch 11, based on this datum conversion.

Source of Survey Data Used in this Assessment

A survey completed by Houston Engineering, Inc. as the District Engineer during the spring of 2013 was used to assess the relationship between: 1) the historic and current alignments and stationing; and 2) to determine the vertical datum adjustment needed to establish the As-Constructed and Subsequently Improved Condition from the construction plans.

All survey data collected by Houston Engineering, Inc. utilizes the NAD '83 Minnesota State Plane Coordinate System, South Zone (U.S. feet) and North American Vertical Datum 1988. (Note: Unless otherwise noted, all elevations provided herein are based on NAVD'88 vertical datum). Final survey data were placed in the RCWD survey geodatabase maintained by the District Engineer. Surveyed alignments and the vertical datum adjustment were also confirmed using survey data collected by EOR in 2007.

CURRENT TILE CAPACITY

Understanding current capacity can be used to assess whether the system is serving its intended purpose as originally envisioned (which is to provide drainage to agricultural lands) and determine whether the drainage system can support the change in land use envisioned by the City's Comprehensive Land Use Plan.. The latter issue has been the subject of recent analysis for a neighboring public drainage system, ACD 55. Like ACD 72, ACD 55 is primarily a tile system with limited capacity. The public drainage system has experienced some development historically, but is poised to soon experience an extensive change in land use. Because of the low permeability of on-site soils and the limited capacity of the public drainage system, compliance with District stormwater management rules while fully developing the landscape per the City's Comprehensive Land Use Plan is challenging.

One way to quantify capacity is by determining the maximum flow a portion of the tile system can convey before water pressurizes the tile system. This involves using the tile diameter and slope within Manning's Equation to determine maximum flow under non-pressurized conditions. **Table 3** specifies the As-Designed/Established capacities (identical to the current capacities) for segments of the ACD 72 public drainage system.

Table 3: Tile Capacities for ACD 72 System

Branch	Segment	Tile Diameter (inches)	Estimated As-Designed / Established Tile Capacity (cfs)[a]
Main Trunk	Open Channel to Branch 4 and 5	14	1.7
Main Trunk	Branch 4 and 5 to Sta. 26+83	10	0.7-1.9
Main Trunk[b]	Open Channel to Branch 1	15	1.9
Main Trunk[b]	Branch 1 to Sta. 26+83	15	4.0
Main Trunk	Sta. 26+83to Branch 11	14	1.7
Main Trunk	Branch 11 to Just DS of Branch 14	10	0.7
Main Trunk	Just DS of Branch 14 to 35E	8	0.4-1.6
Branch 1	Main Trunk to Lateral 8	10	0.6-2.0
Branch 1	Lateral 8 to east of 20th Ave N	6-8	0.4-0.5
Branch 11	Main Trunk to Sta. 10+00	8	0.7-1.5
Branch 11	Main Trunk to Sta. 10+00	10	0.6
Branch 11	Sta. 10+00 to I35E	6-8	0.1-0.3

a) As-Designed/Established Tile Capacity is based on Manning's Equation, assuming no tailwater
b) Current system

Current capacities within the tile system will be essentially identical to the As-Designed/Established condition, with the exception of the realigned Main Trunk and Branch 1. Adequacy for agricultural drainage not only depends on capacity, but also outlet conditions. A large diameter tile may theoretically provide a substantial flow capacity, yet it would be of little value to agricultural users if the outlet is under water during small rainfall events. The tile outlet invert elevation for ACD 72 is 1.0 feet above the 10-year event for Peltier Lake, which indicates that the outlet is generally free-flowing under most rainfall events.

The subwatershed drained by the ACD 72 public drainage system is situated in soils with very low permeability. Based on the capacities determined above and site observations during periods of moderate rainfall or snowmelt, the ACD 72 public drainage system does not have sufficient capacity to support modern agricultural practices, let alone a change in land use resulting in greater runoff volumes. As it appears that development in the vicinity of ACD 72 is likely to occur relatively soon, it would be prudent for the RCWD to complete a comprehensive analysis of ACD 72 tile capacities, similar to the analysis completed for ACD 55.

PROBLEM AREAS

Tile blowouts are the primary known problem within the drainage system which needs to be addressed. Because of the large contributing drainage area and flat tile grades, the original clay tile system has experienced ruptures (blow-outs) at various locations throughout the tile system. These blow-outs have occured primarily along the Main Trunk and Branch 1, as these are the two primary trunk lines within the system receiving the bulk of the flow. The District has completed repairs of many of these tile rupture locations in recent years. **Figure 5** shows the locations of the recent repairs and currently observed tile ruptures.

Many of these tile blow-outs have been repaired under the RCWD's maintenance program. Although these repairs provide temporary relief of some drainage problems in the system, they do not address the underlying causes of the blow-out failures, including the age and condition of the overall system, and the lack of capacity in the system compared to the runoff volumes generated by the contributing drainage area.

Please note that this memorandum is not intended to provide the comprehensive review of the condition of the public drainage system typically provided by a repair report. Rather, the intent of this memorandum is to identify the alignment and profile of the public drainage system within a historical context. The District may elect to proceed with a repair report that will thoroughly review the conditions of the entire public drainage system and conclude with a recommendation for selection of an alternative which provides the best balance and economy of serving current and future needs. To ensure that the interests of the local landowners is fully considered in the recommended alternative, we encourage the District and landowners to voice any and all concerns regarding the existing drainage conditions and current and future drainage needs for this system.

RECOMMENDATIONS

The repair of the public drainage system functionally should result in a level of service equal to the capacity of the As-Constructed and Subsequently Improved Condition. The approach used here to establish the recommended repairs to

the ACD 72 system based on returning the current system as configured to obtain the historic condition as recreated from the best available information.

Figure 6 shows the recommended alignment for the ACD 72 public drainage system necessary in the Opinion of the Engineer to reestablish the historic drainage function to benefited lands. **Figure 7**, **Figure 8**, and **Figure 9** show the recommended alignment relative to parcel boundaries and land owners. The recommended alignment reasonably ensures the ability of upstream benefitted lands to drain to the outlet of the drainage system in the future consistent with the performance of the original drainage system[5], while considering documented and undocumented modifications to the legal drainage system. **Figures 10** and **Figure 11** show the associated proposed profile corresponding with the recommended alignment. The proposed profile for the recommended alignment is, in the Opinion of the Engineer, necessary to reestablish the historic capacity of the legal drainage system. This alignment and profile of the ACSIC differ from the alignment and profile described in the 2007 EOR memorandum both in terms of the alignment and grades.

Please note that the following branches and laterals of the historic ACD 72 public drainage system are <u>not</u> included in the recommended alignment for the ACSIC:

Table 4: Tile Recommended for Abandonment

- Branch 1: Station 23+33 to Station 27+52
- Branch 1 Lateral 4, 4A, 4B, 4C, 4D, 5, 5A 6, 6A, 6B, 7, 8 Station 6+00 to Station 13+61, 8A, 8B, 8C, 8C, 8E, 8F, 8G, 8H, 8I, 8J, 9, 11, 12, and 13: entirety
- Branch 10, 13, 13A, 14, 15, 16, and 17: entirety
- Branch 10 Lateral 1: entirety
- Branch 11: Station 51+87 to 54+00
- Branch 11 Lateral 1, 3, 4B, 4C, 4D, 4E, 4F, 4G, 4I, 8, 9, and 10: entirety
- Branch 11 Lateral 4: Station 1+03 to 9+60
- Branch 11 Lateral 4A: Station 6+16 to 15+46
- Branch 15 Lateral 1 and 1A: entirety

All of these branches and laterals are 5" or 6" clay tile. Most of these branches and laterals are entirely located on property under a single private ownership, and there is no contributing drainage upstream of these tiles. As such, the tiles do not provide a benefit outside of the single landowner (see **Figure 7**, **Figure 8**, and **Figure 9**). If these branches and laterals are abandoned from the public system, the tiles may still remain in place and the landowner would still retain the right to maintain a connection to the public system. However these connecting tiles would be private and the maintenance and repair would no longer be the responsibility of the District. All work on the private tile line

[5] The original drainage systems purpose was agricultural drainage. The requirements for a developed landscape differ from the purpose of agricultural drainage.

connections to the public system must be authorized by the District. The District would maintain the connections to the remaining public system.

Branch 1 Laterals 4-7 are recommended to be abandoned. Although the historic alignment of Branches 1 through 4 currently pass through more than one land ownership, the function of these branches is no longer agricultural and has been replaced by other drainage features (city stormsewer and roadway ditches).

The portions of the system recommended as part of the public drainage system retain public function as an outlet for drainage and are still functioning and serviceable (though may require maintenance and/or repair). Branch 1 and Branch 11 and the Main Trunk function as an outlet for drainage and provide a total capacity of approximately 1.9 cfs. For this reason, future development along the public drainage system should be provided an outlet into the public system equal to or less than the combined capacity of an outlets removed by the development.

We recommended that the portions of the system listed in **Table 4** be abandoned from the public drainage system through drainage proceedings.

AVAILABLE INFORMATION / HISTORICAL RECORDS

Historic records for the ACD 72 public drainage system are available on the District website at the following location: http://rcwd.houstoneng.net/ditchportal/drainagesystemportal.html

The following documents have been specifically utilized and/or referenced for this report:

Historic (Establishment) Files

- Cut Sheets. 1922.
- Lateral Profiles. 1922.
- Historic Alignment. 1922.
- Profiles. 1922

Historic Repair/Realignment Files

- Petition for Relocation of Ditch for I-35E. 1961.
- 35E Grading Plans. 1959.
- Order allowing Minor Maintenance. 1961.
- Ditch Report. 2002.
- Eagle Brook Church Response to RCWD. 2003
- Record of Televised Inspection of Tile. 2003.
- RCWD 2003-10-08 Agenda Packet. 2003
- Krebsback & Haik, Letter regarding Permit 03-073: Eagle Brook Church. 2003.
- RCWD Resolution 03-05. 2003
- Ditch Easement Agreement. 2004.
- Eagle Brook Church Drainage and Utility Easement. 2004.
- RCWD Engineers Report for Permit 03-073. 2004.

Recent Files

- EOR Technical MEMO ACD 72 Official Profile. 2007.

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

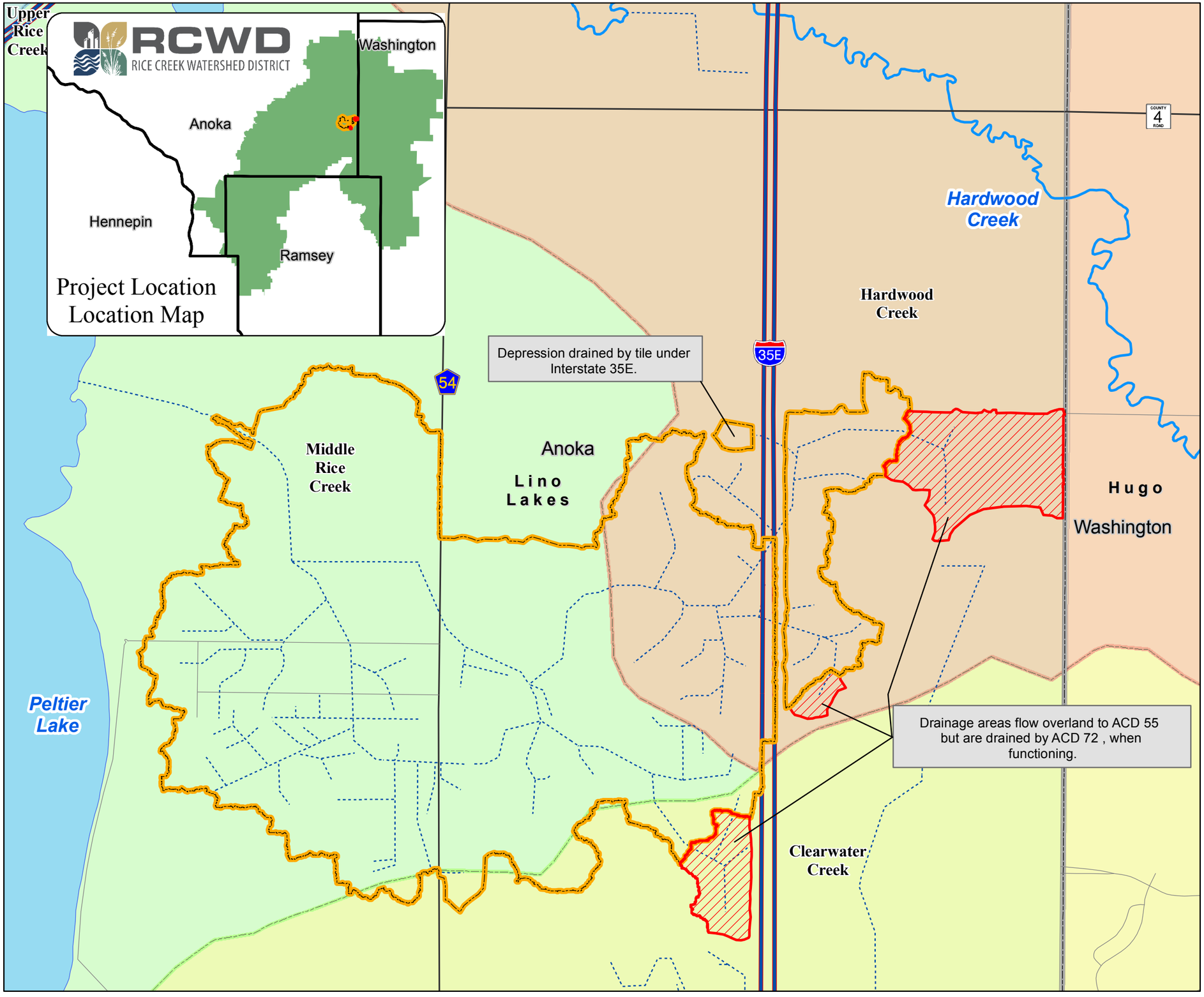
Mark Deutschman, PhD., P.E.
MN Reg. No 41259

Chris Otterness, P.E.
MN Reg. No 41961

I assisted in the preparation of this report under the supervision of the District Engineer.

Lisa Odens, EIT
ND Cert. No 12138

Rice Creek Watershed District Hydrologic Boundary Anoka County Ditch 72



- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- Lakes
- Interstate
- County Roads
- Residential Streets
- Ramps
- Drainage Systems
- Rivers
- Counties
- Clearwater Creek Planning Region
- Hardwood Creek Planning Region
- Middle Rice Creek Planning Region
- Upper Rice Creek Planning Region

N
W E
S

0 500 1,000 2,000 Feet

Sources: RCWD, TLG, MN DOT

Figure 1: Hydrologic Boundary - Anoka County Ditch 72

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/22/2013	1 of 1

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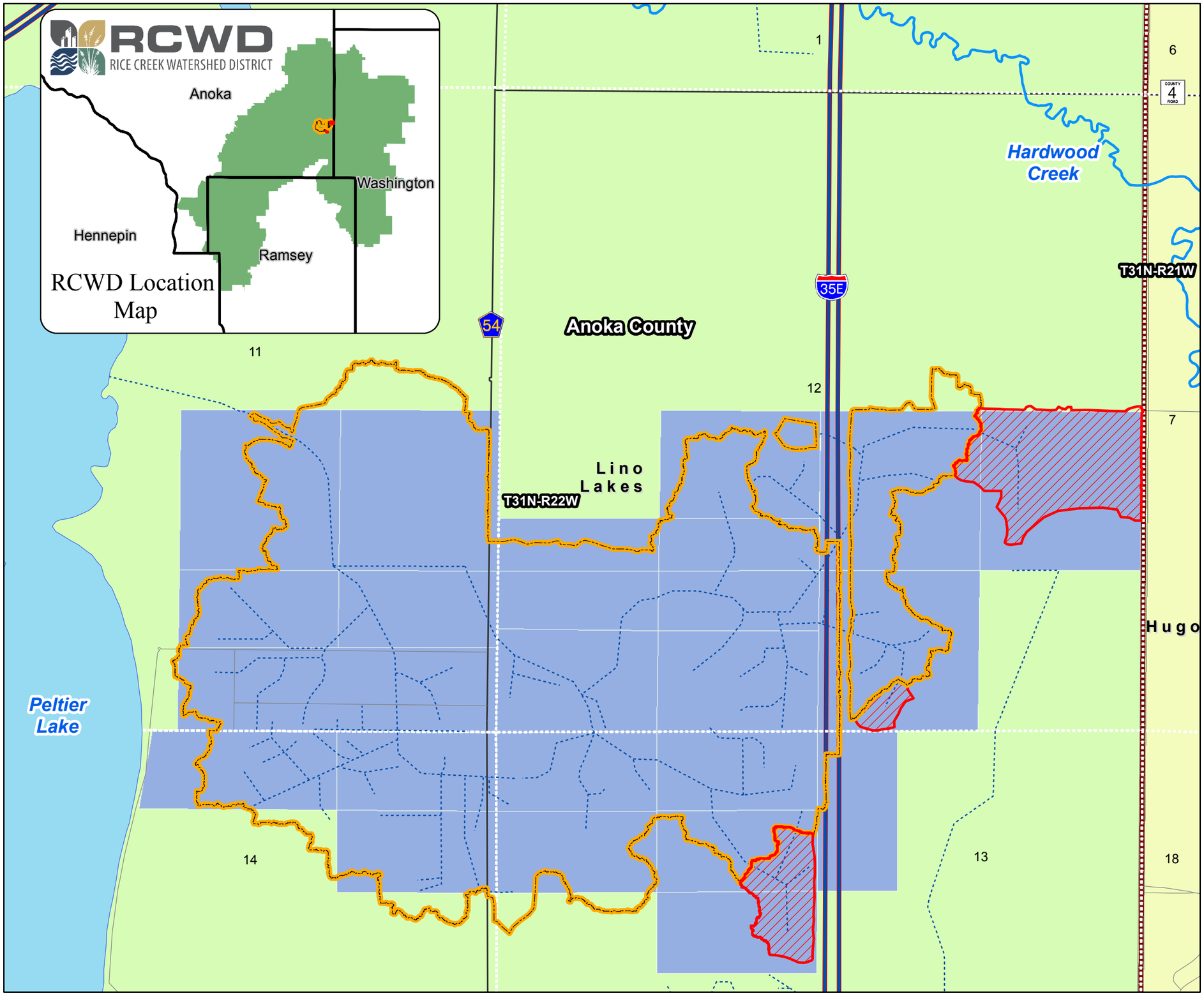
Rice Creek Watershed District Benefitted Lands Anoka County Ditch 72



- ACD 72 Watershed Boundary
- ACD 55 Wastershed Boundary Drained by ACD 72
- Lakes
- Drainage Systems
- Rivers
- Sections
- Township and Range
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps
- Benefitting Lands from Original Assessment Roll

N
W E
S

0 500 1,000 2,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 2: Land Originally Benefitting from Anoka County Ditch 72

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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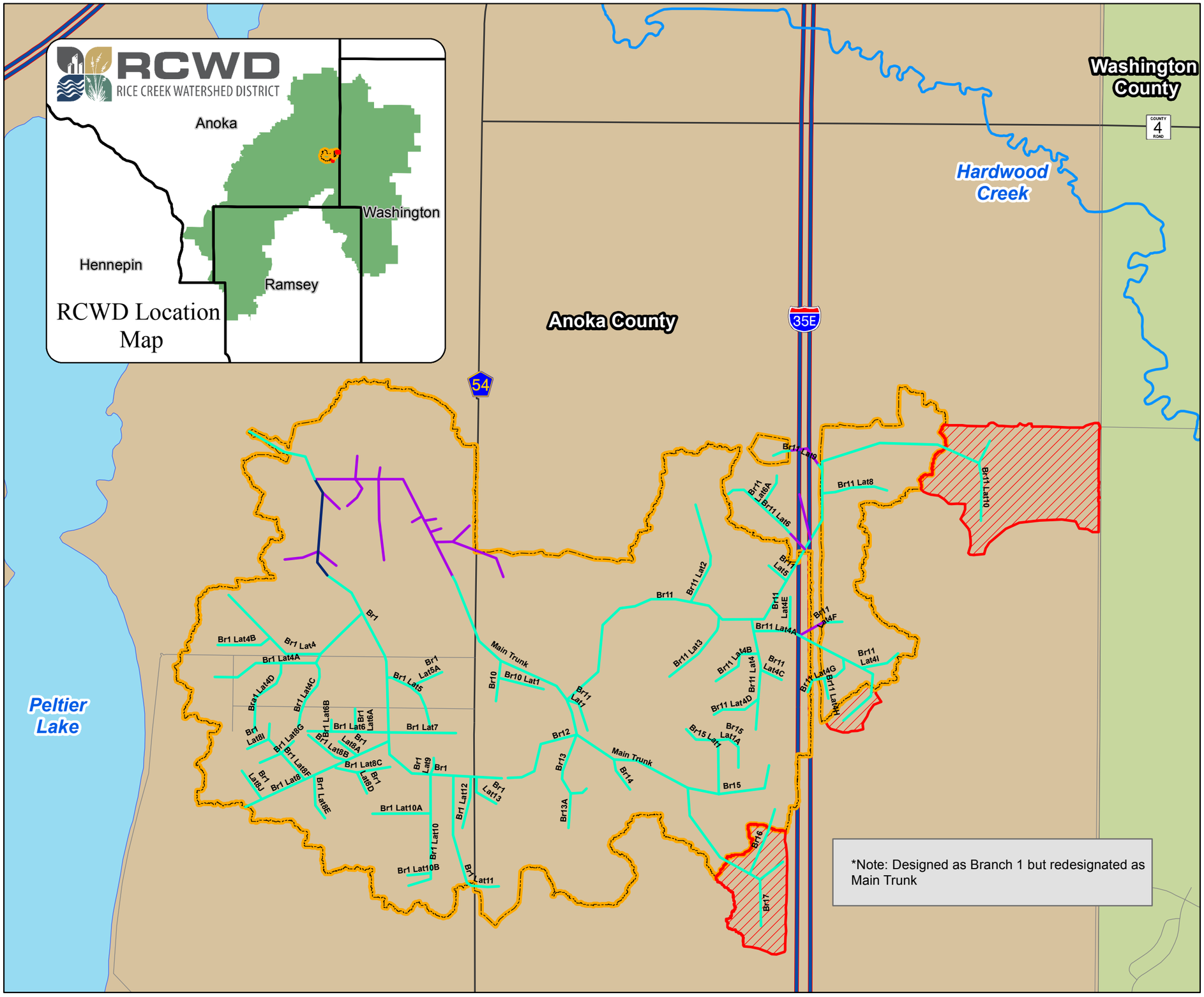
Rice Creek Watershed District As Designed Alignment Anoka County Ditch 72



- As Designed ACD 72,
- As Designed ACD 72, Current
- As Designed ACD 73, Re-Designated*
- Lakes
- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- Rivers
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N W E S

0 500 1,000 2,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 3: As Designed Anoka County Ditch 72

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/2/2013	1 of 1

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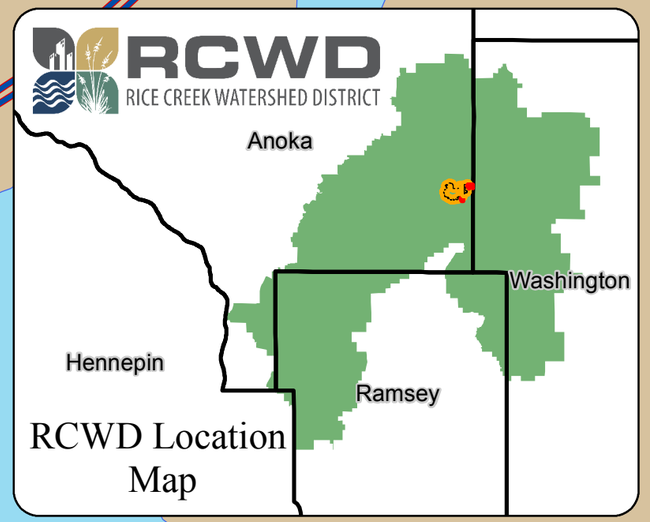
Rice Creek Watershed District Current Alignment Anoka County Ditch 72



Washington County

Anoka County

Hardwood Creek

Peltier Lake

35E

54

8

COUNTY 4 ROAD

Main Trunk

Br1

Br1 Lat4B

Br1 Lat4

Br1 Lat4A

Br1 Lat4D

Br1 Lat4C

Br1 Lat6B

Br1 Lat6

Br1 Lat6A

Br1 Lat5

Br1 Lat5A

Br1 Lat7

Br1 Lat6I

Br1 Lat6G

Br1 Lat8A

Br1 Lat8B

Br1 Lat8C

Br1 Lat8D

Br1 Lat8

Br1 Lat6J

Br1 Lat6E

Br1 Lat9

Br1 Lat10A

Br1 Lat10

Br1 Lat10B

Br1 Lat12

Br1 Lat13

Br1 Lat11

Br10

Br10 Lat1

Br11

Br11 Lat2

Br11 Lat3

Br11 Lat1

Br11 Lat5

Br11 Lat4E

Br11 Lat4F

Br11 Lat4A

Br11 Lat4B

Br11 Lat4

Br11 Lat4C

Br11 Lat4D

Br11 Lat4G

Br11 Lat4H

Br11 Lat4I

Br11 Lat6

Br11 Lat6A

Br11 Lat8

Br11 Lat9

Br11 Lat10

Br12

Br13

Br13A

Br14

Br15

Br15 Lat1

Br15 Lat1A

Br16

Br17

- Current Open Channel
- Current Tile
- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- Lakes
- Rivers
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N W E S

0 500 1,000 2,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 4: Current Alignment

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/2/2013	1 of 1

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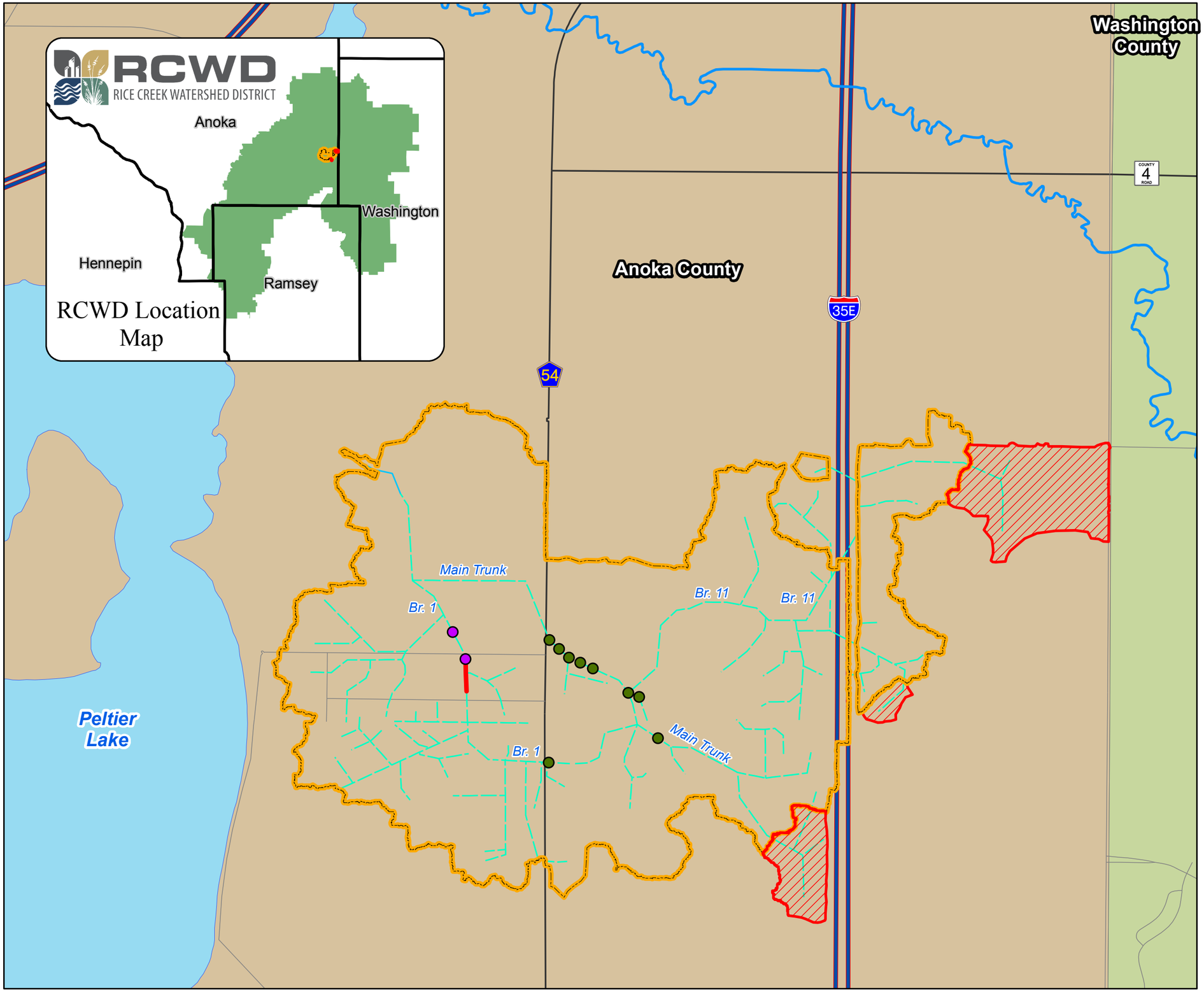

Rice Creek Watershed District Repairs and Tile Ruptures Anoka County Ditch 72

- Known Blow-out Location
- New Intake
- ACD72 Tile Repairs
- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- Current Open Channel
- Current Tile
- Lakes
- Rivers
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N W E S

0 500 1,000 2,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 5: Repairs and Tile Ruptures

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/2/2013	1 of 1

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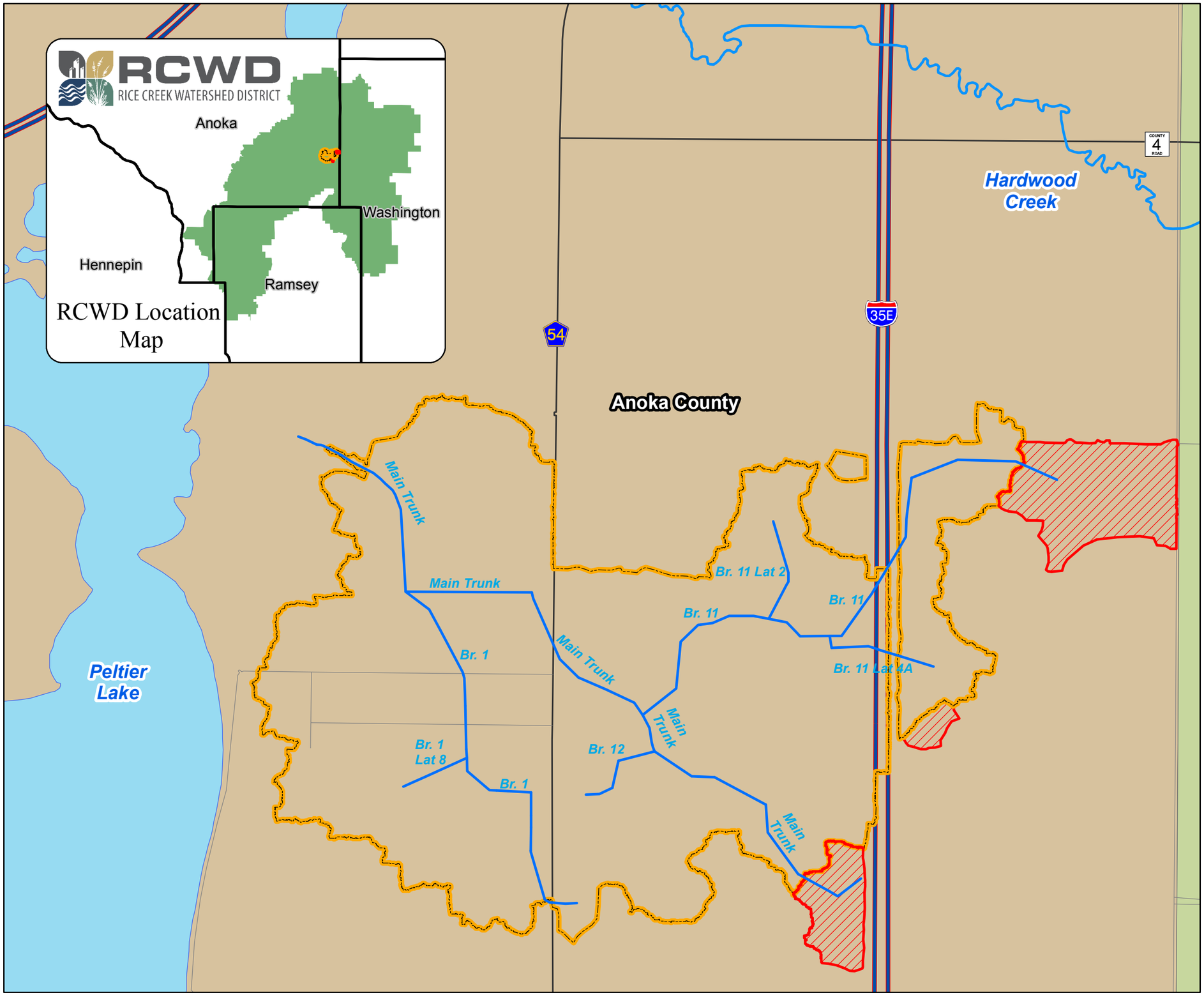
Rice Creek Watershed District Recommended Alignment Anoka County Ditch 72



- Lakes
- Recommended Alignment
- Rivers
- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N W E S

0 500 1,000 2,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 6: Recommended Alignment

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/2/2013	1 of 1

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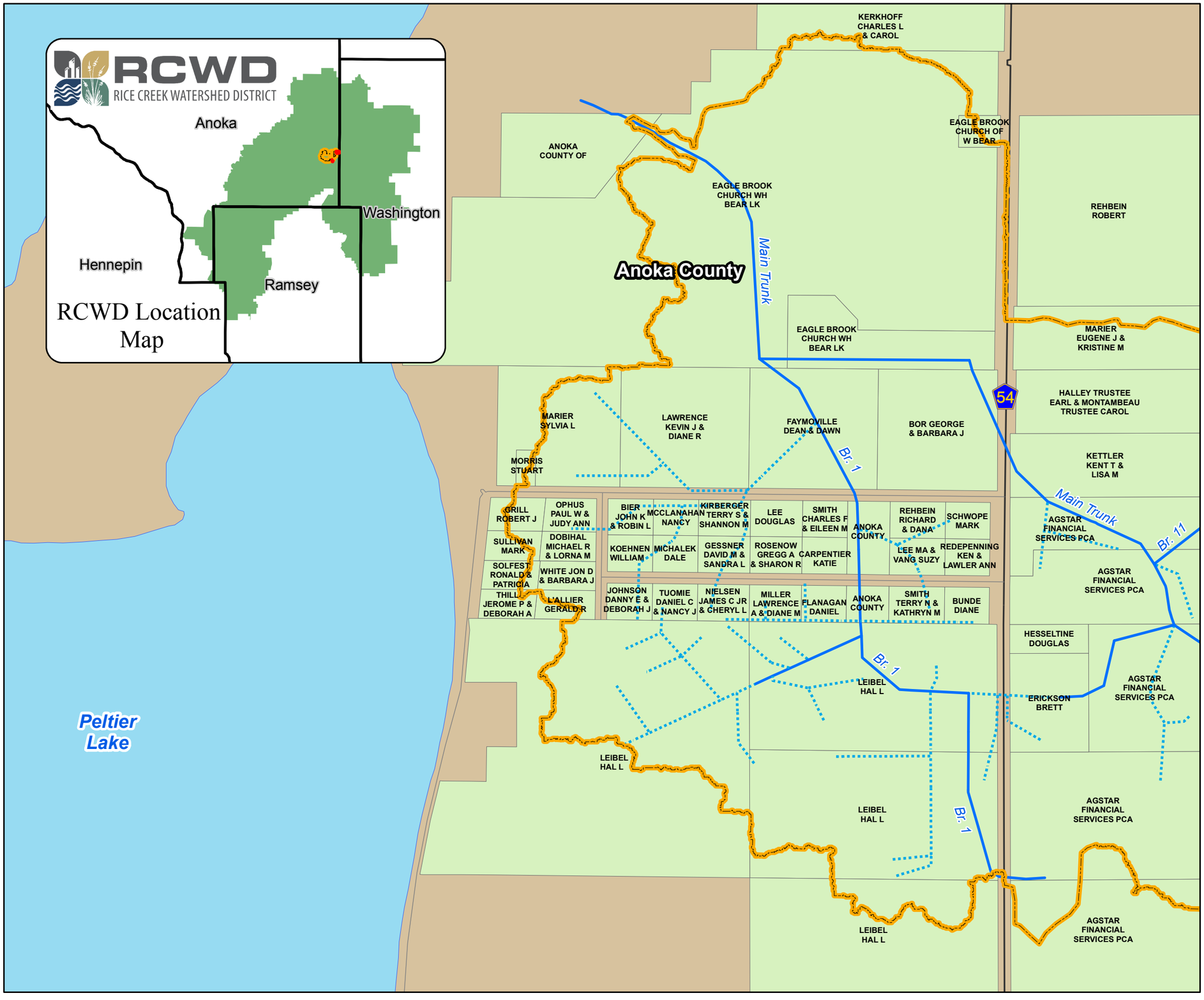
Rice Creek Watershed District Land Ownership Anoka County Ditch 72



- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- ACD 72 Drainage System to Remain
- ACD 72 Drainage System to Be Abandoned, Remains Private but Outlet is Maintained
- Lakes
- Parcels Intersecting ACD 72 Watershed Boundary
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N
W E
S

0 250 500 1,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 7: Land Ownership Within the ACD 72 Watershed Boundary (Western Extent)

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/22/2013	1 of 1

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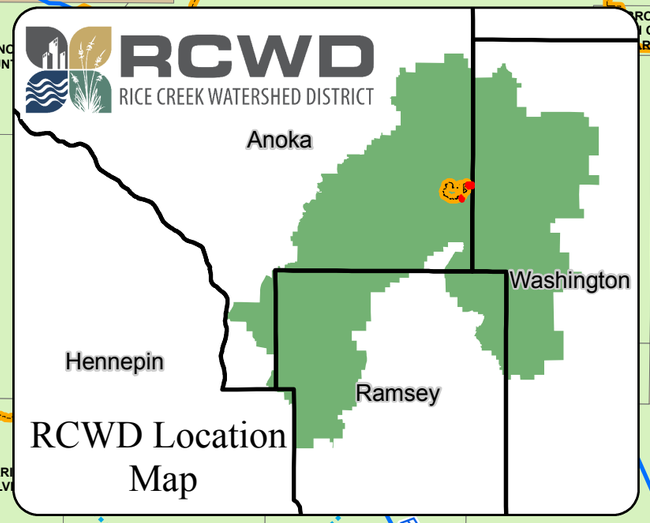
Rice Creek Watershed District Land Ownership Anoka County Ditch 72



- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- ACD 72 Drainage System to Remain
- ACD 72 Drainage System to Be Abandoned, Remains Private but Outlet is Maintained
- Lakes
- Parcels Intersecting ACD 72 Watershed Boundary
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N
W E
S

0 250 500 1,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 8: Land Ownership Within the ACD 72 Watershed Boundary (Middle Extent)

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/8/2013	1 of 1

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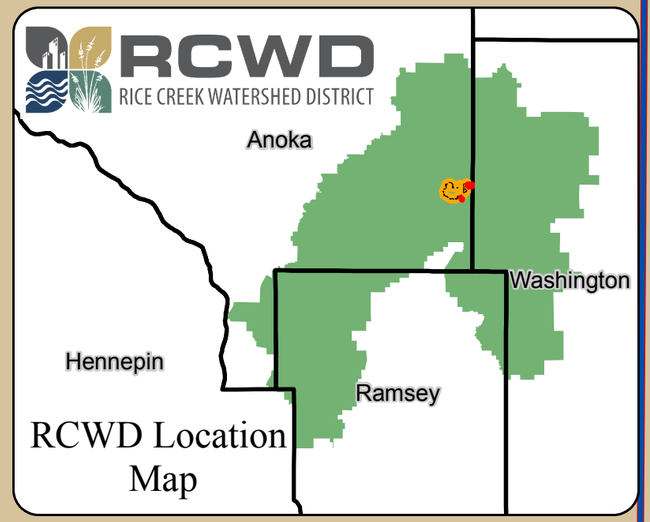
Rice Creek Watershed District Land Ownership Anoka County Ditch 72



Anoka County

Washington County

Harwood Creek

THE NEESER FAMILY FARM LINO LAKES LLC

YANG TOUA C & CHOUA

HALLEY TRUSTEE EARL & MONTAMBEAU TRUSTEE CAROL

REHBEIN ROBERT

MARIER EUGENE J & KRISTINE M

KETTLER KENT T & LISA M

AGSTAR FINANCIAL SERVICES PCA

REHBEIN PROPERTIES

35E

Br. 11

Br. 11 L 2

Br. 11 L 4A

Main Trunk

- ACD 72 Watershed Boundary
- ACD 55 Watershed Boundary Drained by ACD 72
- ACD 72 Drainage System to Remain
- ACD 72 Drainage System to Be Abandoned, Remains Private but Outlet is Maintained
- Lakes
- Rivers
- Parcels Intersecting ACD 72 Watershed Boundary
- Interstate
- Highway Connector
- US Highway
- State Highway
- County Roads
- Residential Streets
- Ramps

N W E S

0 250 500 1,000 Feet

Sources: TLG, RCWD, MN DOT

Figure 9: Land Ownership Within the ACD 72 Watershed Boundary (Eastern Extent)

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	SMW		5555-209	7/8/2013	1 of 1

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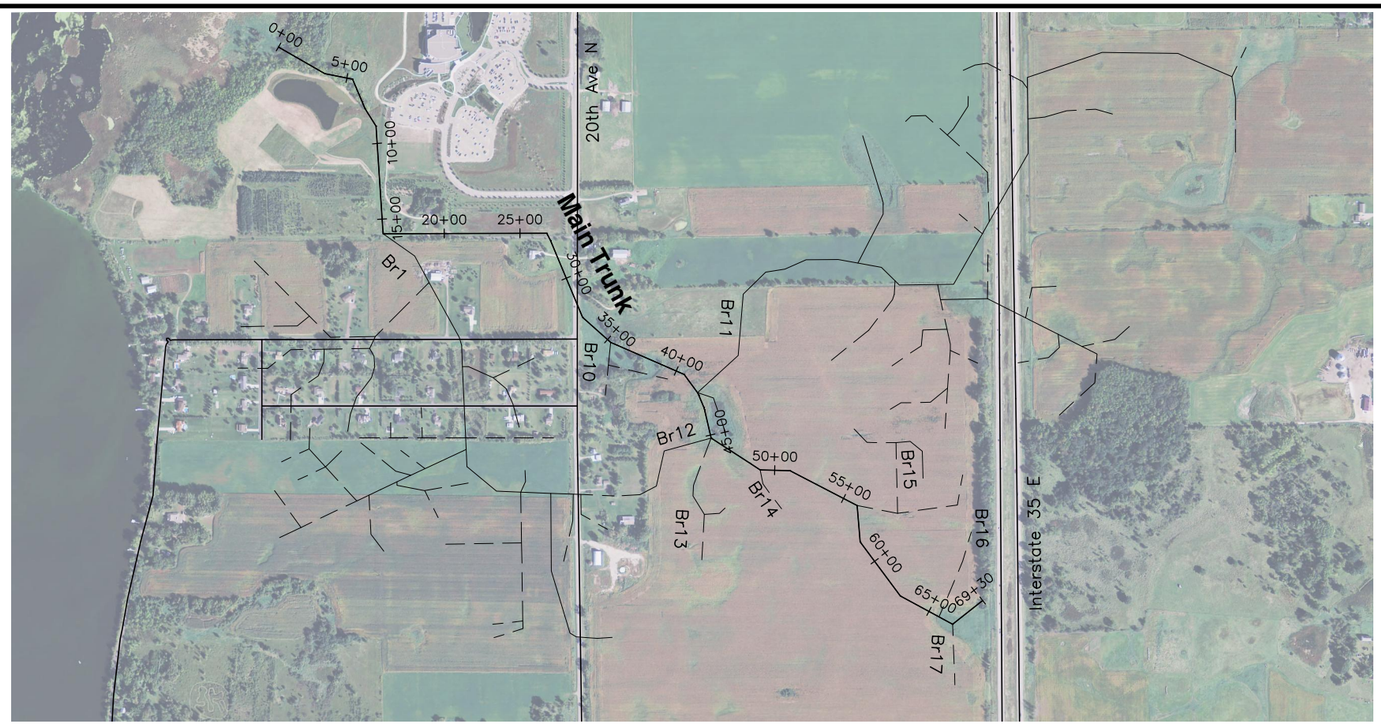
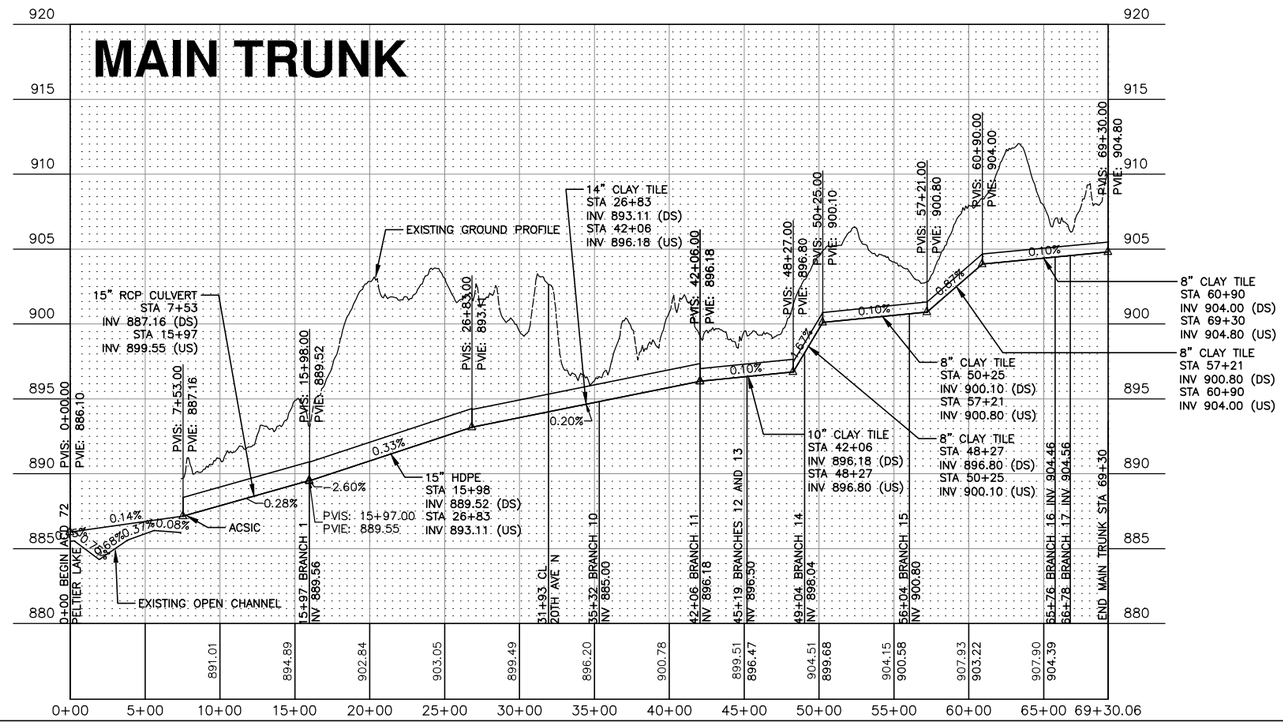


CONTACT "GOPHER STATE ONE CALL" FOR LOCATIONS OF BURIED UTILITIES. CALL (651) 454–0002 OR (800) 252–1166.

NOTES

1. HORIZONTAL CONTROL: ANY COORDINATES LISTED IN THIS PLAN ARE MN STATE PLANE SOUTH, FOOT.
2. VERTICAL CONTROL: ALL ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).



PRELIMINARY

No.	Revision	Date	By

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

Signature:_____ Date:__X–XX–XXXX_

Printed Name: Xxxxxx X. Xxxxxxx License #: 000000

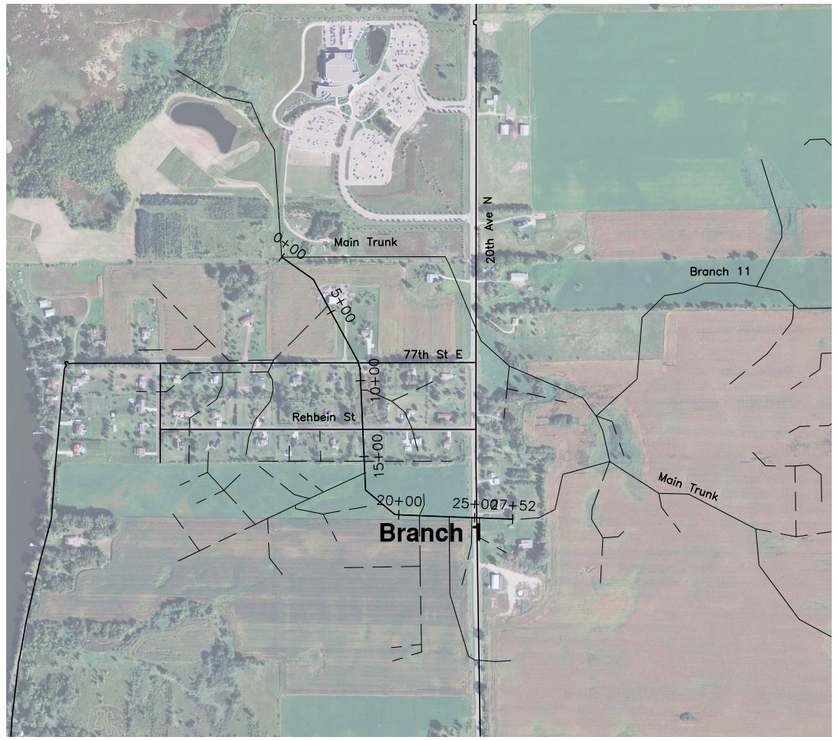
Houston Engineering Inc.
Maple Grove
P: 763.493.4522
F: 763.493.5572

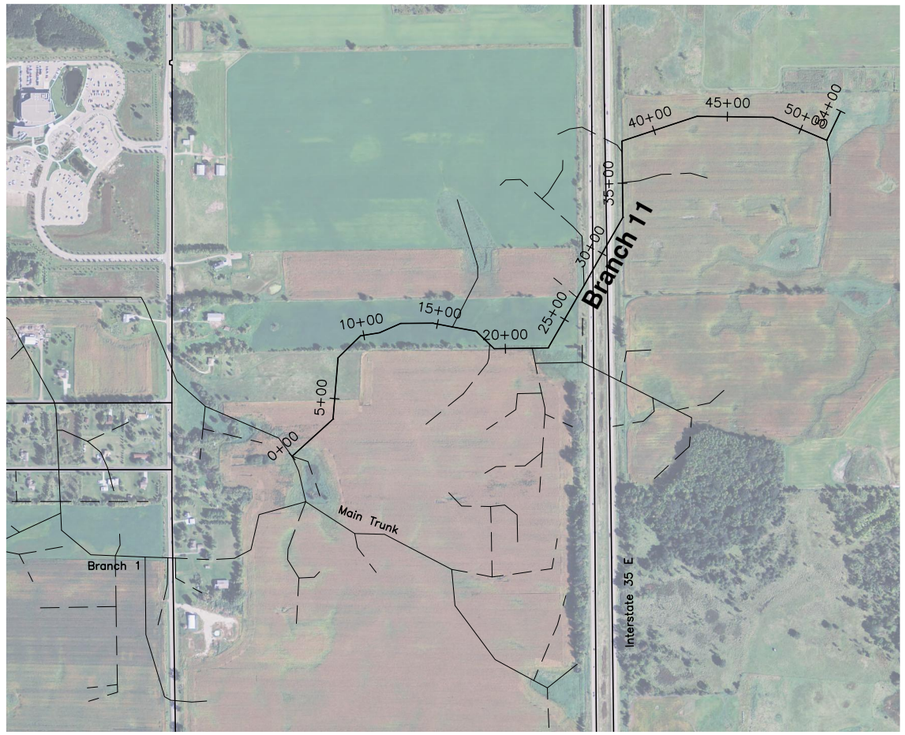
Drawn by	Date
LDO	7-11-13
Checked by	Scale
CCO	AS SHOWN

ANOKA COUNTY DITCH 72
HISTORICAL REVIEW MEMORANDUM
RICE CREEK WATERSHED DISTRICT

FIGURE 10: MAIN TRUNK PLAN AND PROFILE
PROJECT NO. 5555-209

CONTACT "GOPHER STATE ONE CALL" FOR LOCATIONS OF BURIED UTILITIES. CALL (651) 454-0002 OR (800) 252-1166.





NOTES

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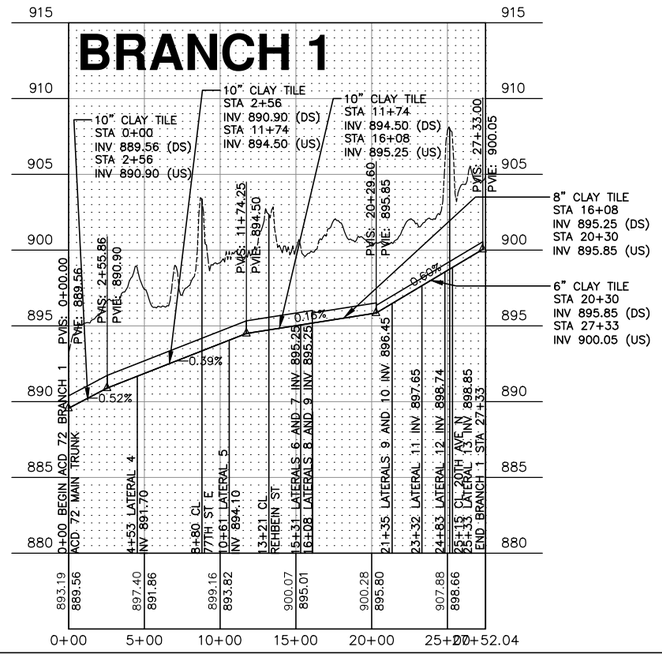
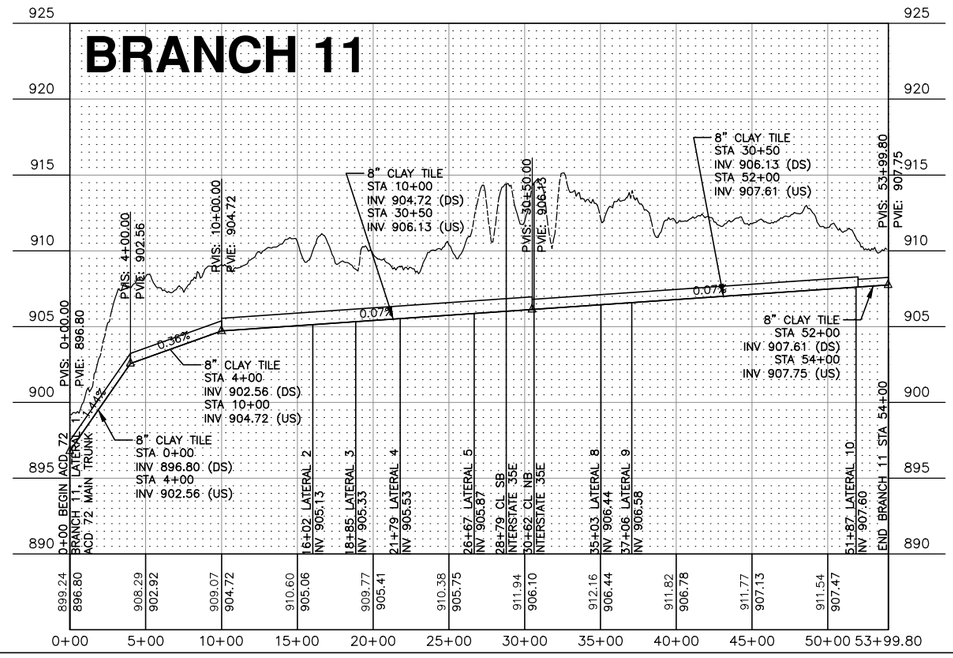




PRELIMINARY

No.	Revision	Date	By

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

Signature:_____ Date: X-XX-XXXX
Printed Name: Xxxxxx X. Xxxxxxx License #: 000000.

Houston Engineering Inc.
Maple Grove
P: 763.493.4522
F: 763.493.5572

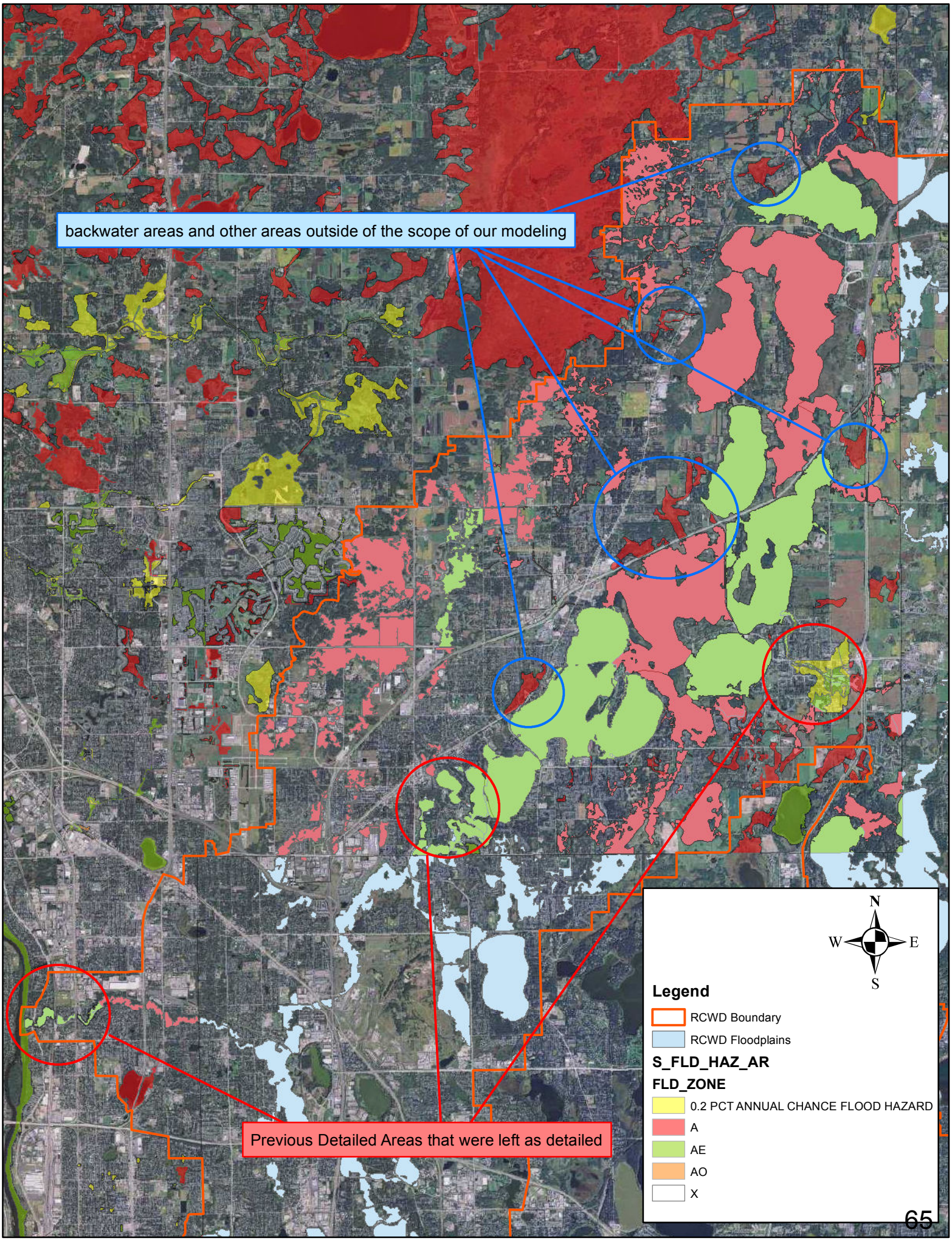
Drawn by	Date
LDO	7-11-13
Checked by	Scale
CCO	AS SHOWN

ANOKA COUNTY DITCH 72
HISTORICAL REVIEW MEMORANDUM
RICE CREEK WATERSHED DISTRICT

FIGURE11: BR1 AND BR11
PLAN AND PROFILE
PROJECT NO. 5555-209

Items for Discussion and Information

2. Discussion on New FEMA (Federal Emergency Management Agency) FIRMs (Flood Insurance Rate Maps) for Anoka County


backwater areas and other areas outside of the scope of our modeling
Previous Detailed Areas that were left as detailed
N
W
E
S
Legend
RCWD Boundary
RCWD Floodplains
S_FLD_HAZ_AR
FLD_ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
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ITEMS FOR DISCUSSION AND INFORMATION

3. District Engineer Update and Timeline

District Engineer - Monthly Project Report July 2013
Rice Creek Watershed District

Date Prepared: 30-Jul-13
Prepared by: M. Deutschman

Project Name	Estimated Budget	Cost to Date	Remaining Budget	Project Complete / Transfer Funds?	Estimated Progress Based on Work Completed	Estimated Progress Based Upon Percent Budget Expended	Within Budget? (Y/N)	District Billed for Change in Services? (Y/N)	Initial Target Completion Date	Revised Target Completion Date	Items of Interest / Concern
HydroViewer Maintenance	$3,700	$352	$3,348	N	10.0%	9.5%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to maintain, make periodic revisions, and update the website.
Permit Viewer Maintenance	$5,000	$2,251	$2,749	N	45.0%	45.0%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to maintain, make periodic revisions, and update the website.
Permit Viewer / Database Enhancements	$2,500	$2,324	$176	N	93.0%	93.0%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to maintain, make periodic revisions, and update the website.
Drainage System Viewer and Portal Maintenance	$3,700	$2,049	$1,651	N	55.0%	55.4%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to maintain, make periodic revisions, and update the website.
Annual Maintenance of District Wide Modeling Program Products	$5,000	$1,039	$3,961	N	21.0%	20.8%	Y	N/A	31-Dec-13	Not Applicable	This work will occur near the end of 2013. A spreadsheet will be used to describe factors affecting the modeling products and select model changes will be made and results updated.
City Flood Mapping Coordination	$5,000	$1,566	$3,434	N	25.0%	31.3%	Y	N/A	31-Dec-13	Not Applicable	This budget will be used to coordinate flood mapping updates with the Cities.
Certification of Charges for Bald Eagle Lake	$3,700	$498	$3,202	N	14.0%	13.5%	Y	N/A	15-Sep-13	Not Applicable	We checked the parcel information for lot splits / joins and providing a table of the certified charges during August.
ACD 10-22-32 Construction Plans, Bidding and Construction Management	$120,700	$80,739	$39,961	N	67.0%	66.9%	Y	N/A	30-Apr-13	31-Jul-14	We developed a strategy for obtaining better bids and presented the information at the Board workshop. We will be rebidding the project at the end of July and open bids near the end of August.
Certification of Charges for ACD 10-22-32	$3,700	$2,836	$864	N	90.0%	76.6%	Y	N/A	15-Sep-13	Not Applicable	We certified the charges for the Air Park common element parcels to the County. The 2nd year of the charge is also certified.
ACD 72 Historical Review and Consolidation and Division Proceedings	$22,500	$14,560	$7,940	N	65.0%	64.7%	Y	N/A	31-Dec-13	Not Applicable	We delivered a draft memorandum to legal counsel and District staff for review the week of July 22nd. We will finalize the memorandum following the receipt of comments.

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ARJD1 Historical Review and Consolidation and Division Proceedings	$24,000	$22,536	$1,464	N	94.0%	93.9%	Y	N/A	30-Apr-13	30-Nov-13	We presented the historical review memorandum to the Board during the July 8, 2013 workshop. The District needs to schedule a public informational meeting to proceed with the consolidation / division process.
Long Lake Sediment Basin	$35,097	$32,193	$2,904	N	99.9%	91.7%	Y	N/A	1-Dec-12	31-Jul-13	Ramsey County Parks has agreed the site is fully restored. We are in contact with BelAir and expressed the desire to obtain the final pay request, so we can close-out the project. BelAir is waiting on the lien waiver from their dredging subconsultant.
ACD 15 / JD 4 Repair Construction Plans, Bid Package and Construction Management	$108,100	$107,643	$457	N	99.9%	99.6%	Y	N/A	End 2012	Not Applicable	The final punch list items are completed by the contractor. We plan to do a joint walk through with District staff. We are awaiting the final pay request.
ACD 15 / JD 4 Charge Certification	$4,000	$4,442	($442)	Y	100.0%	111.1%	N	N	15-Sep-13	Not Applicable	We submitted the charges approved by the Board to the Counties for the 2014 tax year. We also prepared the Rights of Way charges and maps and provided these to the District to mail to the road authorities.
Year 2013 Hydrology Monitoring and reporting	$25,710	$12,099	$13,611	N	47.0%	47.1%	Y	N/A	31-Dec-13	Not Applicable	We continue with routine monitoring per the Part B application.
Vegetation Management of Houle / Hair Wetland Restoration (Implementation)	$76,000	$43,071	$32,929	N	57.0%	56.7%	Y	N/A	31-Dec-13	Not Applicable	Herbicide applications have been completed. Critical Connections Ecological Services is planning a prescribed burn for this fall provided conditions are suitable.
RCD 2,3 & 5 Historical Review	$21,100	$22,368	($1,268)	N	99.0%	106.0%	N	N	31-May-13	30-Nov-13	We presented the historical review memorandum to the Board during the July 8, 2013 workshop. The District needs to schedule a public informational meeting to proceed with the consolidation / division process.
County Road E2 Upstream Structure Repair	$15,500	$10,386	$5,114	N	80.0%	67.0%	Y	N/A	1-Jun-13	31-Jul-13	A draft memorandum has been through quality assurance review internal to Houston Engineering. The memorandum will be provided to the District by early August.
ACD 53/62 Charge Certification	$20,000	$15,372	$4,628	N	77.0%	76.9%	Y	N/A	15-Sep-13	Not Applicable	A public informational meeting for establishment of the WMD was held July 8, 2013. We are awaiting comments, and a decision by the Board whether to certify charges for 2014.
Jodrell Street Culvert Replacement	$17,400	$12,007	$5,393	Y	100.0%	69.0%	Y	N/A	31-Jul-12	31-May-13	The project has been completed.

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ACD 53-62 Branch 1 Repair Report	$63,500	$68,788	($5,288)	N	99.0%	108.3%	N	N	30-Sep-13	Not Applicable	A public informational meeting for repair report was held July 8, 2013. The 30 day comment period closes August 14, 2013.
Anoka County Ditch 55 Historical Review	$23,000	$12,250	$10,750	Y	100.0%	53.3%	Y	N/A	15-Jul-12	31-Dec-12	The consolidation and division hearing is completed. This project can move to the repair report phase.
Columbus RMP Implementation	$5,000	$931	$4,069	N	19.0%	18.6%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to complete tasks as assigned by the Administrator.
ACD 15 / JD 4 RMP Implementation	$6,000	$5,106	$894	N	85.0%	85.1%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to complete tasks as assigned by the Administrator.
City of Hugo Audit	$5,000	$3,977	$1,023	Y	100.0%	79.5%	Y		30-Jun-13	Not Applicable	HEi completed their review and provided the memorandum to District staff during the last week of June. This project has been completed.
ACD 53-62 Implementation	$5,000	$4,902	$98	N	98.0%	98.0%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to complete tasks as assigned by the Administrator.
Lino Lakes RMP Implementation	$6,000	$5,523	$477	N	92.0%	92.1%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to complete tasks as assigned by the Administrator.
Rice Lake / JD 2 Impoundment Proceedings	$47,548	$45,557	$1,991	N	95.0%	95.8%	Y	N/A	1-Jun-13	15-Aug-13	We presented the preliminary results at the July 8, 2013 workshop. Based on comments received from landowners we completed additional technical analysis. The memorandum is ready for delivery to the District.
Engineering Support - Ditches	$15,000	$14,079	$921	N	94.0%	93.9%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to provide public drainage system technical support to the District, for tasks assigned by the Administrator.
Engineering Support - Lakes and Streams	$4,000	$1,692	$2,308	N	42.0%	42.3%	Y	N/A	31-Dec-13	Not Applicable	This budget is used to provide technical support to the lake and stream specialist, for tasks assigned by the Administrator.
Lower Clearwater Creek Impact Analysis	$26,900	$5,352	$21,548	N	20.0%	19.9%	Y	N/A	31-Aug-13	Not Applicable	We completed the field review and collected survey information the week of July 22, 2013

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Clear Lake / Hwy 61 BMP Concept Design	$18,412	$13,360	$5,052	N	73.0%	72.6%	Y	N	31-Aug-13	Not Applicable	We met with the City of Forest Lake and the District. Plans are to implement a regional BMP consisting most likely of a stormwater pond. We are finishing the Technical Memorandum.

Values in red are either potential budget concerns or changes in schedule.

The "overage" for those projects shown as "over budget" is not billed to the District. The cost to date column reflects HEi's actual internal cost.

HoustonEngineering Inc.

District Engineer
Monthly Progress Report (Actual & Estimated Progress)
Through July 2013

RCWD