

April 24, 2024



**PLM**  
LAKE & LAND  
MANAGEMENT CORP

Au Sable Lake  
Goodard Township

Thank you for the opportunity to provide a contract for management services on South Dease Lake. PLM works throughout your area and we are pleased to be able to offer you a proposed management program. PLM has expanded our services, staff, technology and equipment to offer our customers the most educated, dedicated and responsive service time in the industry. As advancements in the industry have been made, PLM has been on the forefront. Some projects and advancements include; managing the first Hydrilla infestation in Michigan; working with genetic research on milfoil plants; researching Starry stonewort and its reproduction, treatment and infestation in Michigan; GIS mapping with GPS/GIS overlays; and MI EGLE approved evaluation treatments to name a few. The following contract is provided for the management and chemical control for Au Sable Lake, Ogemaw County. If any additional information or changes to the services proposed are needed, please contact me.

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**Management Program for Au Sable Lake 2024:**

Au Sable Lake, Ogemaw County needs to be properly managed from all aspects, including but not limited to plant and algae growth, water quality monitoring, surveying and educating riparian's. Au Sable Lake currently has an infestation of Eurasian watermilfoil, Curly leaf pondweed, starry stonewort and nuisance native plants in some areas.

PLM's education and experience within aquatic plant and lake management allows us to be an all inclusive lake management service provider giving our customers access to many services and management options. As each lake requires their own specific management tools, the following services are only a place to begin in properly managing your lake as a vital lake ecosystem to protect as well as an asset to properly manage for the property owners surrounding the lake as well as all those within the surrounding area. To achieve proper management of exotic plant growth, herbicide treatments will need to take place. Recommendations will be made to improve the overall water quality of the lake as well, pending water quality program participation. Recommendations will be made to all riparian's, via newsletter mailings (annually in the spring) and meetings, to assist the committee, in improving the watershed surrounding the lake and communicating on the goals and services of the program. If and when additional management services are recommended and/or if your board wants to discuss the possibility of incorporating additional services into the management program, please feel free to contact us, as we are always willing to meet and discuss management options. PLM's experience gives us direct knowledge and the ability to offer recommendations in all aspects of lake management on Au Sable Lake.

In order to properly manage Au Sable Lake, a diverse and strong native plant community needs to be promoted. This is done in a variety of ways, including by controlling the infestation of exotic and invasive plants. Controlling exotic and invasive species is vital to the overall health of the lake, however some constraints do exist and as a community, we can work through those. In addition, monitoring the lake for both plants and water quality parameters is key to the long-term success of the program. Reducing nutrient loading, promoting natural buffers and shorelines and dealing with elevated phosphorus levels are also important when managing the lake. Educating riparian's on lake ecology (spring newsletter), protecting the environment and working with all that use Au Sable Lake to prevent entry of new plants will assist in the long-term lake management efforts.

**References:** PLM works on hundreds of lakes and ponds across Michigan, divided into four geographical areas. Au Sable Lake falls within our Northern Lakes Territory. PLM has been in business over 40 years and many of our clients have worked with PLM for decades.

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**Communication:** PLM can communicate directly with the committee and/or a Lake Representative upon direction. If a group would like to be communicated with regularly, an email chain is preferred. Each time PLM is on the lake (to perform a survey, WQ testing, treatment, etc.) pre notice of the schedule is confirmed (i.e. Phone call or email the week before of estimated date). Following a service, notification of services provided including condition of lake, future recommendations, etc. is made (typically via phone, mail or email). This is a standard part of our program to keep communication open on all decision-making, and serves as a checks and balances of lake management.

**Electronic Treatment Notification:** In addition to, the Department of Agriculture allows for electronic notification i.e. email with the contracting entity. Therefore, if the contracting entity is a township, lake board, or municipality, you will also receive the same information that is being distributed to each resident (Posting Sign) prior to the treatment. By signing this agreement with PLM Lake & Land Management Corp and providing us the contracting entity email address, we can legally implement the electronic notification procedure.

**Text Message Pre-Treatment Notification:** In an attempt to enhance our communication, similar to the electronic notification procedure, PLM can provide pre-treatment communication via text message to contracting entities as well as lake residents prior to treatments. This notification will simply reference the proposed treatment date and will not accept reply text messages. This communication option will only be implemented if the client provides PLM with text message number.

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**Surveys:** Surveying the lake is key to the success of any lake management program. In order to properly manage Au Sable Lake, a survey program needs to include a variety of surveys and lake visits to ensure the lake is reviewed throughout the season. PLM's management programs include numerous survey visits throughout the season to allow all plants to be documented.

AVAS Surveys of the lake will allow for all vegetation within the lake, native and exotic, to be recorded along with density. An AVAS Survey (Aquatic Vegetation Assessment Site Survey) is the MI EGLE approved format for surveying lakes. Grid-point surveys may also be used on Au Sable Lake when appropriate and to assist in allowing all survey techniques to be used to collect the most reliable vegetation data. This data is important in determining management plans and treatment areas. A full understanding of the vegetation growing within the lake can indicate problems within an aquatic environment and it is important to have the most detailed surveys possible. An AVAS Surveys should be performed in the fall of each season (an additional spring AVAS is optional).

An initial full lake survey in the spring will take place to prepare treatment plans and evaluate overall lake conditions. Acre plot maps, as well as GPS technology, may be used throughout the surveys when preparing treatment maps. Please note that board/committee members can accompany PLM in the field for surveys if pre-arranged. This survey will be used to determine the most appropriate, up to date, treatment recommendations based on the current growth in the lake. Following this survey, recommendations will be made which will include treatment locations, product rates and totals, costs, etc. This will be reviewed and approved prior to treatment.

Pre/Post treatment surveys will take place throughout the summer to document plant growth and prepare any additional treatment maps and recommendations.

Brief surveys will be done as needed throughout the summer during additional water quality visits, on request or as needed.

AVAS Survey cost: \$600.00

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**Water Quality Program - Optional:**

*Deep Basin Site \$575.00*

PLM's basic Water Quality Program: Water quality will be sampled two times per year (spring and late summer). On each occasion, (1) a depth profile of water temperature, Secchi Disk, pH, Conductivity, TDS, and dissolved oxygen concentrations will be measured at one meter intervals, (2) samples for LakeCheck™ (Total Phosphorus, Nitrogen, Total Alkalinity) analysis will be collected from deep hole basin of the lake.

Additional parameters (Ammonia, Chlorophyll a, Algae composition, etc.) can be added to the program as needed. Until updated levels are tested/evaluated from PLM, the basic program is recommended.

*E.coli Testing \$100.00*

E.coli testing will be performed during the summer months at 3 locations throughout the lake. Sampling will occur one time, unless elevated readings are found.

Additional sampling can be incorporated into the standard water quality program as needed. Nutrient testing may need to be considered in the future at additional areas.

*Reports:* Reports are issued annually in the fall when all samples have been collected and processed.

Total Cost of WQ Program: \$675.00/site. Recommended 1-2 sites total. \$675.00-\$1,350.00

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**Optional Management Services Available:**

**Lake Management Plan (LMP):** A formal management plan can be compiled in the fall of every season. All information requested in the bid (if applicable) will be included in the report, including but not to limited to: Yearly Treatment Summaries including location maps, herbicides, rates, quantities and pre/post survey maps; Vegetation survey information including plant species name (common and scientific), plant group, location, and density; Water quality reports; Plant trend graphs and data; Recommendations for the following season. The update gives the control program an overall scope of the activities performed and recommendations for the seasons to come. A yearly management plan will be completed at the end of each season and available in the fall. Cost for Management Plan: \$750.00 optional

If a formal LMP is not required, a year-end On-Site report will be issued including recommendations for the following year, summary of treatment activities from the current season, financial statements with acreages, rates, costs; as well as observations from the treatment activities. This is provided at no charge.

**Lake Newsletter:** Annually a newsletter to all residents can take place informing all riparians of the planned activities for the season. The newsletter may include information such as: updates on aquatic plant management, goals of the program, plant trend and best management practices. It will update residents on actions taken, tentative treatment plans and dates and potential restrictions as well. Any additional information the lake group would like to include in the newsletter can be included. There is no cost for preparation of newsletter. An updated address list needs to be provided to PLM annually. Yearly newsletter to all residents: Cost: postage cost only

**Bathymetric Mapping:** PLM utilizes state of the art mapping technology in order to provide you with an accurate and detailed depth contour map of your lake. This new software, combined with the latest in GPS/Depth finder units, has the ability to quickly collect precise bathymetry (depths) and aquatic vegetation of any given waterbody. This data can then be used to create accurate bathymetric, vegetation bio-volume, bottom hardness or treatment maps. A bathymetric map can be done with or without a survey of the lake and vice versa. A new bathymetric map is recommended every 10-20 years in order to establish updated base data on the lake, track historical changes, etc. New bathymetric mapping may be highly recommended prior to certain treatment protocols (Sonar). Biobase mapping costs can range pending the time of year. Inquire for pricing:

**Milfoil Genetic Testing:** Over the last decade, advancements in technologies have allowed genetic testing of milfoil stems to determine genetic makeup (i.e. Northern watermilfoil versus Eurasian watermilfoil versus Hybrid watermilfoil). This testing has confirmed that there are variances in the genetic makeup of different hybrid milfoils. Genetically testing milfoil can be helpful if treatments have shown unexpected results. PLM has been collaborating with Universities across the country in sampling and studying the genetic makeup of milfoil infestations across Michigan. Although this data is very helpful in researching milfoil, genetic testing is not a requirement. PLM can genetically sample milfoil upon request or if required for management implementation. Testing per stem: \$165.00.

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**Meeting Attendance/Presentation:** A representative of PLM is available to attend lake association/township board/ committee meetings upon request. Residential concerns can always be brought to the board and then to PLM or directly to PLM by calling our office. PLM will be available to attend up to four meetings with the committee/public hearings and is willing to attend any and all meetings that are pertinent to the lake and its management. Any meetings falling on national holidays and/or the weekends of national holidays will have to be pre-approved with PLM and alternative dates may have to be arranged.

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**Nutrient Abatement:** PLM's healthy lakefront living guide, which includes many measures taken to promote a healthy lake and reduce nutrient loads, will be presented to riparians and discussed in our annual newsletter to residents. Additionally, PLM is certified to work with the natural shoreline partnership to restore shoreline areas for the protection of the lake and reduction of nutrients entering the lake. Au Sable Lake can work with PLM to perform a "Score the Shore" to evaluate the lake shoreline and explore opportunities to improve the lake conditions. In addition, nutrient remediation efforts can include dredging, aeration, bacteria augmentation, watershed planning, and tributary testing/improvement to name a few. PLM will work with your group to incorporate the best management practices available for Au Sable Lake, if so desired.

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#### **Permitting:**

**MI EGLE Permit:** PLM Lake & Land Management Corp. will handle the application of the permit to MI EGLE. All permitting fee costs are the responsibility of Au Sable Lake Board. The permit will be applied for by PLM and PLM holds the responsibility of complying with the permit. Estimated permit fee is \$875.00-\$1600.00 pending acreage treated.

**Posting of Treatment Areas:** Posting of shoreline treatment areas is the responsibility of PLM Lake & Land Management and will be conducted according to MI EGLE regulations. Signs will be attached to thick barked trees, posts or other suitable fixtures already on site. If homeowners wish to have signs posted in designated areas or on specific fixtures they must notify PLM Lake & Land Management Corp., providing lake address, location of property, and where the signs are to be posted. Pictures are the most informative way to relay this information. Notification of alternate posting must be made at least 14 days prior to treatment and additional fees may apply. The removal of posting signs after the restrictions have expired is the responsibility of the homeowner. It is standard policy to post the day of treatment, to ensure the most limited restriction be placed on the lake and limit water and swimming restrictions. Adjustments to this policy can be discussed with PLM and specified for your lake. Advanced posting may require reposting, which could delay treatment and impact costs. PLM is happy to discuss alternatives from our standard practice to suit your needs.

**Notification of Treatments:** PLM will notify each residents within **100 feet** of the treatment area **at least seven days** in advance, **but no more than forty-five days** prior to the first treatment date, that products will be applied to the lake (with a provided list of addresses from the township). This notification requirement **must** be administered to each and every property owner within 100 feet of

any treatment area. PLM Lake & Land Management Corp. will provide a tentative treatment schedule and the **Notice** of proposed products to be used during the spring of each year. We will also notify residents within 100 feet of the treatment areas on the day of treatment. This notice is intended to be done with the annual newsletter and if not, postage fees may apply.

**MSDS Sheets:** MSDS sheets are carried in all PLM trucks and available at the lake for review if needed. Electronic PDF's of all MSDS sheets will be provided to the board as requested. All Residents will also receive an updated copy of the MI Department of Agriculture and MI EGLE approved "Risk Benefit Statement" in the first year of working with PLM.

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**Treatment Plan:**

**Treatment Duration:** PLM will make ALL attempts to minimize restrictions on the waterbody and perform all treatments in a timely, efficient manner. In most situations, a 1-day treatment window will be feasible to comply with treatment needs. In the event of weather or delay, a second day MAY be needed; however, PLM has the staff and equipment to perform the treatments on Au Sable Lake in one day.

**Treatments:** All treatments will be done in reflection of the approved MI EGLE Permit and under those regulations. All treatments will be pre and post surveyed for effectiveness. The applicator will have specific instructions and maps to allow for the most effective and efficient application. All treatments will be performed to protect the lake and fish habitat. For exotic plant management, herbicide treatments are a common, are normally the preferred and most successful management choice for selectively, and cost effectively controlling EWM as well as other exotic plants. However, other management options are available including but not limited to harvesting, suction harvesting, benthic barriers, biological control measures, etc. PLM has worked with all management tools and will continue to work with new options as advancements are made. PLM will survey and determine the scope of management needed, make recommendations and provide options for management choices (if applicable) and implement the program. Usually, chemically controlling EWM is most effective. Please see our survey section for more information on how our survey programs are implemented.

Initially, Au Sable Lake will be surveyed in the spring and treatment recommendations will be updated based on the presence, distribution and density of milfoil. At that time, PLM would also review the plan for 2024 and 2025 and if a whole lake treatment program should be explored. If it is, the decision to use systemic herbicides the year before should take place along with additional conversation on the benefits or rotating active ingredients for treatment longevity.

Treatment effectiveness is determined post treatment with survey work. If and when results do not meet expectations, follow up treatments are done, normally at no cost to the client. Our control guarantee and manufacturer support allows for highly effective treatments. If, by rare chance, plants show abnormal responses to control measures, follow up discussions will need to take place.

**Algae Treatments:** Algae can become an issue on lakes during the peak growing season, when temperatures rise and production is high. Elevated Total Phosphorus in the lake can lead to increased production and algae blooms as well. Algae can be an issue in the channels as well, where water flow is reduced. Algae can be controlled in a variety of ways, standardly with the use of copper products (Copper Sulfate or Chelated copper). SeClear G, which is a copper complex algaecide also has the capabilities to dissipate Phosphorus from the water column, potentially reducing the productivity of algae and providing longer control. SeClear may be a preferred treatment method. Although is it more expensive than standard approaches, it does provide a long-term proactive approach and addresses the cause of the problem and not just a reaction.

**Herbicide Treatments Restrictions:** All treatments will be done in reflection of the approved MI EGLE Permit and under those regulations. All herbicide treatments carry a one-day swimming restriction, regardless to the label, to keep residents out of the way of equipment coming into swimming areas. This creates a much safer environment for residents and the technicians working on the waterbody. PLM works in a manner to reduce this imposition on residents with having effective and efficient treatments. Further, no treatments occur to restrict weekends or holidays. Irrigation restrictions vary pending which products are used for milfoil control. Restrictions can vary from none to a few days or weeks, sometimes longer. These restrictions are posted prior to treatment and PLM works with each treatment to ensure the least restrictive restriction is used. There are no fishing restrictions associated with any treatment.

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**Tentative Plan of Action for Au Sable Lake:**

**June:** Initial survey to determine infestation size of SSW, CLP, EWM. Water Quality testing (optional).

**August:** AVAS Survey. Water Quality testing (optional).

**Fall/Winter:** Create a plan to address invasive species, lake wide.

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**Unit Costs per Acre**

**Systemic Herbicides:**

	<b>Cost:</b>	<b>Application Rate:</b>	<b>Potential Plant Target</b>
Sculpin G:	\$430.00	@120lbs/acre	EWM
Renovate OTF:	\$550.00	@120lbs/acre	EWM
Renovate 3:	\$300.00	@2.5gals/acre	EWM
ProcellaCOR:	\$100.00	@1PDU	EWM

**Contact Herbicides:**

Diquat:	\$170.00	@1gal/acre	EWM/CLP/nuisance natives
Aquastrike:	\$385.00	@2.5gals/acre	EWM/CLP/nuisance natives
Aquathol K:	\$185.00	@1gal/acre	CLP/nuisance natives
Clipper:	\$325.00	@200ppb	EWM/CLP/SSW/nuisance natives

**Other Services:**

Nautique:	\$400.00	@7.5gals/acre	Wild Celery
Algaecides (per acre):	\$50.00	@5-6lbs/acre + chelated copper	Algae/SSW
Algaecides (per acre):	\$55.00	@13lbs/acre	Algae/Chara/SSW
Algaecides (per acre):	\$128.00	@1.8gals/acre	Algae
SeClear G:	\$155.00	@20lbs/acre	Algae
SeClear G:	\$380.00	@50lbs/acre	SSW
AVAS Survey:	\$600.00		
Water Quality Program:	\$675.00/site		
Lake Management Plan:	\$750.00		
Bathymetric mapping:	inquire for pricing		
Mechanical Harvesting:	\$325.00/hour	(\$5,000.00 minimum)	
MI EGLE Permit:	\$875.00-\$1,600.00		

\*Unit cost application rates are provided. If the application rate is adjusted, the unit cost will be proportionally adjusted for the increase in rate.

\*Hybrid milfoil populations require increased application rates and more aggressive treatment protocols, often increasing the cost/acre and overall lake budgets. It is important to stay on top of milfoil populations and manage a waterbody for changing genetic makeups.

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**Estimated Budget:** All budgets are comprised using the unit costs per acre listed above and approximate acreages. The below budget is determined using estimated acreages. All treatment costs will stay within approved funds. Treatments will only be performed as required and approved. This estimate for 2024 is just for management services until a whole lake program is set up. Treatment is available in 2024, however individual permissions would have to be collected for any proposed treatment area.

Management Services:	
WQ Program:	\$ 675.00
AVAS Surveys:	\$ 600.00
Total:	\$ 1,275.00

**For Reference:** PLM comprises all budgets using the unit costs per acre listed above. All treatments will be done within your set/available budget. PLM bills include service/treatment, based on the amount of product used. Note: Infestation of exotic plants can change quickly and an up to date survey needs to be completed in order to determine the final need and cost of treatments in 2024. Working together, we can determine treatment needs and perform treatments within your program's finances.

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**Contract Period:**

**Multiple Year Treatment Program:** As an incentive to establish a multiple year agreement, we will treat your lake or pond at the same price structure as 2024 for 2025. The remaining three years (2026, 2027 & 2028) will have cost increases of (5%) five percent or less. If total chemical cost increases 10% from the previous year, PLM will only pass on the percentage over 10%. If during the life of the contract EGLE or other regulatory agencies significantly change the approved treatment procedures, either party may terminate this agreement upon giving ninety (90) days advance written notice thereof.

**One Year Treatment Program:** Pricing is based on the type and the amount of vegetation or algae present at the time of treatment, as well as, the products applied. Unlike the multiple year program, an agreeable price structure is not contracted into a one-year program. Therefore, an increase in the cost of products, labor, or changes made by EGLE or other regulatory agencies may have a drastic effect on the pricing for following years.

**Permit Fee:** PLM Lake & Land Management Corp. is responsible for completing and submitting aquatic nuisance permit applications. PLM Lake & Land Management Corp. will send an invoice for the yearly EGLE permit application fee. It is your responsibility to send a check made out to the “State of Michigan” to our office prior to the due date. We must include this check with the EGLE permit application. Waterbodies less than 10 acres, with no outlet and single ownership, may be subject to “permit by rule” conditions, therefore not incurring an actual permit fee.

**Posting of Treatment Areas:** Posting of shoreline treatment areas is the responsibility of PLM Lake & Land Management Corp. and will be conducted according to EGLE regulations. Due to EGLE guideline changes and specific residential concerns, posting fees may apply. Signs will be attached to thick barked trees, posts or other suitable fixtures already on site. If homeowners wish to have signs posted in designated areas or on specific fixtures they must notify PLM Lake & Land Management Corp., providing lake address, location of property, and where the signs are to be posted. Pictures are the most informative way to relay this information. Notification of alternate posting must be made at least 14 days prior to treatment and additional fees may apply. The removal of posting signs after the restrictions have expired is the responsibility of the property owner.

**Notification of Treatments:** It is your responsibility to notify each resident within **100 feet** of the treatment area **at least seven days** in advance, **but no more than forty-five days** prior to the first treatment date, that products will be applied to the lake (with a provided list of addresses from the lake board). This notification requirement **must** be administered to each and every property owner within 100 feet of any treatment area. PLM Lake & Land Management Corp. will provide a tentative treatment schedule and the **Notice** of proposed products to be used during the spring of each year.

**Non-Target Species:** Please be aware that we only control specific weeds and algae **present** at time of treatment. Emergent vegetation (cattails, bulrush, purple loosestrife, lily pads) and beneficial native plants will not be addressed unless specifically mentioned in the management program. We have no control over future weed or algae growth based on the current chemicals registered for aquatic use in Michigan.

**Electronic Treatment Notification:** In addition to the above-required notification procedures, the Department of Agriculture allows for electronic notification i.e. email with the contracting entity. Therefore, if the contracting entity is a township, lake board, or municipality, you will also receive the same information that is being distributed to each resident (Posting Sign) prior to the treatment. By signing this agreement with PLM Lake & Land Management Corp and providing us the contracting entity email address, we can legally implement the electronic notification procedure.

**Text Message Pre-Treatment Notification:** In an attempt to enhance our communication, similar to the electronic notification procedure, PLM can provide pre-treatment communication via text message to contracting entities as well as lake residents prior to treatments. This notification will simply reference the proposed treatment date and will not accept reply text messages. This communication option will only be implemented if the client provides PLM with text message number.

**Invoicing and Payments:** PLM Lake & Land Management Corp. will submit an invoice following treatment that will include the following information; lake and/or pond(s) treated, date of treatment and type of treatment or acres treated. Monies will be due net thirty (30) days after each treatment. The invoice may be subject to a fuel surcharge of up to 3% of the total treatment cost. Interest of 1.25% may be added to your bill for each additional sixty (60) days that payment is not received.

**Liability Issues:**

We are responsible for workman’s compensation and liability insurance for the duration of the contracted period. PLM Lake & Land Management Corp. is not responsible for fish loss due to low oxygen levels caused by winter turnover or during warm water conditions.

Please sign and check optional multiple year program or one-year program.

Please return this as our contract, ASAP to avoid permitting delays.

For further clarification or modifications please contact.



Michael Pichla, Environmental Biologist  
Regional Manager - North  
PLM Lake & Land Management Corp.  
michaelp@plmcorp.net  
800-382-4434 ext. 2300

**For Au Sable Lake**

Please Check which Program you are participating in:

**Multiple Year Program** \_\_\_\_\_ **OR One Year Program** \_\_\_\_\_

**Optional Services:**

**Survey program/AVAS** \_\_\_\_\_ **Water Quality Program** \_\_\_\_\_ **Others** \_\_\_\_\_

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Signature

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Witness Signature

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Print Name

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Date

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Witness Print Name

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Date

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Email address for notifications.