

Report on the Repair, Replacement or Construction of Subsurface Wastewater Treatment Systems of the Timbrshor-Borchers of Finley Point Condominium Subdivision

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Prepared for:

Timbrshor Board of Directors C/o Tom Cox 30351 Osprey Lane Polson, Montana 59860

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Executive Summary

In a letter dated June 29, 2007 addressed to the Timbrshor Homeowners Association (THOA), the Lake County Environmental Health Department (LCEHD) stated, in part, that "The wastewater treatment systems serving the subdivision are clearly not as approved." The LCEHD went on to further state that "...the Lake County Environmental Health Department will not issue wastewater permits for this subdivision nor allow new construction or changes to existing systems until the MDEQ (Montana Department of Environmental Quality) approval is revised."

On December 15, 2012, Territorial-Landworks of Missoula, Montana submitted a Technical Presentation of Feasibility Report to the Timbrshor Homeowners Association and the Timbrshor/Lake County Water and Sewer District (TLCWSD). In May of 2013, Billmayer & Hafferman, Inc. (BHI) was engaged to complete an investigation of the subsurface wastewater treatment systems of the Timbrshor subdivision, make the final system design recommendations and finalize the means to obtain the necessary Lake County permit requirements and revise the original MDEQ Timbrshor approval. BHI determined that there are a total of 47 system connections of which 30 have been developed. There are five individual drainfields that currently serve the 30 connections that were identified as Drainfields A through E.

BHI completed an investigation of available data and reports and has reviewed letters and files of State and County agencies. BHI completed site investigations and an analysis of all of the existing and proposed connections and projected average daily effluent flows that would be discharged to drainfields from the units. BHI made an on-site geotechnical investigation and assigned bedrock separation distance and soil absorption rates suitable to complete the design calculations for the type and size of the proposed drainfield at each location. Lastly, BHI and members of the THOA Board met with the LCEHD and the MDEQ and discussed the project findings, the feasibility of replacing or repairing the existing systems and the steps necessary to obtain both MDEQ and LCEHD approvals.

Based on the recent update of DEQ Circular 4, BHI has concluded that existing Drainfield A will ultimately receive 4,750 gallons per day (gpd) of effluent, is undersized and requires expanding to serve a total of 19 units. Drainfield B, which will serve 5 units, will ultimately receive 1,500 gpd. This drainfield is currently undersized and requires expansion. Drainfield C is correctly sized to receive 2,400 gpd but a portion of the drainfield will have to be reconstructed in a new area suitably separated from an existing well. Drainfield D is currently serving 2 units and is proposed to connect a total of 5 units for a flow of 1,500 gpd. Drainfield D is an experimental drainfield and approval for its expansion by Lake County and MDEQ is uncertain. Drainfield E is currently proposed to serve 7 units, 5 of which are yet to be developed. It will require the use of an elevated sand mound drainfield to gain separation from bedrock and secondary treatment will be required to reduce the drainfield size. One other new drainfield is proposed; Drainfield F. Drainfield F is proposed to serve units 317, 318 and 320 and is intended to reduce the size requirements of Drainfield B.

This report provides the results of the investigation, the analysis of the existing and proposed connections, the proposed wastewater treatment system repairs necessary to meet MDEQ and LCEHD approval and the estimated costs of the proposed repairs or replacements and steps required to obtain sufficient approvals to allow the LCEHD to lift their new construction injunction.

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1.0 Introduction

In a letter dated June 29, 2007 addressed to the Timbrshor Homeowners Association (THOA), the Lake County Environmental Health Department (LCEHD) stated, in part, that "The wastewater treatment systems serving the subdivision (Timbrshor-Borchers of Finley Point Condominium Subdivision) are clearly not as approved." The LCEHD went on to further state that "...the Lake County Environmental Health Department will not issue wastewater permits for this subdivision nor allow new construction or changes to existing systems until the MDEQ approval is revised." That statement created an injunction prohibiting any new construction that is still in effect today.

In response to LCEHD issues, the THOA hired an environmental consultant and an engineering consulting firm. On December 15, 2012, Territorial-Landworks (TLI) of Missoula, Montana submitted a Technical Presentation of Feasibility Report to the THOA and the Timbrshor/Lake County Water and Sewer District (TLCWSD). As the THOA received funding from the Department of Natural Resources and Conservation (DNRC) through a Planning Grant for the Borchers of Finley Point Condominium Subdivision (Timbrshor) Wastewater System Improvements, the report was prepared in accordance with DNRC guidelines and was submitted to the DNRC as a precursor to any future DNRC Conservation and Renewable Resources Division (CARRD) loans or grants that the THOA may pursue. Although this report met the requirements of the DNRC, it fell short of answering all of the THOA questions.

In May of 2013, Billmayer & Hafferman, Inc. (BHI) was engaged to complete the investigation of the subsurface wastewater treatment systems of the Timbrshor subdivision, make final design recommendations and finalize the means to obtain the necessary Lake County permit requirements and revise the original Montana Department of Environmental Quality (MDEQ) Timbrshor approval so that the LCEHD will resume issuing wastewater permits for this subdivision.

1.1 Subdivision Location and Associated Units

The Timbrshor-Borchers of Finley Point Condominium Subdivision is located northeast of the town of Polson, Montana at the north end of Finley Point on the east side of Flathead Lake. The property is physically described as Borchers of Finley Point Lot 3, Section 7, Township 23 North, Range 19 West, P.M., M.; Lake County, Montana.

The condominium property consists of fifty-six (56) building sites, or units, of which eight (8) are listed by either the Lake County Commissioners (LCC), the Developer or both as "not to be developed". The existing list of units includes a total of forty-eight (48) units that are either developed or yet to be developed. One of the forty-eight (48) dwellings includes the original Borchers Lodge (Lodge) structure which is now shown as a single family four bedroom residence. Of the forty-eight (48) units, two (2) sites are double or duplex units, leaving a total of forty-seven (47) developable sites that were used to calculate potential or existing wastewater flows. At the time of this report, thirty (30) of the sites have been developed with a variety of single and multi-family residences that range in size from two to five bedroom units. The remaining seventeen (17) undeveloped units are located at various locations within the Timbrshor subdivision.

BHI developed a spreadsheet similar to the TLI spreadsheet that allocates where units are, or will be, developed to connect to a wastewater system, the owners of the units, the development status of the

units and the proposed wastewater flow based on the acceptable standards of the MDEQ and LCEHD that will come from the various connections. That spreadsheet is provided in Appendix A.

In the TLI report submitted to the DNRC, several design assumptions remained to be resolved in order to determine which of the alternatives in the TLI report are feasible. BHI was asked by the THOA to rely on the findings of the TLI report, the work completed by Rowland Environmental Consulting (REC) that was incorporated into the TLI data and to clarify the TLI assumptions. BHI was also tasked to conduct any necessary field and geotechnical investigations recommended by TLI or REC necessary to meet the requirements of the LCEHD or the MDEQ. BHI was also provided with letters and files addressed to the THOA from the MDEQ, the LCEHD and the Lake County Commissioners that clarified the development and submittal requirements necessary to obtain final approvals and complete the required drainfield construction and lift the LCEHD new construction injunction.

2.0 Procedure

The BHI investigation began with a review of the TLI report, which has been previously provided to the THOA. For purposes of maintaining an accurate record, the TLI report and the full appendix are attached to this report minus the TLI large scale plans, which have been included at a reduced scale. The TLI report is provided in Appendix B. The large scale plans were provided to BHI in an AutoCAD format from TLI and Carstens Surveying of Polson, Montana. The files did not include an AutoCAD surface file which had to be created by BHI in order to complete the electronic file to allow for civil design. The file has been modified to include the surface file and BHI has developed a new site layout which is provided in Appendix C.

BHI completed an independent geotechnical investigation and soils analysis of the existing and proposed drainfield sites. On May 14th, 2013, BHI conducted an on-site geotechnical investigation using the BHI drill rig driving a 4" hollow stem auger mounted on a one-ton ford truck to determine depth to bedrock, depth to groundwater, if any, and to collect soils samples for analysis. Site data, soil analysis and depth to bedrock data were used to assign bedrock separation distance and soil absorption rates suitable to complete the design calculations of the type and size of the proposed drainfield at each location. The results of the geotechnical investigation are provided in Appendix D. The soil absorption rate data, in conjunction with the estimated average daily wastewater flow, was used to complete the drainfield design flow and sizing which allowed for a cost analysis of any necessary repair, replacement or new construction of the subsurface sanitary sewer disposal systems suitable to serve the current and future Timbrshor subdivision units shown on the Appendix A spreadsheet.

BHI also made a second site investigation to determine the location of as many of the septic tanks and distribution pipes as was feasible and modified the site plan to include that information.

Lastly, BHI and members of the THOA Board met with the LCEHD and the MDEQ and discussed the project findings, the feasibility of replacing or repairing the existing systems and the steps necessary to obtain both MDEQ and LCEHD approvals. This report provides the results of the investigation, the analysis of the existing and proposed connections, the proposed wastewater treatment system repairs or replacements necessary to meet MDEQ and LCEHD approval and the estimated costs of the proposed repairs or replacements.

3.0 Discussion

3.1 Findings from Records Research

Within the TLI, REC and LCEHD records, there were four (4) existing and one (1) abandoned drainfield identified that serve the thirty (30) existing units. It was intended that within each of the drainfield locations, the undeveloped units that were closest to a particular lot could connect to that drainfield sometime in the future. The records also showed the location for a replacement area for the fifth drainfield for units that were recognized by the THOA as existing and needing a new drainfield to connect to or for units proposed to be developed. The five (5) drainfields were identified by TLI as Drainfields A through E. The site map, also provided in Appendix C, shows the TLI existing drainfield locations as well as the existing building or proposed building locations by lot number, and provides the Carstens Surveying topographic information and other site specific details.

Documentation provided to BHI, as well as additional research, has yielded the information about the wastewater treatment system permits that have been issued by the LCEHD contained in this report. We have determined that there are currently five (5) permits that can be identified as being for drainfields and seven (7) permits identified as being for septic tanks. Copies of the permits were provided in the TLI report and are reproduced in Appendix E of this report. The permits are separated by the designated Drainfields A to E. The permit number, associated drainfield, permitted flows, current existing flows and BHI design flows are provided in Table 1 below;

LCEHD Permit No.	Drainfield	LCEHD Permitted	Existing Flows	BHI (MDEQ)
		Flows (gpd)	(gpd)	Design Flows (gpd)
1837, 9947, 3126	A	400	3,350	4,750
1000D	В	550	1,325	1,500
5000B, 5050	C	2,400	1,200	2,400
5584, 5912	D	1,500	9,00	1,500
1001Q, 7440	E	600	600	2,100

Table 1: Existing Permits Issued by the LCEHD

Permit number 1837 is the main permit for Drainfield A and permits 9947 and 3126 are for septic tanks and connections to Drainfield A. Drainfield A is designated to serve nineteen (19) units upon reconstruction; unit numbers 201 through 206, 209 through 211, 216, 217, 219, the Lodge and units 301, 302, 305 and 306 through 309. Of these units, 216, 217 and 219 are not developed.

Permit number 1000D is for Drainfield B and is designated to serve five (5) units; unit numbers 311, 312, and 314 through 316.

Permit number 5000B and 5050 are for Drainfield C, which is designated to serve eight (8) units; double unit 403/404 and units 406, 408, 409 through 412 and 414. Of these units, 403/404, 408, 410 and 414 are not developed.

Permit numbers 5584 and 5912 are for Drainfield D which is currently serving duplex unit 418/419 and unit 428 and is intended to serve unit 427, which already owns a share of Drainfield D. Drainfield D is designated to serve five (5) units to utilize the original design capacity of the fully constructed drainfield; double unit 418/419, 426 through 428 and 430. Of these units, 426, 427 and 430 are not developed.

Units 401/402 were associated to permit number 1001Q, Drainfield E, which is a failed drainfield. Under permit 5912, units 401 and 402 were allowed to construct a holding tank while waiting for either Drainfield D to be expanded or Drainfield E to be reconstructed. These units are now assigned to Drainfield E. Drainfield E will be reconstructed to serve seven (7) units; double unit 401/402, 417, 421, 422, 424, and 429. Of these units, only double unit 401/402 is constructed.

A new drainfield, Drainfield F will be constructed to serve units 317, 318 and 320. Of these units, 318, and 320 are not developed.

Permits for septic tank installation were located for units: 201, 203, 406, 409, 414, 418/419, 428, 430 and 401. Several other documents were contained in the TLI report pertaining to septic tank installations but did not designate which units or person(s) they were associated with. No records were found to indicate a permitted septic tank connection to a drainfield for units 306, 307, 308, 309, 317, 402 or 411.

The field investigation conducted by BHI confirmed the locations of all the drainfields identified in the permits. Additionally, Tom Cox of the THOA was able to assist in determining locations of several septic tanks associated to septic tank permits and assisted in identifying which drainfield the individual septic tanks were connected to and the probable main sewer line or individual sewer line that was used to connect to a particular drainfield. It is to be noted that several of the main sewer lines that connect homes to a drainfield were not clearly identified.

The TLI report continually referenced the need for individual lot owners on a particular drainfield to be responsible for having or installing a new septic tank and pressure dosing chamber suitable to provide primary treatment to the raw sewage, to filter the effluent and to be able to pump the effluent to a common dosing tank located near the drainfield associated to that lot. BHI also assumes that the individual lot owners will need to determine the adequacy of their septic tanks and dose chambers and to be able to assure their pumps are suitable to deliver their primary treated effluent to the common drainfield dosing tanks. Therefore complete septic tank investigations were not included in this report. BHI considers the TLI cost estimates for this work to be reasonable and have been adopted in the BHI costs.

During the second site visit with Tom Cox, a community dosing chamber was identified as one that was constructed to collect and pump treated effluent from a number of units. The exact units and how they connected to the tank had not been identified. In addition, the TLI report also continually referenced a recommendation to either: replace, not replace, or repair the common sewer lines. In the final report, TLI states that the final recommendation was changed to the recommendation of main sewer line replacement.

Mr. Cox stated that it was not possible for the THOA or TLI to identify the mainlines that needed replacement and inevitably it was decided by the THOA that each of the individual unit owners would need to be responsible for identifying their sewer mainline that will take their effluent to the assigned drainfields. The group or persons would determine how their primary treated effluent is transported to the drainfield and if constructing a new sewer mainline or modifying an existing sewer line was possible. This design assumption was adopted by BHI and no in depth investigation of sewer mainline replacement; repair or construction was completed for this report. BHI performed a rough estimation of

the forcemain lengths required to connect the units and to each drainfield for cost estimation purposes. These estimations however, are subject to change.

3.2 Findings from the Geotechnical Investigation

On May 14th, 2013, BHI completed a geotechnical investigation of the subject property using the BHI drill rig driving a 4" hollow stem auger mounted on a 1-ton ford truck to drill a total of eight (8) bore holes at the proposed drainfield locations near to, but not directly on, the soil test pits of REC. The intent of avoiding the REC test pits was to be able to compare the BHI and REC results and to have as many different individual locations as was possible in each drainfield location. There were sixteen (16) test pits completed by REC and eight (8) bore holes completed by BHI which provides sufficient soils data to understand the geology at any of the drainfield sites. The BHI bore holes were used to determine depth to bedrock, depth the groundwater, if any, and to allow collection of soil samples to be classified and the in-situ moisture content to be determined. The eight (8) holes planned, six (6) were completed from a minimum of 3 feet deep to a maximum of 15 feet in depth below ground surface. Bore Hole #2 was not drilled as it fell within the boundaries of Drainfield A and Bore Hole #7 encountered bedrock immediately after commencing drilling.

All soils were visually classified and described using ASTM Volume 04.08 Soil and Rock (1), 1994; D2487 & D2488 and in conformance with the Unified Soils Classification System (USC) and were visually compared to a Geotechnical Soils Gauge. Complete bore logs from the eight (8) holes drilled and moisture content test results are contained in Appendix D of this report. A summary of the geotechnical results is shown in Table 2 below.

Table 2. Thirdfish		innear Summar	<u>J</u>		
BH #	Depth	Visual	Field	Moisture	Comment
		classification	Classification	Cont.	
				(%)	
RH 1					
DIIII					
<u>S1</u>	0'5'	Topsoil-gravel	OL/GM	4.77	Topsoil and gravel mix
S2	0-3'	Gravel	GM	5.54	Fill
\$3	3-5'	Gravel	GP	2.55	Fill
S4	5'-8'	Silty-Gravel	GM	9.63	Fill/Native
S5	8'-12'	Silt	ML	27.08	
\$6	12'-15'	Silt	ML	26.50	
BH 3					
S1	0-2'	Silt Topsoil	SM	10.40	Mostly silt
S2	3'-5'	Sandy-Silt	SM/ML	23.00	
\$3	6'-7'	Sandy-Silt	SM/ML	19.26	
S4	9.5'	Silt	ML	23.71	
S5	10.5'	Silt	ML	21.27	
BH 4					
S1	0-2'	Topsoil and silt	OL/ML	7.14	Mostly silt
S2	5'-6'	Silt	ML	14.15	
\$3	9'	Silty-Sand	SM	11.71	
Table 2: Timbrsh	or Geotec	hnical Summar	y (cont.)		
S4	10'	Silt	ML	17.43	

 Table 2: Timbrshor Geotechnical Summary

S 5	11'	Silt	ML	22.38	
BH 5					
S1	0-2'	Gravel	GP	7.02	Top soil then fill a Gap Graded Gravel
S2	7'	Sandy-Silt	SM	20.88	
S 3	8'	Silty-sand	SM/ML	19.75	
S4	10'	Silt	ML	19.36	
BH 6					
S1	0-4'	Topsoil then silt	OL/ML	17.32	Thin topsoil, mostly silt
S2	4'-6.5'	Silt	ML	20.37	
\$3	6.5'-13.5'	Silt	ML	27.96	
S4	13.5'	Silt	ML	32.58	
BH 7					
S1	0'-0.2'	Topsoil	OL	7.10	Topsoil over bedrock
S2	0.2'-0.3'	Bedrock	No sample	No MC	Bedrock at 0.3'
BH 8					
S1	0-1.8'	Topsoil	SM/OL	19.43	Thin topsoil with silt
S2	1.8' - 3.0'	Sandy-Silt	SL/ML	8.17	
S2	3.0'-3,2'	Silt	ML	8.17	Bedrock at 3'

Soil samples were taken from the auger flites at various depths during the drilling process when the driller determined that a soil change had occurred. Soil changes at various depths were determined by changes in drilling pressure as displayed on the drill rig control panel, visual observation of soil moisture content and or visual changes in the soil type. Samples were sealed in air-tight plastic bags, marked with the project, date, bore hole and depth of sample and transported to the BHI soils laboratory where they were classified and the in-situ, or native, moisture content was determined by oven drying in accordance with the applicable ASTM standards.

Moisture contents generally increased with depth in the native sandy-silt, silty sands and silts that were encountered below the topsoil layer. The lowest moisture content was found to be 2.55% at 5 feet below the ground surface in Bore Hole #1 and the highest moisture content was 32.6% at 13.5 feet below ground surface in Bore Hole #6. The soils at this depth were noted as being moist to wet but were not saturated. Groundwater was not encountered at any of the sample sites during drilling. None of the soil samples were assumed to be within the capillary fringe of a groundwater source and there was no definable or commonly known groundwater table. The individual soil moisture content determinations, soil classifications at depths, soil descriptions and summary table is provided in Appendix D of this report.

The following is a short summary of the soils encountered during drilling:

Bore Hole #1 was drilled in the vicinity of the proposed Drainfield A reconstruction. Gap graded, semi-angular to sub-rounded, small to medium gravel (GP & GM) was first noted near 3 feet in depth and ended at 5 feet in depth. As no similar native material was encountered in any of the other bore holes, this material was classified as imported fill material, e.g. not native. The soils below 5 feet in depth were classified as silty-gravel (GM) to 8 feet in depth, then silt (ML) to 15 feet in depth at the bottom of the hole. The moisture content of the gravel and silt-gravel averaged 5.61% and the moisture content of the silt averaged 26.8%. No groundwater or bedrock was encountered during drilling. The bore hole was terminated at a total depth of 15 feet.

Bore Hole #2 was not drilled as it was inadvertently located in the center of existing Drainfield A. As soil profiles in Bore Hole #3 and Bore Hole #1 below 5 feet, are identical, it is assumed that the soil profile in this location is similar to Bore Hole #3.

Bore Hole #3 was drilled south of Bore Hole #1 in an area designated as an alternative location for, or additional area, for proposed Drainfield A. Topsoil with a mix of silty-sands to sandy-silts was encountered to a depth of 2 feet. From 2 to 10 feet deep, material was graded as silty-sand, sandy-silt (SM/ML) to silt (ML) with silt increasing with depth. The soils in Bore hole #3 were very similar to the soils in Bore Hole #1 below 5 feet. Moisture content averaged 19.5% and no groundwater or bedrock was encountered during drilling. The bore hole was terminated at a total depth of 10.5 feet as no change in the silt was occurring below 9.5 feet in depth and it was well below any proposed drainfield trench.

Bore Hole #4 was drilled north of existing Drainfield B. Organic Silts (OL) to silty Sand (SM) were encountered to a total depth of 2 feet below the ground surface followed by silty Sands (SM) to 5 feet. Uniform soils consisting of Silts (ML) were found from 5 to 11 feet. Moisture content averaged 16.4% and no groundwater or bedrock was encountered during drilling. The bore hole was terminated at a total depth of 11 feet.

Bore Hole #5 was drilled in the proposed vicinity of proposed Drainfield B reconstruction, south and slightly east of Bore Hole #4. The surface was a light cover of grass and native soil to 2 inches in depth then gap graded semi-angular to sub-rounded, small to medium gravel was found to 2 feet in depth. As was found in Bore Hole #1, this material was determined to be imported, e.g. not native fill. Below 2 feet in depth silty-sand (SM) was encountered to 7 feet in depth changing to sandy-silt (ML) at 8 feet in depth and then changing to silt (ML) to the total depth of 10 feet below ground surface. Moisture content averaged 20.1% in the silty-sand and silt and no groundwater or bedrock was encountered during drilling. The bore hole was terminated at a total depth of 10 feet.

Bore Hole #6 was drilled in the center of the proposed location of Drainfield F. A shallow layer of organic silts (OL) was encountered to 2.5 inches then quickly changing to silty-sand (SM) which was encountered to 4 feet in depth. The silty-sand was followed by uniform silts (ML) and not changing to a total depth of 13.5 feet. The average moisture content of the silt-sand and silt was 27% and no groundwater or bedrock was encountered during drilling. The bore hole was terminated at a total depth of 13.5 feet below the ground surface.

Bore Hole #7 was to be drilled on the far western edge of Drainfield D in order to assure that we did not drill in the existing drainfield area. The bore hole was not completed as bedrock was encountered immediately after the 3 inches of topsoil. A second hole located 1 foot north and 2 feet east of Bore Hole #7 was attempted but the same lithography was found; 3 inches of topsail then bedrock. It is assumed that Drainfield D was placed on an area that had been cleared of topsoil and then imported gravel was placed in 8 foot wide trenches on top of the bedrock. The trenches are most likely shallow and there is assumed to be a significant amount of evaporation that occurs. In addition, the bedrock is highly fractured and it is assumed that effluent also infiltrates into the bedrock across the wide gravel beds.

Bore Hole #8 was drilled in the vicinity of proposed Drainfield E reconstruction. Organic Silts (OL) switching immediately to silty-sands (SM) were encountered to a depth of 1.8 feet below the ground

surface. From 1.8 feet to 3.0 feet, a silty-sand (SM) was encountered changing to silt (ML) at 3 feet. Bedrock was encountered at 3.5 feet and the bore hole was terminated. The average moisture content of the silty- sand at the surface was 19.4% and the silt at 3 feet dropped to 8.17%. No groundwater was encountered during drilling.

No groundwater was encountered in any of the bore holes and the in-situ moisture contents show that the soils are moist but not saturated. The drilling project was purposely done in the middle of May so as to be able to drill during what is assumed to be the peak or near the peak of any groundwater rise expected to occur. Therefore, as all bore holes, except those that encounter bedrock, were drilled to depths greater than 10 feet below the ground surface, the drilling was conducted during the assumed peak groundwater rise and the soil samples showed no indication of groundwater; no groundwater monitoring was implemented.

All of the native soils encountered during the geotechnical investigation that were classified as silty sands or sandy-silts were classified by ASTM standards as coarse-grained soils. Those classified as ML are classified by ASTM standards as fine grained soils. When compared to texture descriptions as used by the MDEQ and the LCEHD in Table 2.1-1, Residential soils from Circular DEQ-4, on page 19, it is the opinion of BHI that the Timbrshor soils are considered the same or very similar to the MDEQ description of sandy loam, fine sandy loam and silty loam. All of the soils described by BHI that fit this MDEQ description, and in particular those soils that would be at or near the bottom of a trench or under an elevated sand mound, is considered by MDEQ to have an effluent application rate of 0.5 gpd/ft².

Therefore, the effluent application rate used for the subsurface trenches in Drainfield A, Drainfield B and Drainfield F is 0.5 gpd/ ft^2 . Drainfield E requires the use of washed sand in an elevated sand mound and has an application rate for sand is shown by MDEQ 4, Rev 2013 as 0.8 gpd/ ft^2 with the footprint of the sand mound where it contacts the native soils considered as 0.5 gpd/ ft^2 .

3.3 Findings of the Existing Drainfield Conditions

The following is a summary of the BHI observations and investigations of the conditions of the existing drainfields and the number of existing and proposed dwellings connected to each drainfield. As previously noted, the spreadsheet detailing the information developed after assessing the site conditions is available in Appendix A of this report. Appendix C shows the site plan of the existing units, the existing drainfield sizes and the locations associated to each system with an overlay of the drainfield size required to meet the MDEQ design flows.

Drainfield A:

The full description of the existing conditions and permit compliance problems with Drainfield A is provided on page 3 of the TLI report in Appendix B. The statement of TLI was "Future field work to investigate the depth to bedrock (is necessary as).... the construction cost savings would be significant if the drainfield design changed to subsurface trenches..." Given this statement, BHI considered the insitu soils as the most important data to collect and completed the soil profiles by conducting a geotechnical investigation and soils analysis. The results of that investigation are presented in the geotechnical section above and show that Drainfield A can be constructed using subsurface trenches.

Existing Drainfield A, located southeast of the lodge along the east property line, presently receives wastewater from nine (9) dwellings with a total estimated average daily effluent flow of 2,450 gallons per day. As shown in Table 1, the original permit was for 400 gpd so the drainfield is currently receiving 2,050 gpd more than permitted.

The nine (9) existing dwellings currently connected to existing Drainfield A are on the far northeast quadrant of the Timbrshor subdivision but does not include the original Borchers Lodge, now referred to as the Lodge which uses a holding tank or the four (4) units associated to the "4-plex" which also rely on a holding tank at this time.

The final build out of Drainfield A will include the Lodge, the four (4) units associated with the "4plex" and five (5) additional units that are located in the vicinity of Drainfield A. It has been speculated that three of the units may require significant expense to develop before the total build out of 19 units is completed which indicates that it may be years before the total design wastewater flows are met. These three (3) units have been approved by Lake County with conditions and it is apparent that the conditions could eventually be met and therefore are included in the total estimated build out for this drainfield.

Drainfield B:

The full description of the existing conditions and permit compliance problems with Drainfield B is provided on page 4 of the TLI report in Appendix B. Drainfield B is located south of residential unit 311 along the south property line. The drainfield is estimated to currently receive an average of 1,325 gallons of wastewater flows per day from five (5) units and a laundry structure as shown in the Appendix A spreadsheets. As shown in Table 1, the original permit was for 550 gpd so the drainfield is currently receiving 775 gpd more than permitted.

The five (5) existing dwellings and the laundry facility are located near the center of the Timbrshor subdivision. At the total estimated build, flows will reach 1,500 gpd from the five (5) existing units. The laundry use will be discontinued following reconstruction of the drainfield. The flow increase is based on four (4) of the existing dwellings expanding to 3 bedroom units.

Drainfield C:

The full description of the existing conditions and permit compliance problems with Drainfield C is provided on page 5 of the TLI report in Appendix B. Drainfield C is located approximately 300 feet west/northwest of Drainfield B as shown on the Appendix C site plan. This drainfield encroaches into a 100 foot well protection zone for a domestic water well as shown on the site plan. It is the experience of BHI and it was confirmed in the meeting with the LCEHD and the MDEQ that, it is unlikely a deviation will be granted by the LCEHD Board as they continually challenge applicants to find "other options" and, when they are available, regardless of cost, they must be implemented. In this case, alternatives to a deviation are available which include moving the drainfield away from the well or use secondary treatment to reduce the drainfield size and remove the laterals within the well protection zone.

The existing drainfield is divided into 2 separate zones, one on either side of the access road to units 410 through 412. TLI had proposed to relocate the entire drainfield to the south, just north of the property line and assure adequate separation distance from the well. BHI has considered that option as

well as the option of excavating the ends of the laterals within 100 feet of the well, cutting them off and capping them, moving the existing access road that is on the south side of the drainfield further south and excavating the south ends in order to extend them the required distance to reestablish drainfield capacity.

Drainfield C currently receives wastewater flows from four (4) units, including double unit 403/404, 406, 409, 411, and 412 with an estimated average daily effluent load at 1,200 gpd. With an additional four (4) units planned upon complete build-out, the total wastewater flows for this system are estimated to be 2,400gpd as required by DEQ-4. The current system is designed and permitted for 2,400 gpd so the drainfield has adequate size and area to meet the standard that was in place at the time the drainfield was permitted.

Drainfield D:

The full description of the existing conditions and permit compliance problems with Drainfield D is provided on page 6 of the TLI report in Appendix B. Drainfield D is located approximately 400 feet south of Drainfield C and is located along the south property line. The initial drainfield was installed under Installation Permit #5584 for what is referred to as Phase I with construction of two of the proposed laterals. There is an associated permit, #5912, that was permitted to add a third lateral. The notes on both of the permit files made by the applicant and the LCEHD inspector show the system was designed for 1,500 gpd at total build out. That would indicate that the system is intended to take five (5) 3-bedroom units and would require four (4) laterals. The plans provided with the permit show four (4) laterals at total build out, of which three (3) are now constructed. The permit for the system is shown in the Appendix E permit files.

The local anecdotal information, in combination with the notes and information on the permit files shows that this system was installed using an unconventional design. The trenches are shown as 8 feet wide and 10 feet wide and use 34-inch wide plastic chambers over the drainfield laterals.

Drainfield E:

The full description of the existing conditions and permit compliance problems with Drainfield E is provided on page 6 of the TLI report in Appendix B. Existing Drainfield E was originally located north and east of the proposed Drainfield E site as shown on the site plan. As stated above, the existing drainfield, permitted under permit number 1001Q, failed and needs to be replaced. TLI located a site south and west of the failed drainfield location and is to be constructed just north and to the east of Drainfield D. As stated in the TLI report, the biggest issue with the location of this drainfield near to drainfield D will be obtaining a waiver for separation distance from existing multi-user systems. Ultimately, as there are no other available sites, so the deviation must be granted to allow the undeveloped units to proceed.

Drainfield E is proposed to be reconstructed to serve seven (7) units for a total wastewater flow of 2,100 gpd. Due to area availability and bedrock separation, the drainfield will need to be a sand mound system with Level II treatment.

4.0 Results

The wastewater flows determined by TLI in their Appendix A spreadsheet, were listed as the TLI Existing Flows, the TLI Design Flows and the TLI Draft Design Flows. Following review, it appears that TLI determined the existing flows based on permits but also included units that had not been developed. The Design Flows were developed to allow units to have future expansion potential and unit flows were assigned as 300 gpd regardless of the number of existing bedrooms. The Draft Design Flow was intended to reduce drainfield size by restricting the number of bedrooms to be developed and, in some cases, reduce the number of bedrooms currently constructed by assigning a flow of 250 gpm to each unit. TLI eventually decided to recommend the development of the table column labeled "Design Flows" at arbitrary flows of 300 gpd or greater stating that units will not "…be restricted by the number of bedrooms."

In all cases, it is to be understood that the size of the drainfield is directly proportional to the design flows for effluent discharged each day by each unit. The flows are to be developed from guidelines in Circular DEQ-4 Chapter 6, Section 6.1.3.1 which states "The minimum area in any absorption trench system must be based upon the flow as determined in Chapter 3 and sized by the soil type ..." Circular DEQ-4, Chapter 3, Section 3.1.2 Residential wastewater flows shows that the amount of effluent discharged by an individual lot is based on the number of bedrooms. The rule states "When the number of individual living units on a single or common absorption system is 9 or less, the following table must be used (shown below as Table 3). Sizing is based on individual living units, not collective number of bedrooms.

BHI developed design flows using Circular DEQ 4, Montana Standards for Subsurface Wastewater Treatment Systems, 2013 Edition, Chapter 3, Wastewater, 3.1.2 "Residential Wastewater Flows" based on the number of bedrooms existing or proposed as shown in Table 3 below.

Number of Bedrooms Per Dwelling Unit	Average Daily Wastewater Flows (gallons per day)
1 bedroom	150 gpd
2 bedrooms	225 gpd
3 bedrooms	300 gpd
4 bedrooms	350 gpd
5 bedrooms	400 gpd
Each additional bedroom	add 50 gpd

Table 3: Circular DEQ-4 Design Wastewater Flows for Single Family Residential Units

If flows are not based on MDEQ design flows, as proposed by TLI, the project will require deviations from this standard. It has been the experience of BHI that the LCEHD does not readily adopt or approve standard MDEQ deviations; in particular when they determine that there are "other alternatives". In this case, it is our opinion and experience that Lake County will require that either drainfields must be designed to meet the MDEQ flows in the locations available or, if area is limited, they have another alternative which is to get a 50% drainfield size reduction by using secondary, or Level II treatment to reduce drainfield sizes.

Although it is understood that secondary, or Level II treatment, has a significant upfront expense as well as regulated long term operation and maintenance, it is our opinion the LCEHD does not recognize "significant upfront expense" as a reason to grant a deviation. Therefore BHI adopted the MDEQ design flows and will propose to use secondary, or Level II treatment to reduce drainfields sizes when area restrictions make it necessary. It is to be noted that adoption of the design flow based on the existing or proposed number of bedrooms will restrict units to that which is allocated with the

exception of those units connected to Drainfield A. Due to a recent change in DEQ design criteria for drainfields with more than 10 connections, Drainfield A units are not limited by the number of bedrooms.

Lastly, it was discussed with the THOA that average daily flows that exceeded 5,000 gpd will require that the THOA obtain an MDEQ groundwater discharge permit. The following is information from the MDEQ about the Montana Ground Water Pollution Control System (MGWPCS) permits.

The Ground Water Program of the MDEQ Water Protection Bureau (WPB) administers a program that issues Montana Ground Water Pollution Control System (MGWPCS) permits to the owners or operators of potential sources of pollution to state ground waters. Permits are issued for a period of five years and all permits contain operating stipulations. Permit stipulations place conditions on how a discharge source is operated or managed in order to prevent the placement of wastes where they will likely cause degradation of state waters. MGWPCS permits are subject to compliance monitoring (which is) accomplished by reviewing and analyzing Discharge Monitoring Reports (DMR's) and conducting Compliance Evaluation Inspections (CEI's).

BHI has experience in obtaining and monitoring for MGWPCS permits and, although it is feasible to obtain a permit, BHI has recommended that the THOA do everything possible to avoid flows greater than 5,000 gpd for any drainfield. It is the opinion of BHI that the two- year time frame required to gather the data and obtain the discharge permit combined with the short term and long term MGWPCS permit requirements would be more costly, both upfront and in the long term, than the THOA has indicated they are willing to afford.

Therefore, it was important to assure that Drainfield A have flows less than 5,000 gpd. The design flow of TLI that allowed for future development that was greater than 5,000 gpd was to assure that "...units connected to System A will not be restricted by the amount of bedrooms". The BHI flows are based on revised Circular DEQ-4 rev 2013, which states a system with greater than 10 units can apply a 100 gpd/person with a 2.5 persons per unit assumption or each unit has a design flow of 250 gpd regardless of the number of bedrooms. This decreases the flow per unit from 300gpd as projected by TLI to 250gpd and allows more units to be served by the drainfield without exceeding the 5,000 gpd threshold.

The total BHI Design Flows from the spreadsheets in Appendix A and the results of the geotechnical investigation showing a 0.5 gpd/ft² application rate assumption were used to determine the size of each drainfield. The design assumes that the standard drainfield is a subsurface drainfield trench system with three (3) feet wide trenches and four (4) feet of separation between the trenches. When the size of the land available at each location was less than required for a standard drainfield, leaching chambers or secondary/Level II treatment was used to reduce drainfield sizes by up to 50%. When depth to bedrock is encountered, an elevated sand mound is required and the size is based on an application rate of 0.8 gpd/ ft².

The results of the preliminary drainfield sizing calculations are shown in Table 4 below.

Drain	DEQ4	Units	Required	Available	Total		Num	LF of	Comment
field	Design	per	absorption	Area (sf)	Area	Drainfield	ber of	Standard	
	Flows	System	Area		Required	Туре	Zones	Trench/	
					(sf)	• 1		Number	
								of	
								Laterals	
Α	4,750	19	9,500	28,800	11,220	Level II	2	1,584 ft.	Level II for 50%
			0.5gpd/sf					16-99 ft.	size reduction
								laterals	
В	1,500	5	3,000	5,760	5,099		1	750 ft.	Insufficient Area,
			0.5gpd/sf					9-84 ft.	subsurface
			01					laterals	trenches and
						Leaching			chambers for 25%
						Chambers			size reduction.
С	2,400	8	4,800	11,525	11,124	Standard	2	1,600 ft.	Adequate size,
	·		,	*	,			16-100 ft.	need separation
								laterals	from neighboring
									well
D*	1,500	5	2,400	8,585	2,400	Experimental	1	300 ft. of	Use existing
					-	1		8 ft. and	drainfield to limits
								10 ft.	of permit, add
								wide	lateral.
								gravel	
								beds	
Е	2,100	7	1,313	3,520	2,712	Sand Mound	1	440 ft.	Sand mound for
			0.8gpd/sf	-	-	Level II		4-110 ft.	bedrock
			01					laterals	separation and
									Level II for 50%
									size reduction
F	950	3	1,900	5,000	4,142	Standard	1	636 ft.	
			0.5gpd/sf	·	· ·			6-106 ft.	
			01					laterals	

Table 4:	BHI	Drainfield	Rea	uirements
		Diaminua	AUG	an chickey

In accordance with the State of Montana Department of Environmental Quality, "How to Perform a Non-degradation Analysis (nondeg) for Subsurface Wastewater Treatment System (SWTS), March 2013 1.0 General Information, 1.3 New or Increased Source, TLI has previously conducted nondeg Nitrate Sensitivity Analysis and Phosphorous Breakthrough Analysis for the proposed build-out of primary drainfields A, B, C and D and the results are contained in Appendix B of this report. While the TLI analysis assigned a greater number of units to each drainfield, all results fell within the criteria set forth by the State of Montana and as such is considered conservative with respect to the BHI proposed drainfields. No analysis was conducted on the proposed Drainfield E and F. These drainfields will require a nondeg analysis to be performed prior to their construction.

5.0 Recommended Design

Drainfield A:

The results of the geotechnical investigation showed that the soils and depth to bedrock are suitable for a standard drainfield with subsurface trenches. As shown in Table 4 above, BHI is recommending with direction from the THOA Board that Drainfield A be reconstructed as a standard Level II drainfield with gravel lined subsurface trenches requiring 16-99 foot laterals. The drainfield would be divided into

two zones with 8 laterals in each zone. The drainfield would serve 19 units and with the sizing reduction, allow maximum continued use of the area for parking, boat storage and other needs.

Drainfield construction would result in a standard drainfield with gravel lined subsurface trenches, level II treatment with a 3,000 gallon recirculation tank, two (2) AdvanTex Ax100 trickling filter pods, a community dose tank and a duplex pump package, associated alarms and controls that will pump the secondary treated effluent to the drainfield.

In the TLI report, it was proposed to relocate and expand Drainfield A just north of its current location in order to accommodate future additional flows. BHI agrees with this course of action although the initial findings of the geotechnical investigation showed that there was a layer of imported fill, i.e., 1 ¹/₂ inch minus round rock that was obviously not native. After discussions with the LCEHD and the MDEQ, it was determined that the reconstruction of this drainfield would be considered as a replacement drainfield and therefore, by County regulation and State regulation, a replacement drainfield can be placed in fill material and thus BHI concurs with the TLI report and is in agreement with placing Drainfield A in the area of the existing drainfield.

Drainfield A has sufficient area to allow for standard trench design without modification or secondary treatment, but the area required for the standard system took up more space than the THOA desired. One of the concerns with this drainfield is that it is used for parking and winter storage and the THOA would like to continue that use as much as possible which is the reason for going to Level II treatment. At the time of this report, as can be seen in the Appendix C site plan, with Level II treatment, the two zones of this drainfield allows for continued, although reduced, use of the area.

There has been a discussion about using the existing drainfield as one of the zones as it was permitted for 400 gpd. This would require expanding the drainfield to accept at least 2,375 gpd and still have to construct an additional zone adjacent to the existing drainfield. The feasibility of this was not considered in this proposal and costs shown in Section 6 below are based on abandoning the existing drainfield in place (excavated, removed and filled) and construction the new drainfield in the new fill, the old fill to the north and the native soils to the south.

Drainfield B:

In the original design report, TLI had proposed to expand or reconstruct the existing Drainfield B in its current location. BHI agrees with this assumption but notes that the proposed size of the drainfield will not fit in the area designated for this drainfield at the flows calculated by BHI. BHI determined that this system can be constructed with traditional subsurface absorption trenches but it will require the use of leaching chambers to obtain a 25% size reduction which will allow for the drainfield to be constructed in the area designated with some driveway modification but without Level II treatment.

It is also noted in the TLI report and as was observed by BHI, that there is a small laundry building that is alleged to have a small drainfield or leach pit that discharges the wash wastewater. It was recommended by TLI that this laundry and associated drainfield be abandoned. Following discussion with the THOA, the laundry use has been removed from the design calculations as it was agreed to discontinue the laundry use.

As shown in Table 4 above, BHI is recommending that Drainfield B use subsurface trenches with leaching chambers requiring 9- 84 foot laterals. There will be a 2,000 gallon collection tank and a

1,500 gallon dose tank that will contain a pump package, associated alarms and controls that will pump the effluent to the drainfield.

The BHI geotechnical investigation showed that there was a layer of imported fill, i.e., 1 ¹/₂ inch minus round rock that was obviously not native. After discussions with the LCEHD and the MDEQ, it was determined that the reconstruction of this drainfield would be considered as a replacement drainfield and therefore, by County regulation and State regulation, a replacement drainfield can be placed in fill material and BHI recommends placing the new Drainfield B in the area currently used for existing Drainfield B.

According to the LCEHD permit in Appendix E, there is an existing 3,700 gallon septic tank and dose chamber. Depending on the condition of the tank it may be able to be used as the recirculation tank. It is likely the existing pumps will need to be replaced. If they are in working condition there may be a small salvage value. The BHI design for this drainfield assumes that existing trenches, septic tank, and pumps will be abandoned in place and that there is no salvage value.

Drainfield C:

Following a preliminary discussion with the LCEHD, it is unlikely that the LCEHD will grant a deviation from the well separation distance as it is their opinion that there are alternatives to the deviation, i.e., secondary treatment and drainfield relocations. Secondary treatment will not be required but partial drainfield relocation will be. This design assumes that the MDEQ and Lake County will allow the drainfield to be partially reconstructed and no additional replacement area is required.

The initial issue with this drainfield is adequate separation from an existing domestic water supply well. Review of the current location and most probable size of the two (2) existing drainfield zones shows that there is approximately 5,500 ft² of drainfield area. The BHI soils investigation shows that the soil type and estimated soil absorption rate will require 10, 800 ft² of absorption area, or approximately twice the existing area to meet current design standards. The system is currently permitted for the correct flow rate, 2,400 gpd based on the soil absorption rate used at that time; therefore it is the opinion of BHI that the permit request to LCEHD will be to move the access road to the south boundary, cut, cap and remove the laterals that are inside the well protection zone and add the cut off lateral lengths to the south end of the drainfield equal to the length removed.

If the LCEHD determines that the drainfield modifications require MDEQ review then the additional drainfield area and lateral length will be required. The BHI design and cost analysis assumes that the drainfield can be partially reconstructed by moving sections of the lateral to meet well setback regulations.

Drainfield D:

This drainfield currently serves a double unit (418/419) and a single family unit (428) for a total of 600 gpd. The lateral for future unit 430 was already constructed under permit 5854 but has not been utilized to date. Units 426 and 427 have been allocated to be added to the system and with unit 430; the total number of units on Drainfield D will be five (5). It has been determined that the total wastewater flow to drainfield D at complete build-out will be the permitted 1,500 gpd and this number agrees with the minimum design flows as required by DEQ4.

BHI recommends that the last lateral in Drainfield D be submitted for permitting as discussed above and should be constructed as soon as is possible to bring the total capacity up to five (5), three bedroom units.

Drainfield E:

As discussed in the geotechnical section above, the close proximity of bedrock will require that this system be constructed as an elevated sand mound to gain the required four (4) feet of separation between the bottom of the drainfield trenches and the top of bedrock. In addition, the location determined to be utilized for Drainfield E does not have enough area for a full size sand mound and therefore secondary, or Level II, treatment will be required to obtain a 50% reduction in drainfield size. As previously stated, Drainfield E has not had a nondeg analysis competed and this will be required prior to completion of the field.

Drainfield E will be one of the most expensive drainfields to construct because it requires both an elevated sand mound and secondary, or Level II treatment.

Drainfield E, as shown in Table 4 above, will be designed to serve seven (7) units. The Level II sand mound drainfield would consist of 4-110 foot laterals in 1 zone and include a 3,000 gallon recirculation tank that will receive the effluent from the individual users, one AdvanTex Ax100 trickling filter pod, a community dose tank that will contain a duplex pump package, associated alarms and controls that will pump the secondary treated effluent to the drainfield.

Drainfield F:

Drainfield F is a proposed standard gravel lined trench drainfield to serve units 317,318 and 320. The drainfield will consist of 6-106 foot laterals. There will be a 2,000 gallon collection tank and a 1,000 gallon dose tank that will contain a pump package, associated alarms and controls that will pump the treated effluent to the drainfield. The drainfield is proposed to be placed south of existing Drainfield C. It is possible that this drainfield may need to be made larger to accommodate one more unit.

Drainfield F would be considered a new drainfield and would require either a 100% replacement area or a waiver of the requirement allowing for reconstruction of the drainfield in place, if it should ever fail. Also Drainfield F has not had a nondeg analysis competed and this will be required prior to completion of the field design.

6.0 Cost Analysis

A complete analysis of costs including the individual drainfield components and the estimated quantities are provided in Appendix F. A summary of the projected costs for each system and the estimated cost per unit is shown in Table 5 below.

Drainfield	Description	Units	Cost	Cost/Unit
Α	Level II	19	\$186,026	\$9,791
В	Standard w/ Chambers	5	\$54,156	\$10,831
С	Gain Well Separation	8	\$9,178	\$1,147
D	Complete as designed	5	\$20,204	\$6,735*
Ε	Sand mound/Level II	7	\$109,145	\$15,592
F	Standard Trenches	3	\$33,733	\$11,258
Total		47	\$412,482	\$8,776

Table 5: BHI Cost Summary

*Cost would be \$10,102 for each new user.

7.0 Conclusions

Drainfield A can be constructed using standard drainfield construction and subsurface drainfield trenches; however, secondary treatment was chosen to save space in the storage/parking/boatyard. The reconstruction of Drainfield A will be typical construction involving common excavation, importing and placing gravel, placing the pressure dosed laterals in the drain field trenches, installing a 3,000 gallon recirculation tank, two (2) Ax100 trickling filter pods and a 3,000 gallon dose tank with duplex pumps, the standard pump controls and liquid level alarms and final backfill and site grading.

It is to be noted that the construction of Drainfield A, regardless of its placement in the designated area, will result in a reduction in useable parking area. It would not be possible to determine the exact parking area remaining until final drainfield design is completed but it is reasonable to assume that at least some space will be available for each of the 48 units in the subdivision. Parking to the north will be available near the old garage slab as well as south of the proposed drainfield area. Needless to say, a full parking plan, with full unit owner agreement, will need to be developed during final design that should include a specific area for each unit.

BHI has determined that Drainfield B can also be constructed using standard drainfield construction and subsurface drainfield trenches with leaching chambers which allows for a savings in required drainfield area. This drainfield will require chambers to obtain a 25% reduction in drainfield size as the area for development of a drainfield to meet current design flows is limited. Even with the 25% size reduction, some driveway work will be needed to allow the drainfield to fit in the designated area. The small laundry building that is alleged to have a small drainfield or leach pit that discharges the wash wastewater is not included in the design drainfield as it was agreed to abandon its use by the THOA.

BHI recommends that Drainfield C be submitted as a permit through the LCEHD to cut off the drainfield laterals that encroach into the well protection zone and excavate and expose the ends of the laterals on the south and extend them a distance equal to that removed on the north end. If the permit is denied by the LCEHD, it can be appealed to the LCEHD Board and a more sympathetic ear may allow the permit as the cost savings is significant enough to warrant the appeal attempt. Should approval for partial reconstruction be denied, full drainfield reconstruction will be required.

It is the opinion of BHI that Drainfield D should be submitted to the LCEHD as an installation permit and request that it be permitted as designed. When completed, Drainfield D will accommodate the two existing units that use the system, one built unit that already has a share, and two additional units. Drainfield E can be constructed, but it will require Level II treatment and a sand mound drainfield to fit in the location selected. The drainfield is proposed to serve seven (7) units, of which two are currently developed. This drainfield will be constructed to replace the failed drainfield to the north and east of the proposed drainfield.

Drainfield F is recommended to serve units 317, 318 and 320. The construction of this drainfield allows Drainfield C to remain at its currently permitted flow of 2,400 gpd and the potential option to correct well spacing by modifying the laterals that encroach into the domestic well isolation zone. Drainfield F also assures that Drainfield B can be constructed in its current location without the use of Level II treatment to reduce the drainfield size to fit the area. The drainfield will be considered new construction and will require either a replacement area or a deviation to reconstruct the drainfield inplace should it ever fail.

The cost per unit within an individual drainfield, as presented above, shows that the cost per unit is relatively close, but is not equal. The present cost analysis was completed as directed by the THOA board based on the past practice that each user/group pays for its own expenses.

BHI has presented a second funding approach that would allow the THOA to allocate and collect the total Timbrshor expenses as a percentage based on the number of bedrooms divided by the total number of bedrooms in the entire subdivision. It is our opinion that this would allocate the funds on as equal a basis as is possible. In addition, the THOA would distribute operation and maintenance expenses using the same formula and collect and manage those funds.

BHI has noted that there is additional expense associated to managing five separate projects with five different drainfield systems. In addition, as discussed by TLI, there is an increased construction oversight expense if the projects are managed separately. It is the conclusion of BHI that, for now, the most reasonable means to assure cooperation and participation in the process is to develop five separate user groups. These funding options can be discussed by the homeowners and a suitable plan for sharing the costs of drainfield construction can be decided upon before final design moves forward.

The conclusions presented above and the discussion of the costs and funding must be discussed by the THOA and these discussions must result in an action to be taken if any of the future units are to be developed. As previously discussed, the current LCEHD injunction has been in place since June of 2007. It will take at least six months to a year to complete all of the construction which means if a decision is made this fall, the LCEHD injunction could be lifted and construction could start in the spring or fall of 2015 and be completed in the spring of 2016.

Even if the funding is raised within the individual drainfields, permitting would take the rest of the summer and construction would likely commence the spring of 2015 and could not be completed before the fall of 2015. It also bears mentioning that BHI has had experience working with seasonal homes and it is rarely a welcome site when your summer is disrupted by construction which may limit some of the larger projects until the fall and early spring season; much like irrigation or dam projects. Therefore we encourage the THOA to continue to move forward as quickly as is possible.

There are several other components that BHI has determined that the LCEHD and the MDEQ will require that the THOA will likely need to accomplish or subcontract to be completed. The more complicated is the Drainfield and Maintenance Cost Sharing Agreements (Agreements) and the secondary treatment Deed restrictions. A generic copy of an Agreement and the standard LCEHD

Deed restriction are supplied in Appendix G to this report. The Agreements are required to identify the parties, address all of the potential duties and responsibilities, grant necessary permissions or easements and allocate expenses and the means of collection. BHI has experience developing agreements that meet LCEHD requirements and finds that they are not complicated but will require time to develop as there are several iterations between parties and the document must be reviewed by an attorney, reviewed again by the parties, signatures obtained and the agreements filed with the County Clerk and Recorder. As shown in Appendix G, the deed restrictions are signed by each of the individual unit owners and require that they and any successors agree to continually use secondary treatment and agree to hire a person certified to operate and maintain secondary treatment systems in Lake County.

In considering documents to be developed, it is also important to resolve which parties will be the manager(s) of this system once complete and thus the signatory to these documents; the THOA or the T/LCWSD. It is the opinion of BHI that the THOA should be the manager of the design and construction of the system but the T/LCWSD should be manager of the project once complete as they have the ability to apply for and receive funding, manage the accounts of the project and collect revenue through the Lake County tax assessments.

There have been several discussions within the TLI report and with BHI, the THOA, the LCEHD and MDEQ that the final outcome of this process will be to rewrite the original conditions of subdivision approval (COSA) to correctly reflect the changes from a single community drainfield to six (6) individual drainfields. The original COSA was supplied in Appendix B of the TLI report, which is contained in Appendix B to this report, and the documents reference to the wastewater treatment system and drainfield can be seen on page one and page two of the referenced appendix. Typically, the data required by the MDEQ to meet the requirements to get the original COSA changed are supplied in the MDEQ Subdivision Review Joint Application Form and Local Government Joint Application Form Parts I, II, III, IV, and Checklist. A copy of the form is provided in Appendix H to this report.

As can be seen, the MDEQ Joint Application form is lengthy, requires a significant number of submittals and many issues not related to the wastewater system are often "discovered" in the process; in particular legal access to the existing water supplies or identification of any new water supplies. This concern was discussed with the LCEHD and the MDEQ and it was stated that given the age of the existing developed properties, because of the uncertainty of water development issues associated with land inside the boundaries of the Confederated Salish and Kootenai reservation, it would need to be recognized that legal access to water is neither solvable nor enforceable and therefore would not need to be addressed in the COSA rewrite.

It is to be noted that this statement concerning water supply is assumed to only be true for existing units and it may not be true for future units. Current discussion with the LCEHD shows that it is more likely than not that by identifying which drainfield a new unit might connect to, new units will be required to, at a minimum, identify the source of their water; i.e. the place where it will be diverted. They could also require the means by which it will be diverted (pump type) and location and size of the pipeline. This information is likely to be required by the LCEHD not only to identify that there is a water source for each new unit but to also assure that any proposed pipeline and distribution system, or if a well locations if they were to be proposed as a water source, it is adequately separated from the components of the wastewater system.

The last issue to be resolved in order to complete and determine the feasibility of this project will be decisions about the main sewer lines that feed the drainfields and the need for and means to replace

individual septic tanks in order to assure they can deliver their effluent to the common collection tanks. The scope of work will be to determine if the THOA wants to leave the main line investigation project to the individuals or the group of individuals associated to a particular drainfield and if they want the individuals to be responsible for their own septic tanks or should the THOA include them in the overall project.

It should be noted that any construction of a multi-user main line will require the design of a professional engineer and approval from the MDEQ. The individual unit owners will be able to retrofit their septic tanks or install new tanks and pumps without a professional engineer but will likely need the assistance of an engineer or a county sanitarian to obtain the necessary permits.

It is the conclusion of BHI that the project proposed is feasible and that it will resolve the wastewater treatment issues for the subdivision. The system will be designed to the most modern equipment, material and construction techniques and will be nearly new. Once complete, each system will have a design life of 10 years for the pumps in the system and 25 years for the drainfields, tanks and buried plumbing.

APPENDIX A

BHI SPREADSHEET OF DEVELOPED AND YET TO BE DEVELOPED UNITS

4750	5450	55	4175	37		19	Totals
250	300	3	300	3	Estvold	305	А
250	225	2	225	2	Rountree	302	А
250	300	Э	300	ß	Karpstein	301	А
250	225	2	225	2	Johnson/Cole	309	Α
250	225	2	225	2	Novinski	308	А
250	225	2	225	2	Payson	307	А
250	225	2	225	2	Selvig	306	А
250	350	4	350	4	Rose	Lodge	А
250	225	2	0	0	Borchers-Michione	219	А
250	300	3	0	0	Borchers, Alice	217	А
250	300	3	0	0	Borchers, Alice	216	А
250	300	3	150	1	Fordahl	211	А
250	300	3	225	2	Schwank	210	А
250	350	4	350	3+loft	Peterson	209	А
250	300	3	300	3	Walters	206	А
250	400	5	400	5	Rotondi	205	А
250	00E	3	225	2	Swindlehurst	204	А
250	00E	3	225	2	Acher	203	А
250	300	3	225	2	Rose/McFadden/O'Connor	201	А
Connections	Flows	Bdrms	Flows	#Bdrms	Owner	Unit#	Area
DEQ Flows following 10	THOA Design	Design #	Existing	Existing			
					PROPOSED SYSTEM A	Title:	
uate: Revised				OINC	TTTTDE AUTION BOTCHET S AU FINIEY P T.58.1 KMH/DAN	Project#: By:	
		INC.	RMAN,	AFFEI	BILLMAYER & H	BH	
	Date: Revised DEQ Flows following 10 Connections 250 250 250 250 250 250 250 250 250 250	Date: Revised THOA Revised THOA DEQ Flows 000 250 300 250 225 250 300 225 225 250 300 225 225 250 300 225 225 250 300 225 300 225 300 225 300 225	NAC. Each and a mathematical partial p	Date:: Bate:: Bate:: Bate:: Revised Date:: Revised THOA Flows Flows Flows Flows Flows Connections 225 3 300 250 225 3 300 250 225 3 300 250 225 3 300 250 300 5 400 250 320 3 300 250 225 3 300 250 300 3 300 250 150 3 300 250 150 3 300 250 150 3 300 250 150 3 300 250 150 3 300 250 150 3 300 250 150 3 225 250 225 2 225 250 225 2 225 250 300 3 300 250 225 2 2 250 300 3 3<	AFFERMAN, INC. oint Existing Exis	BILLMAYER MATHARMAN, INC. Timbrshor/Borcher's at Finley Point Timbrshor/Borcher's at Finley Point Timbrshor/Borcher's at Finley Point T.3. T.3. T.3. Date: T.3. Patter: Patter: Risting Existing Existing	Mile Distribution Distribution Project: Timbrshor/Borcher's at Finley Point: Project: Project: Timbrshor/Borcher's at Finley Point: Project: Project: T.S.1 Propect: Project: T.S.1 Propect: Project: T.S.1 Propect: Print: ProPOSED SYSTEM A Propect: Title: ProPOSED SYSTEM A ProPOSED System A Display ProPOSED System A

	BH	BILLMAYER & F	IAFFE	RMAD	V, INC.			
	Project: Project#: Bv:	Timbrshor/Borcher's at Finley F T.58.1 KMH/DAN	oint				Date: Revised	2/27/2014 6/5/2014
	Title:	PROPOSED SYSTEM B						
						THOA	DEQ Flows	Statu(D=developed-
			Existing	Existing	Design #	Design	following 10	#bdrms ND = not
Area	Unit#	Owner	#Bdrms	Flows	Bdrms	Flows	Connections	developed)
В	311	Tillinghast	2+Loft	300	3	300		D-2.5
В	312	Long	3	300	3	300		D-3
В	314	Brooke-Lewis	2	225	3	300		D-2
В	315	Freireaband	2	225	3	300		D-2
В	316	Ammonns-Isbell	2	225	3	300		D-2
В	Laundry	ТНОА		50		0		No Longer Used
Total Units	S		12	1325	15	1500		

FFERMAN, INC.	Date: 2/27/2014	Revised 6/5/2014			THOA DEQ Flows Status(D=developed-	Existing Design # Design following 10 #bdrms ND = not	Elows Bdrms Flows Connections developed)	0 3 300 ND	300 3 300 D-3	0 3 300 ND	300 3 300 D-3	0 3 300 ND	300 3 300 D-3	300 3 300 D-3	0 3 300 ND	1200 24 2400
BILLMAYER &		Timbrshor/Borcher's at Finley	T.58.1 KMH/DAN	PROPOSED SYSTEM C			Owner	Cobb	Armstrong	Carraway	Roy	Sand	Mead	Сох	McCarthy	
BH		Project:	Project#: ⁻ Bv:	Title:			Unit#	403/404	406	408	409	410	411	412	414	8
							Area	C	J	С	С	С	J	J	С	Total Units

	BH	BILLMAYER & F	IAFF	ERMAI	N, INC.			
	Project:	Timbrshor/Borcher's at Finley P	oint				Date: Revised	2/27/2014 6/5/2014
	Project#: By:	L.36.1 KMH/DAN						
	Title:	PROPOSED SYSTEM D						
						THOA	DEQ Flows	Status(D=developed-
			Existing	Existing	Design #	Design	following 10	#bdrms ND = not
Area	Unit#	Owner	#Bdrms	Flows	Bdrms	Flows	Connections	developed)
D	418/419	Cobb	3	300	3	300		D-3
D	426	Borchers-Bill	0	0	3	300		ND
D	427	Maxwell	0	0	3	300		ND
D	428	Rys-Sikora	3	300	3	300		D-3
D	430	Rys-Sikora	0	0	3	300		ND
Total Units	5		9	600	15	1500		

	2/27/2014 6/5/2014		lows Status(D=developed-	ing 10 #bdrms ND = not	ctions developed)	DN	DN	DN	DN	DN	D-3	D-3	
	Date: Revised		A DEQF	in followi	S Connec								
			тно/	Desig	Flow	300	300	300	300	300	300	300	2100
N, INC.				Design #	Bdrms	3	3	3	3	3	m	3	21
ERMA				Existing	Flows	0	0	0	0	0	300	300	600
HAFF	oint			Existing	#Bdrms	0	0	0	0	0	m	3	9
BILLMAYER & I	Timbrshor/Borcher's at Finley F T.58.1	PROPOSED SYSTEM E			Owner	Puckett	nosnhol	uosuųor	nosnhol	Borchers-Alice	Johnson **	Manning**	
BH	Project: Project#:	ру. Title:			Unit#	417	421	422	424	429	401	402	7
					Area	ш	ш	ш	ш	ш	ш	ш	Total Units

	BH	BILLMAYER & HA	FFER	MAN, I	NC.			
							Date:	2/27/2014
	Project:	Timbrshor/Borcher's at Finley P	aint				Revised	6/5/2014
	Project#:	T.58.1						
	By:	KMH/DAN						
	Title:	PROPOSED SYSTEM F						
						THOA	DEQ Flows	Status(D=developed-
			Existing	Existing	Design #	Design	following 10	#bdrms ND = not
Area	Unit#	Owner	#Bdrms	Flows	Bdrms	Flows	Connections	developed)
Ł	317	McCarthy	4	350	4	350		D-4
Ł	318	McCarthy	0	0	3	300		ND
F	320	McCarthy	0	0	3	300		ND
Total Units	3		4	350	10	950		

	n this list represent the units that are being included in the planning for wastewater treatment. Units 202,	nd 425 are sites located within the development but are not included on this list as they are currently	er as "Not to be developed."	ped	eloped to Date	wn Permit	ents year permitted or completed or both	01/402 were associated to Drainfield E, Permit 1001Q which failed. By permit 7440, they are allowed to be served	lding tank while waiting for permission to connect to Drainfield E.	
47	no nwor), 423, ai	levelope	Develog	Not Dve	No Kno	Represe	Units 40	by a hol	
TOTAL UNITS	VOTE: The units sl	119, 413, 416, 420	dentified by the d	٥	QN	ΝΡ	ΥR	**		

APPENDIX B

TLI FEASIBILITY REPORT ON THE BORCHERS OF FINLEY POINT CONDOMINIUM SUBDIVISION WASTEWATER TREATMENT SYSTEM IMPROVEMENTS



December 15, 2012

Bob Fischer, PE Montana Department of Natural Resources and Conservation Resource Development Bureau PO Box 201601 Helena, MT 59601

RE: DNRC Project Planning Grant Timbrshor Lake County Water and Sewer District Technical Study for Wastewater System Improvements Agreement Number RPG-12-0317

Dear Bob:

Please find enclosed with this letter a final report of the Technical Presentation of Feasibility Study prepared in accordance with the DNRC Project Planning Grant for the Timbrshor Lake County Water and Sewer District (District). Based on your comments, alternatives and associated information are included in this final report. Territorial-Landworks, Inc. is submitting this final report on behalf of the District.

Please contact me at (406) 721-2891 or andys@territoriallandworks.com if you have any questions.

Sincerely, Territorial-Landworks, Inc.

Andy Short, R.S. Managing Partner

Enclosures: Technical Presentation of Feasibility Study

C. File (w/ enclosures) Sue Roy (w/ enclosures) Tom Cox (w/ enclosures)

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TECHNICAL PRESENTATION OF FEASIBILITY STUDY

PREPARED IN ACCORDANCE WITH THE DNRC PROJECT PLANNING GRANT

For

BORCHERS OF FINLEY POINT CONDOMINIUM SUBDIVISION WASTEWATER SYSTEM IMPROVEMENTS

Located at Borchers of Finley Point, Lot 3, Section 7, Township 23 North, Range 19 West, P.M.M. Lake County, Montana

Prepared for:

Timbrshor Homeowners Association Tom Cox, President 30351 Osprey Lane Polson, MT 59860

&

Timbrshor/Lake County Water and Sewer District Sue Roy, President 541 Evans Avenue Missoula, MT 59801

> Prepared by: Territorial-Landworks, Inc. P.O. Box 3851 Missoula, MT 59806 (406) 721-0142

December 15, 2012 TLI Project No. 11-2760

TECHNICAL PRESENTATION OF FEASIBILITY STUDY

PREPARED IN ACCORDANCE WITH THE DNRC PROJECT PLANNING GRANT

For

TIMBRSHOR WASTEWATER SYSTEM IMPROVEMENTS

Located in

Borchers of Finley Point, Lot 3, Section 7, Township 23 North, Range 19 West, P.M.M. Lake County, Montana

Prepared For:

Timbrshor Homeowners Association & Timbrshor/Lake County Water and Sewer District Prepared By: Territorial-Landworks, Inc. P.O. Box 3851 Missoula, MT 59806

CHAPTER 1. PROJECT IDENTIFICATION

The project is located on Finley Point, Flathead Lake, near Polson, Montana. Specifically the property is described as Borchers of Finley Point, Lot 3, Section 7, Township 23 North, Range 19 West, P.M.M., Lake County, Montana. Geocode 15335107202010000. Tax ID 0000002264. Latitude 47.7709, Longitude -114.0878.

CHAPTER 2. PROJECT HISTORY

The Borchers of Finley Point is a condominium subdivision that has been in existence since the early nineteen seventies. In 1977 the sanitary facilities for the fifty unit residential condominium subdivision was reviewed and approved by the Montana Department of Health and Environmental Sciences (now the Montana Department of Environmental Quality – MDEQ) under the Sanitation in Subdivision Act. The sanitation approval allowed for a Community Sewer and Community Water System. For the last forty years, the property has been developed with residential dwellings. However, since that time the community sewer system was never constructed as originally proposed and approved. The Lake County Environmental Health Department (LCEH) did issue permits and provide compliance inspections during this time but the permits issued were not in conformance with the approved sanitary facilities. The result is a menagerie of nonconforming septic systems built for the residences near the shores of Flathead Lake. To address the county Water and Sewer District in the Fall of 2009. The majority of the existing septic systems are in violation of the existing Certificate of Subdivision Plat Approval (COSA) according to the attached documentation from the MDEQ and the LCEH. The following is a brief list of compliance issues that exist within the district:

A LCEH permitted septic holding tank serves one of the first residential dwellings built on the property. The holding tank is permitted as a temporary solution. The LCEH is requiring that this holding tank be replaced with a permanent septic system as part of the overall solution to the sewer issues within the District.

A permitted multiuser drainfield serving multiple residences is not adequately sized for the use. Also, the drainfield for this system was within a parking area and was frequently driven over for many years, which is a violation of MDEQ Circular 4. The area is currently being protected from vehicular traffic.

A permitted multiuser drainfield (constructed in 1958) that serves a four-plex is located within 30 feet of Flathead Lake. MDEQ Circular 4 requires a minimum 100 foot setback to high quality surface water. Although not required at the time of permitting, it is likely that the discharge from this drainfield may not meet the Non-degradation requirements as set forth in the Water Quality Act. However, this technical

evaluation and subsequent remediation work would endeavor to adhere to the Non-degradation requirements.

A third permitted multiuser drainfield (constructed in 1970) is suspected to be installed at a depth of 5.5 feet. The depth of this drainfield should be verified by field investigations. The drainfield is also located within a parking area and is not protected from vehicle traffic. This sewer system has a history of a broken force main which has required expensive repairs. The location and depth of the drainfield is in violation of MDEQ Circular 4.

Two older cabins within the District are served by a holding tank that must be pumped frequently. As stated above, the holding tanks permitted in the District are a temporary solution and must be upgraded according to Lake County.

Although permitted by the LCEH, a drainfield is located within the 100 foot radius of an existing individual drinking water well.

Three dwellings are served by either a seepage pit or drainfield for which a Lake County permit has not been located. It is unclear at this time if a permit was sought or issued.

The LCEH allowed the existing sewer systems to be installed haphazardly and retrofitted to try and meet the current demand. There are inadequate records on actual locations and size (capacity) of the sewer facilities within the District. It is thought that the majority of the sewer systems are installed in bedrock which is not acceptable for onsite sewage disposal. Adding to the complication of the haphazard sewer system locations is the fact that the majority of the property owners use Flathead Lake as their sole drinking water source. Some of the existing sewer facilities are installed in bedrock within 30 feet of this drinking water source. It is the District's goal to upgrade these systems so that they meet current regulations and are properly constructed within the available suitable soils located on the property.

The supporting documents of the above compliance issues are attached in Appendix B.

CHAPTER 3. PROJECT PURPOSE

The project purpose is to complete a preliminary feasibility and general plan for regulatory compliance of the existing and proposed sewer service for the Borchers of Finley Point Condominium Subdivision. The majority of the sewer systems within the Timbrshor/Lake County Water and Sewer District (District) are currently out of compliance with State and County regulations. These systems are aging, nonconforming, and possibly contaminating Flathead Lake. The members of the Timbrshor/Lake County Water and Sewer District would like to complete a feasibility analysis to determine the most efficient and cost effective program to meet Local, State, Tribal, and Federal Regulations in regards to the on-site sewage disposal.

CHAPTER 4. CURRENT CONDITION OF RENEWABLE RESOURCE

The renewable resource impacted by the project is the waters of Flathead Lake. Flathead Lake is the largest natural freshwater lake in the western part of the contiguous United States. It is one of the cleanest in the populated world for its size and type. It is unknown at this time how significant the impacts are to Flathead Lake by the Timbrshors' wastewater infrastructure. However, the proximity of the aging and noncompliant sewer systems to one of Montana's largest natural and renewable resources emphasizes the importance of remediating the impact by updating these sewer systems within the district.

CHAPTER 5. DESIRED OUTCOME

The desired outcome of the Project is for the Timbrshor/Lake County Water and Sewer District to create and finalize a plan that will allow the sewer system program to meet conformance with the COSA for the property. The District would like to upgrade the current systems to meet the current regulations. Along with the sewer system plan, the District would like a cost estimate for the construction associated with the system upgrades.
The initial phase of work completed within this report is a general sewer plan that will contain four subgroups of sewer users. The groups are described as A, B, C, & D. The groups were based on resolving the sewer infrastructure problems within a pragmatic program. The groups were developed with input from the Homeowners Association Board and the Sewer District Board. The topography, soils, regulatory compliance, and existing infrastructure largely dictate the available solutions to serving the sewer needs of the development. The table in Appendix A illustrates the preliminary subgroup sewer plan.

SYSTEM A

General - The drainfield for System A is currently proposed to be rebuilt as an elevated sand mound. Future field work to investigate the depth to bedrock and the soil type will be used to verify the need for a sand mound design. Current soil data indicates a variation in the depth to bedrock, therefore it is assumed MDEQ will require soil profiles in each zone of the drainfield area. The construction cost savings would be significant if the drainfield design changed to a subsurface pressurized design. It is also assumes that individual condominium owners will pay for individual infrastructure such as the individual septic tanks, pumps, electrical control, and service line to the force main. The engineers estimate only included shared infrastructure. Condominium owners should assume a cost of \$2,000 - \$5,000 for individual infrastructure (septic tank, pump, and service line) needed to connect to the force main.

Current Condition – System A is currently describes as the "Large Community System in the Parking Area" or "Permit 1837". The research shows that this system was built in 1989 with a design capacity of 400 gallons per day (gpd). This system currently serves eight units on the eastern side of the development.

Compliance Issues – The LCEH has provided a brief list of known and supposed compliance issues of the existing systems serving the units proposed to be upgraded by System A that include the following; Montana Department of Environmental Quality (MDEQ) Certificate of Subdivision Approval (COSA) must be re-written, drainfield is not protected from vehicular traffic, units have been connected without permits, the drainfield is currently undersized by 875 gpd for the units currently connected, the system that serves the four-plex likely does not meet the setbacks from surface water, and the Lodge is currently served by a holding tank.

Proposed Septic System Upgrade – The proposed first option for System A is to replace the existing infrastructure to service the existing and proposed units on the eastern side of the development. This will include all the existing units currently being served by the existing septic system, the four units not currently built, the unit known as the Lodge, and the four-plex resulting in seventeen connections. The following units will be served by System A; 201, 202, 203, 204, 205, 206, 209, 210, 211, 216, 217, 219, Lodge, 306, 307, 308, and 309.

Engineers Estimate – The engineers estimate is included in Appendix D. In the draft Technical Presentation the costs for re-writing the COSA, contract oversight, Professional Engineered designs, inspections, certifications, and as-builts were not included. Those estimates are now included as part of the estimate. The engineers estimate no longer assumes the existing force main is sufficient for the existing and future use. It is our conclusion, after discussion with contractors (installers) that retrofitting the new infrastructure will be cost prohibitive and a poor alternative to updating the entire infrastructure.

As discussed above, the engineers estimate now also includes the estimate for re-writing the COSA, septic system design, contract administration, inspections, as-builts, and certifications. The estimate assumes that these costs will be considered "stand alone" and that there will not be cost sharing between the sewer groups for items such as contract administration and construction inspections. It should be noted that significant cost savings could be realized if the contract administration and inspections could take place simultaneously with the other sewer groups.

Replacement Area - At this time, it will be TLI's stance that the new drainfield proposed will be the replacement of the existing system. This position, if approved, would save precious space for parking, storage, and could also save the cost of designing and reviewing the replacement system. Public

wastewater systems have to be maintained and operated in perpetuity. A suitable design, proper construction and construction oversight, and perpetual operation and maintenance can extend the life of the system significantly. Also, failures within Public systems normally happen in zones which can be rehabbed to function very close to "new" status. Therefore, it is our stance that the new primary drainfield location will be more than adequate to serve these units for the foreseeable future.

Regulatory Considerations – System A will be classified as a Public wastewater system based on the seventeen connections to the system. The system will have flows greater than 2500 gpd. All components of subsurface sewage treatment systems must be designed and installed in accordance with MDEQ Circular DEQ-4. Public systems with design flows greater than or equal to 2500 gallons per day must be designed by a registered professional engineer. The proposed subsurface sewage treatment area must include an area for 100% replacement of the system. Unless a waiver is approved by MDEQ, the replacement area must meet the same requirements as the primary area. The applicant shall demonstrate that all public systems will be adequately operated and maintained and shall submit an operation and maintenance manual acceptable to MDEQ. For public systems, a homeowners' association, county sewer district, or other administrative entity, with the power to charge appropriate fees, must be established as part of the operation and maintenance plan required by MDEQ Circular DEQ-4. For public systems easements must be obtained to allow adequate operation and maintenance of the system. Easements must be in a form acceptable to MDEQ.

The engineering report or facilities plan, including project design criteria, must be submitted prior to submission of project plans and specifications. Final plans and specifications must be submitted at least 60 days prior to the date on which action by MDEQ authority is desired. Two copies of the final plans must be submitted. Upon approval, one set of the approved plans and specifications must be stamped "approved", dated, signed by a DEQ representative and returned to the applicant. No approval for construction can be issued until final, detailed plans and specifications have been submitted and approved by the reviewing agency. Within 90 days following completion of project construction, a Professional Engineer registered in Montana must certify that the project was built in accordance with the approved plans and specifications. A set of "as built" drawings must accompany the certification.

The units connected to System A will not be restricted by amount of bedrooms. This would result in greater freedom in house construction and design.

Waivers – It is assumed that waivers will be required as part of the COSA re-write pursuant to ARM 17.36.601. The following are possible waiver considerations; connection to a public sewer supply, vertical separation from a limiting layer, amount of soil profiles, horizontal setbacks, and the use of the "Draft MDEQ Circular 4".

Alternatives - See Chapter 6. ALTERNATIVES

Exhibits – Items shown on the existing exhibit that pertain to the wastewater systems are existing units, proposed units (hatched circles with unit numbers), existing infrastructure, the proposed drainfield location, and soil profile locations. The primary drainfield location and the units to be served are all marked with red hatching for visual clarity. The exhibit shows the approximate location of the existing infrastructure. The mapping and available drawings were provided by others so the accuracy cannot be confirmed by TLI. The enclosed exhibits contain a legend that describes the symbols used to illustrate the sanitary features.

SYSTEM B

General – The drainfield for System B is currently proposed to be rebuilt as an elevated sand mound with a total of 3000 gpd of capacity. Existing field work, provided by REC, shows the depth to bedrock as shallow as 33 inches. The engineers estimate assumes the existing force main is insufficient for the existing and future use. It is also assumes that individual condominium owners will pay for individual infrastructure such as the individual septic tanks, pumps, electrical control, and service line to the force main. The engineers estimate only included shared infrastructure. Condominium owners should assume

a cost of \$2,000 - \$5,000 for individual infrastructure needed to connect to the force main. The engineers estimate is attached in Appendix D.

Current Condition – System B is currently describes as "Permit 1000D". The research shows that this system was built in 1971 with a design capacity of 550 gallons per day (gpd). This system currently serves five units in the middle of the development.

The two other existing systems associated with System B is a system describe as "drainfield by the dumpster area" and the wash "laundry building".

Compliance Issues – The LCEH has provided a brief list of known and supposed compliance issues of the existing systems serving the units proposed to be upgraded by System B that include the following; Montana Department of Environmental Quality (MDEQ) Certificate of Subdivision Approval (COSA) must be re-written, tanks do not meet horizontal setback distances to surface water, drainfield is not protected from vehicular traffic, units have been connected without permits, the drainfield is currently undersized by 775 gpd for the units currently connected. The system that serves units 301, 302, and 305 is unpermitted, the size is unknown, and no records exist for this system. The laundry building is served by an unpermitted seepage pit.

Proposed Septic System Upgrade – The proposed first option for System B is to replace the existing infrastructure to service the existing and proposed units that are related topographically. This will include all the existing units currently being served by the existing septic system. The units served will be existing units 301, 302, 305, 311, 312, 314, 315, 316, 317, and proposed units 318, 319, and 320. The wash house would be eliminated as part of this upgrade.

Engineers Estimate – The engineers estimate is included in Appendix D. In the draft Technical Presentation the costs for re-writing the COSA, contract oversight, Professional Engineered designs, inspections, certifications, and as-builts were not included. Those estimates are now included as part of the estimate. The engineers estimate no longer assumes the existing force main is sufficient for the existing and future use. It is our conclusion, after discussion with contractors (installers) that retrofitting the new infrastructure will be cost prohibitive and a poor alternative to updating the entire infrastructure.

As discussed above, the engineers estimate now also includes the estimate for re-writing the COSA, septic system design, contract administration, inspections, as-builts, and certifications. The estimate assumes that these costs will be considered "stand alone" and that there will not be cost sharing between the sewer groups for things such as contract administration and construction inspections. It should be noted that significant cost savings could be realized if the contract administration and inspections could take place simultaneously with the other sewer groups.

Replacement Area - As discussed with System A, the new system for System B should be considered a replacement area for the existing system. This stance is strategic because, if approved, it would save precious space for parking, storage, and could also save the cost of designing and reviewing the replacement system. The topography will make it cost prohibitive to construct a replacement drainfield since suitable drainfield locations are infrequent and, if available, are long distances from the units. However, there are some areas available in the area of System A if the area chosen for System B becomes unsuitable for any reason. Public wastewater systems have to be maintained and operated in perpetuity. A suitable design, proper construction and construction oversight, and perpetual operation and maintenance can extend the life of the system significantly. Also, failures within Public systems normally happen in zones which can be rehabbed to function very close to "new" status. Therefore, it is our stance that the new primary drainfield location will be more than adequate to serve these units for the foreseeable future.

Regulatory Considerations – System B will be classified as a Public wastewater system based on the twelve connections to the system. The system will have flows greater than 2500 gpd. All components of subsurface sewage treatment systems must be designed and installed in accordance with MDEQ Circular DEQ-4. Public systems with design flow greater than or equal to 2500 gallons per day must be designed by a registered Professional Engineer. The applicant shall demonstrate that all public sewage systems

will be adequately operated and maintained and shall submit an operation and maintenance manual acceptable to the department. For public systems, a homeowners' association, county sewer district, or other administrative entity, with the power to charge appropriate fees, must be established as part of the operation and maintenance plan required by department Circular DEQ-4. For public systems, easements must be obtained to allow adequate operation and maintenance of the system. Easements must be in a form acceptable to the MDEQ.

The engineering report or facilities plan, including project design criteria, must be submitted prior to submission of project plans and specifications. Final plans and specifications must be submitted at least 60 days prior to the date on which action by the reviewing authority is desired. Two copies of the final plans must be submitted. Upon approval, one set of the approved plans and specifications must be stamped "approved", dated, signed by a DEQ representative and returned to the applicant. No approval for construction can be issued until final, detailed plans and specifications have been submitted and approved by the reviewing agency. Within 90 days following completion of project construction, a professional engineer registered in Montana must certify that the project was built in accordance with the approved plans and specifications. A set of "as built" drawings must accompany the certification.

The units connected to System B will not be restricted by amount of bedrooms. This would result in greater freedom in house construction and design.

Waivers – It is assumed that waivers will be required as part of the COSA re-write pursuant to ARM 17.36.601. The following are possible waiver considerations; connection to a public sewer supply, vertical separation from a limiting layer, horizontal setbacks to septic system components and drainfields, and the use of the "Draft MDEQ Circular 4".

Alternatives - See Chapter 6. ALTERNATIVES.

Exhibits - Items shown on the existing exhibit that pertain to the wastewater systems are existing units, proposed units (hatched circles with unit numbers), existing infrastructure, and the proposed drainfield location, and soil profile locations. The primary drainfield location and the units to be served are all marked with red hatching for visual clarity. The exhibit shows the approximate location of the existing infrastructure. The mapping and available drawings were provided by others so the accuracy cannot be confirmed by TLI. The enclosed exhibits contain a legend that describes the symbols used to illustrate the sanitary features.

SYSTEM C

General - The drainfield for System C is currently designed for 2400 gallons per day (gpd) which is adequate for the existing and proposed use. There is currently a well within 100 feet of a portion of the drainfield for System C.

Current Condition – System C is currently describes as "Permit 5000B". The research shows that this system was built in 1999 with a design capacity of 2400 gallons per day (gpd). This system currently serves four units on what could be described as the western side of the development. The existing mapping shows that a portion of the drainfield is within 100 feet of a neighboring drinking water well. The well was existing at the time the drainfield was permitted and approved. This septic system is described as individual septic tanks, with effluent pumped to a common dosing tank and a gravity dosing siphon is then used to dose the effluent to two separate drainfield locations.

Compliance Issues – The LCEH has provided a brief list of known and supposed compliance issues of the existing System C that include the following; Montana Department of Environmental Quality (MDEQ) Certificate of Subdivision Approval (COSA) must be re-written, units have been connected without permits, a portion of the drainfield is located within 100 horizontal feet of an existing drinking water well.

Proposed Septic System Upgrade – The proposed first option for System B is to leave the system as it currently exists. This would require a waiver for the setback to the existing drinking water well for the portion of the drainfield that is within 100 feet of the well.

Engineers Estimate – The engineers estimate is included in Appendix D. The engineers estimate assumes that the existing system will remain "as is". The engineers estimate is for re-writing the COSA to allow for the multi-user septic system. It is assumed MDEQ will accept the existing LCEH permits and inspections in place of designs, certification, and as-builts for the existing system. The estimate for the COSA re-write assumes MDEQ will require designs for the replacement drainfield and waivers for setback compliance.

Replacement Area - The replacement drainfield area for System C will be located adjacent and directly across the road from the existing drainfields. This area appears to have enough room to replace the existing drainfield and based on the existing soil profiles provided by others the soils appear to be adequate. However, MDEQ may require additional soil profiles once each drainfield zone is determined.

Regulatory Considerations – System C will be classified as a multiple user wastewater system based on the eight connections to the system. The system will have flows less than 2500 gpd. The proposed subsurface sewage treatment area must include an area for 100% replacement of the system. Unless a waiver is approved by MDEQ, the replacement area must meet the same requirements as the primary area. The applicant shall demonstrate that all multiple-user sewage systems will be adequately operated and maintained and shall submit an operation and maintenance manual acceptable to the department. For multiple-user systems, a homeowners' association, county sewer district, or other administrative entity, with the power to charge appropriate fees, must be established as part of the operation and maintenance plan required by department Circular DEQ-4. For multiple-user systems easements must be obtained to allow adequate operation and maintenance of the system. Easements must be in a form acceptable to the MDEQ.

As discussed above, it is assumed MDEQ will accept the existing LCEH permits and inspections in place of designs, certifications, and as-builts.

The units connected to System C will be restricted to three bedrooms per unit. This is based on regulations found in the "Draft MDEQ Circular 4, 2012". The definition of "bedroom" is interpreted differently from County to County in Montana.

Waivers – It is assumed that waivers will be required as part of the COSA re-write pursuant to ARM 17.36.601. The following are possible waiver considerations; connection to a public sewer supply, vertical separation from a limiting layer, horizontal setbacks from septic system components and drainfields.

Alternatives - See Chapter 6. ALTERNATIVES.

Exhibits - Items shown on the existing exhibit that pertain to the wastewater systems are existing units, proposed units (hatched circles with unit numbers), existing infrastructure, the proposed drainfield location, and soil profile locations. The primary drainfield location and the units to be served are all marked with purple hatching for visual clarity. The exhibit shows the approximate location of the existing infrastructure. The replacement area for the drainfield for System C is shown on the exhibit as well. The mapping and available drawings were provided by others so the accuracy have not been confirmed by TLI. The enclosed exhibits contain a legend that describes the symbols used to illustrate the sanitary features.

SYSTEM D AND SYSTEM E

General - The drainfield for System D is currently designed for 1500 gpd. The existing drainfield is adequate to accommodate all the currently developed condominium units as it exists at the time of this report. The District has expressed its desire to maintain the multi-user System D as currently permitted by the LCEH. Therefore, the plan for System D would be to maintain the existing infrastructure and to connect currently existing units and proposed units that have purchased "shares" in the system. In this scenario the permitted system would be completed as designed and it would serve units 418/419 (one unit), 426, 427, 428, 430. Units 418/419 and 428 are currently developed. The other three units are proposed.

This plan would create the need for an additional system; System E. System E would serve the existing units 401 and 402 and proposed units 421, 422, 424, and 408. This system would also be classified as a "multi-user" system. The drainfield for this system would be adjacent to existing drainfield D.

The challenges to this plan will be to convince MDEQ to allow for two separate multiuser drainfields adjacent to each other with force mains crossing within close proximity. Also, space for primary and replacement areas for both systems will create space issues because the drainfields will not be hydraulically connected resulting in lost space due to setback requirements.

The location of a new drainfield area is shown on the enclosed exhibit. Replacement areas for both drainfields are not currently shown. It has become known that accessing future lots could create conflicts with new septic system components and proposed roads and driveways. Any future conflict between driveways and drainfields should be reconciled prior to MDEQ review. The engineers estimate is attached in Appendix D. Condominium owners should assume a cost of \$2,000 - \$5,000 for individual infrastructure needed to connect to the force main.

Current Condition – System D is currently describes as "Permit 5584". The research shows that this system was partially built in 2002 with a design capacity of 1500 gallons per day (gpd) at total build-out. It appears from the research that one additional lateral needs to be installed to consider the existing system complete. This system currently serves two units located on the western edge of the development. The units connected to this system will be limited to the amount of bedrooms per unit. It appears from the permit that five-three bedroom homes are permitted.

Compliance Issues – The LCEH has provided a brief list of known and supposed compliance issues of the existing System D that include the following; Montana Department of Environmental Quality (MDEQ) Certificate of Subdivision Approval (COSA) must be re-written.

Proposed Septic System Upgrade – In this scenario the permitted system would be completed as designed and it would serve units 418/419 (one unit), 426, 427, 428, and 430. This plan would create the need for System E. System E would serve the existing units 401 and 402 and proposed units 421, 422, 424, and 408. This system would also be classified as a "multi-user" system. The drainfield for this system would be adjacent to existing drainfield D. It is recommended that this system be designed for up to 2,100 gpd to account for six-four bedrooms units.

Engineers Estimate – The engineers estimate is included in Appendix D. In the draft Technical Presentation the costs for re-writing the COSA, contract oversight, Professional Engineered designs, inspections, certifications, and as-builts were not included. Those estimates are now included as part of the estimate.

As discussed, the engineers estimate now also includes the estimate for re-writing the COSA, septic system design, contract administration, inspections, as-builts, and certifications. The estimate assumes that these costs will be considered "stand alone" and that there will not be cost sharing between the sewer groups for things such as contract administration and construction inspections. It should be noted that significant cost savings could be realized if the contract administration and inspections could take place simultaneously with the other sewer groups.

Replacement Area – The replacement drainfield area is not currently shown. The decision to not show a replacement area was based on the possibility that out of all four systems, System D has a highest likelihood of changing from this primary proposal to an alternative program. Also, because of the unknown access road configurations placing the replacement area would be immature. It should be noted that the advantage of classifying these systems as "replacements" could be significant when the permitting process takes place.

Regulatory Considerations – System D will be classified as a multiple user wastewater system based on the five connections to the system. The system will have flows less than 2500 gpd. System E will be classified as a multiple user system based on the six connections to the system. The system will have

flows less than 2500 gpd. The proposed subsurface sewage treatment area must include an area for 100% replacement of the system. Unless a waiver is approved by MDEQ, the replacement area must meet the same requirements as the primary area. The applicant shall demonstrate that all multiple-user sewage systems will be adequately operated and maintained and shall submit an operation and maintenance manual acceptable to the department. For multiple-user systems, a homeowners' association, county sewer district, or other administrative entity, with the power to charge appropriate fees, must be established as part of the operation and maintenance plan required by department Circular DEQ-4. For multiple-user systems easements must be obtained to allow adequate operation and maintenance of the system. Easements must be in a form acceptable to the MDEQ.

The units connected to System D and E will be restricted by amount of bedrooms.

Waivers – It is assumed that waivers will be required as part of the COSA re-write pursuant to ARM 17.36.601. The following is a possible waiver considerations; connection to a public sewer supply.

Alternatives - See Chapter 6. ALTERNATIVES.

Exhibits - Items shown on the existing exhibit that pertain to the wastewater systems are existing units, proposed units (hatched circles with unit numbers), existing infrastructure, and the proposed drainfield location, and soil profile locations. The primary drainfield location and the units to be served are all marked with green hatching for visual clarity for System D. System E is marked in orange. The exhibit shows the approximate location of the existing infrastructure. The mapping and available drawings were provided by others so the accuracy cannot be confirmed by TLI. The enclosed exhibits contain a legend that describes the symbols used to illustrate the sanitary features.

CHAPTER 6. ALTERNATIVES

Below you will find alternative scenarios to the primary scenario stated in the above text. These alternatives result in five multi-user sewer systems and one public sewer system. These alternatives do not meet the letter of the regulations and would require waivers, different classifications, and negotiations with permitting agencies. The alternatives are considered not ideal based on the premise that separating these systems will increase per unit cost of operation and maintenance over the life of the systems. Also, it should be understood that the systems that are currently constructed and are proposed to remain as is are subject to much shorter life spans and will likely result in significant repairs and costly upgrades in the near future. The benefit of construction oversight, inspections, certifications, and perpetual operation and maintenance would result in significantly longer life spans and smoother operation during the life of the system.

SYSTEM A-1

Alternatives for System A include serving existing units 201, 203, 204, 205, 206, 209, 210, 211 and proposed units 202, 216, 217, and 219. Also, if saving space for parking and boat storage was a high priority, the drainfields could be physically separated into different zones strategically. This space saving program could be deliberated during the design phase of the project. The drainfield for System A-1 will be located in the area of the proposed System A. The construction cost estimates for this alternative is included in Appendix D.

SYSTEM A-2

This alternative would collect and treat the effluent for existing units 306, 307, 308, 309, 301, 302, 305, and the Lodge. Based on number of connections in this scenario (eight) the system would be considered "Multi-User" and not "Public" resulting in a less arduous permitting process. This alternative would take flows away from the primary plan System B allowing for a smaller footprint or greater capacity for those homes connected in the System B-1 alternative below. The System A-2 homes would be restricted by the amount of bedrooms because the total amount of connections will be less than 10. The drainfield for System A-2 will be located in the area of the proposed System A. The construction cost estimates for this alternative is included in Appendix D.

SYSTEM B-1

This alternative would collect and treat the effluent for Units 311, 312, 314, 315, 316, 317 and proposed units 318, 319, 320 and the "wash house". Based on number of connections in this scenario (nine) the system would be considered "Multi-User" which is under the same permitting program as the primary plan. The drainfield for System B-1 will be located in the area of the drainfield of existing System B. The construction cost estimates for this alternative is included in Appendix D.

SYSTEM C

The compliance programs for this system deal mainly with the ability to receive waivers for the existing drainfield. This system is one of the relatively newer constructed systems. It is permitted, inspected, and accepted by Lake County. However, it does have a glaring compliance issue that was not caught during the time of permitting. A portion of the drainfield is within a 100 feet of an existing individual drinking water well. There are no known contamination issues from the drainfield to the well. Because of these facts the primary plan for this system is to allow the existing system to remain as-is pending waivers for setbacks and other possible waiver requirements. This program could be buttressed with a water treatment system installed on the water system of the affected unit.

An alternative to the above program could be the removal and replacement of the section of laterals within the 100 foot zone of influence of the existing well.

It is assumed that any of these scenarios will require a COSA re-write, replacement system design, and operation and maintenance program. It is unknown at this time if MDEQ will require retroactively certifying and "as-builting" the existing system. An engineer's estimate for the removal and replacement of the existing laterals within 100 feet of the well is included in Appendix D. The estimate assumes the system will be able to maintain uniform distribution and will not require a redesign of the system or mechanical changes. An engineer's estimate to retroactively certify and "as-builting" the existing system is not included at this time. The engineers estimate for this alternative is included in Appendix D.

SYSTEM D

The alternate for System D and System E is to replace the existing infrastructure to service the existing and proposed units that are related topographically. It is assumed that existing individual infrastructure can be maintained but that shared components will have to be replaced. It is proposed that the system will be designed for capacity to serve Units 401, 402, 408, 418/419, 421, 422, 424, 426, 427, 428, and 430. This alternative was chosen based on the limited space for drainfield areas, the relation topographically to the units, ease of operation and maintenance, and the probability that MDEQ will require these units to be sewered together. Based on conversations with installers, retrofitting old infrastructure with new was a poor choice and resulting in an inferior product that would be difficult to operate and maintain.

In this alternative, System D will be classified as a Public wastewater system based on the eleven connections to the system. The system will have flows greater than 2500 gpd. Because this system would be classified as Public all the conditions associated with that classification as discussed above will apply.

The engineers estimate is included in Appendix D. The units connected to System D will not be restricted by amount of bedrooms. This would result in greater freedom in house construction and design. As discussed above, all the alternative scenarios will still require COSA re-writes.

CHAPTER 7. COST BENEFIT OF ALTERNATIVES

Appendix D includes the engineer's estimates for both the primary and alternative scenarios. The overall cost of the primary scenario versus the alternative is negligible when looking at the cost as a whole. It is

anticipated that the costs will be separated by the individual sewer groups that have yet to be determined. Every group could possibly change depending on which option is chosen except for System C. This makes a cost benefit analysis challenging because each group, except for C, could stand to gain or lose financially based on the course of action taken. It is unknown what the financing program is for each group at this time.

The largest cost savings appears to be if each group shared the contract administration, construction oversight, and construction inspections for the entire project. This would require the contract administration and construction for each system to begin and end simultaneously.

CHAPTER 8. PROJECT IMPLEMENTATION PLAN

The project is currently in the early planning phase. However, it is the hope of all the interested parties that a consensus is reached on the sewer plan within the next 3-6 months. The plan will then go on to the MDEQ for review and approval. With approvals in hand a construction plan will then be implemented. The preliminary timeline in Chapter 9 below gives a more detailed description of the implementation plan.

CHAPTER 9. PROJECT TIME SCHEDULE

This initial feasibility will be reviewed by the Timbrshor HOA and the Water and Sewer District to evaluate the provided plan and discuss alternatives. It is assumed that consensus on the sewer plan will be reached by the HOA and the District within the next 3-6 months. The following is an assumed timeline for the completion of the project. These timelines are preliminary and subject to change based on deliberations from the HOA, the District, the MDEQ, and the LCEH.

- HOA and District Approve Preliminary Sewer Plan December/2012
- Public Meeting Presenting the Sewer Plan January/2013
- Update Sewer Plan Based on Constituent Input February/2013
- Apply for to MDEQ Non-degradation Approval March/2013
- Coordinate with MDEQ and LCEH for Plan Approval March/2013
- Apply to MDEQ for Rewrite Review of the COSA April/2013
- Receive Approval for Rewrite June/2013
- Begin Construction of Sewer Facilities July/2013

CHAPTER 10. SUPPORTING DOCUMENTATION

See enclosures in the attached Appendices.

Prepared By: TERRITORIAL-LANDWORKS, INC.

APPENDIX A: GENERAL

USGS VICINITY MAP, SOILS INFORMATION, SEWER GROUPS, 11" X 17" SITE MAP











Notes

				Design Flow	Draft Dari
Linit No.	0	# of Podragues	Evicting Flow (as -1)	Design Flow	Draft Desig
Unit NO.	Owner	# of Bedrooms	Existing Flow (gpd)	(gpa)	Flow (gpd)
	and the second s	Drainfield Sys	tem A		and the second
201	Korrell, McFadden, & O'Connor	2	225	300	250
202	Borchers, Alice	3	300	300	250
203	Archer	2	225	300	250
204	Swindlehurst	2	225	300	250
205	Rotondi	5	400	400	250
206	Walters	3	300	300	250
209	Peterson	3+Loft	350	350	250
210	Schwank	2	225	300	250
211	Fordahl	1	150	300	250
216	Borchers, Alice	3	300	300	250
217	Borchers, Alice	3	300	300	250
219	Borchers-Michione	4	300	300	250
Lodge	Borchers	3	300	300	250
306	Selvig	2	225	300	250
307	Payson	2	225	300	250
308	Johnson-Cole	2	225	300	250
309	Johnson-Cole	2	225	300	250
Total (gp	d)/Bold GPD is based on 10 conne	ctions or more	4500	5250	4250
		Drainfield Syst	tem B		100
301	Stam	3	300	300	250
302	Roundtree	2	225	300	250
305	Estvold	3	300	300	250
311	Tillinghast	2+Loft	300	300	250
312	Long	3	350	350	250
314	Brooke-Lewis	2	225	300	250
315	Freireaband	2	225	300	250
316	Ammond-Isabell	2	225	300	250
317	McCarthy	4	350	350	250
318	Borchers, Alice	3	300	300	250
319	Borchers, Alice	3	300	300	250
320	Borchers, Alice	3	300	300	250
Total (gp	d)/Bold GPD is based on 10 conne	ctions or more	3400	3700	3000
		Drainfield Syst	em C		
403/404	Sand	3	300	300	300
406	Sand	3	300	300	300
409	Roy	3	300	300	300
410	Sand	3	300	300	300
411	Mead	3	300	300	300
412	Сох	3	300	300	300
414	McCarthy	3	300	300	300
417	Borchers, Alice	3	300	300	300
		Total (gpd)	2400	2400	2400

AND A PARTY		Drainfield System	n D		学生 书记 动气 中国
1 418/419	Kuykendall	3	300	300	300
2 426	Borchers, Alice	3	300	300	300
3 427	Maxwell	3	300	300	300
4 428	Rys-Sikora	3	300	300	300
5 430	Rys-Sikora	3	300	300	300
		Total (gpd)	1500	1500	1500
		Drainfield System	n E		
1 401	Johnson	4	350	350	350
2 402	Manning	4	350	350	350
408	Caraway	4	350	350	350
421	Johnson	4	350	350	350
5 422	Johnson	4	350	350	350
424	Johnson	4	350	350	350
	Contraction of the second second	Total (gpd)	2100	2100	2100

Items in red are undeveloped units

tes		Timbrshor Developed Units Onsite Wastewater Disposal System Information					
			# of		Design Flow	Draft Design	
$\{\cdot,\cdot\}$	Unit No.	Owner	Bedrooms	Existing Flow (gpd)	(gpd)	Flow (gpd)	
			Drainfield Syste	m A-1			
1	201	Korrell, McFadden, & O'Connor	2	225	300	250	
2	202	Borchers, Alice	3	300	300	250	
3	203	Archer	2	225	300	250	
4	204	Swindlehurst	2	225	300	250	
5	205	Rotondi	5	400	400	250	
6	206	Walters	3	300	300	250	
7	209	Peterson	3+Loft	350	350	250	
8	210	Schwank	2	225	300	250	
9	211	Fordahl	1	150	300	250	
10	216	Borchers, Alice	3	300	300	250	
11	217	Borchers, Alice	3	300	300	250	
12	219	Borchers-Michione	4	300	300	250	
	Total (gp	d)/Bold GPD is based on 10 conne	ctions or more	3300	3750	3000	
		L	Prainfield Syste	m A-2.			
1	Lodge	Borchers	3	300	300	300	
2	306	Selvig	2	225	300	225	
3	307	Payson	2	225	300	225	
4	308	Johnson-Cole	2	225	300	225	
5	309	Johnson-Cole	2	225	300	225	
6	301	Stam	3	300	300	300	
7	302	Roundtree	2	225	300	225	
8	305	Estvold	3	300	300	300	
	Pak Alter a		Total (gpd)	2025	2400	2025	
1000		D	rainfield System	n B - 1			
1	311	Tillinghast	2+Loft	300	300	225	
2	312	Long	3	350	300	300	
3	314	Brooke-Lewis	2	225	300	225	
4	315	Freireaband	2	225	300	225	
5	316	Ammond-Isabell	2	225	300	225	
6	317	McCarthy	4	350	350	350	
7	318	Borchers, Alice	3	300	300	300	
8	319	Borchers, Alice	3	300	300	300	
9	320	Borchers, Alice	3	300	300	300	
			5 washes per				
	Wash House	HOA	day	250	250	250	
			Total (gpd)	2825	3000	2700	
			Drainfield Syste	m C		Section And Section	
1	403/404	Sand	3	300	300	300	
2	406	Sand	3	300	300	300	
3	409	Roy	3	300	300	300	
4	410	Sand	3	300	300	300	
5	411	Mead	3	300	300	300	
6	412	Сох	3	300	300	300	
7	414	McCarthy	3	300	300	300	
8	417	Borchers, Alice	3	300	300	300	
			Total (gpd)	2400	2400	2400	

1	401	Johnson	4	350	350	250
2	402	Manning	2+	250	300	250
3	418/419	Kuykendall	3	300	300	250
4	428	Rys-Sikora	3	300	300	250
5	408	Caraway	3	300	300	250
6	421	Johnson	3	300	300	250
7	422	Johnson	3	300	300	250
B	424	Johnson	3	300	300	250
ΞF	426	Borchers, Alice	3	300	300	250
рΓ	427	Maxwell	3	300	300	250
1	430	Rys-Sikora	3	300	300	250
	Total (gpd)/	Bold GPD is based on 10 conn	3300	3350	2750	

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APPENDIX B: EXISTING COSA INFORMATION & CURRENT SEPTIC DOCUMENTATION

PROVIDED BY LAKE COUNTY

STATE OF MINIANA DEPARIMENT OF HEALTH AND ENVIRONMENTAL SCIENCES CERTIFICATE OF SUBDIVISION PLAT APPROVAL (Section 69-5001 through 69-5009, R.C.M. 1947)

To: Clerk and Recorder Lake County Polson, Montana No. 24-77-K902

E.S. 74/K330

THIS IS TO CERTIFY THAT the plans and supplemental information relating to the subdivision known as <u>Borchers of Finley Point</u> consisting of a lodge plus 50 lease residential building sites located in Lake County, Montana, have been reviewed by personnel of the Subdivision Bureau, and,

THAT the documents and data required by Section 69-5001 through 69-5009, R.C.M. 1947 and the rules of the Department of Health and Environmental Sciences made and promulgated pursuant thereto have been submitted and found to be in compliance therewith, and,

THAT approval of the site plan of said subdivision is made with the understanding that the following conditions shall be met:

THAT the total number of residential building sites or their identification number as indicated on the site plan to be filed with the county clerk and recorder will not be further alcured without approval, and,

THAT the numbered site locations shall be used for residential building sites, and,

THAT the community water supply systems for the residential-structure site locations identified as 201, 202, 206, 209, 216, 217, 219, 301, 302, 305, 318, 319, 320, 403, 404, 406, 408, 409, 410, 411, 412, 413, 414, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, and 430 shall be constructed in accordance with the current standards of the Department of Health and Environmental Sciences and the plans and specifications filed with the Bureau under the seal of Douglas E. Daniels, P.E., dated 28 June, 1977, and,

THAT the community sewage disposal systems for the residential-structure site locations identified as 201, 202, 206, 209, 216, 217, 219, 301, 302, 305, 318, 319, 320, 403, 404, 406, 408, 409, 410, 411, 413, 414, 416,417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, and 430 shall be constructed in accordance with the criteria established in MAC 16-2.14(10)-S14340, the most current standards of the Department of Health and Environmental Sciences and the plans and specifications filed with the Bureau under the seal of Douglas E. Daniels, P.E. dated 20 June, 1977, and,

THAT the individual water supply and sewage disposal systems serving the existing residential-structure site locations 203, 204, 205, 210, 211, 306, 307, 308, 309, 311, 312, 314, 315, 316, 401, 402 and lodge are exempt from this statement because their creation predated applicable law, and,

To: Clerk and Recorder Lake County Polson, Montana

No. 24-77-K902 E.S. 74/K330

THAT the bottom of the drainfield shall be at least four feet above the water table, and four feet above all bedrock occurrences, and,

-2-

THAT no scwage disposal system shall be constructed within 100 feet of the maximum highwater level of a 100 year flood of any stream, lake, watercourse, or irrigation ditch, nor within 100 feet of any domestic water supply source, and,

THAT the owner of record of <u>Borchers of Finley Point</u> shall assume total responsibility for the operation of the community water and sewage disposal systems, and,

THAT plans for the proposed water and individual sewage systems will be reviewed and approved by the Lake County Health Department before construction is started, and,

THAT the developer shall provide each leaser of property with a copy of the filed site plan and a copy of this document, and,

THAT instruments of transfer for this property shall contain reference to thes conditions, and,

THAT departure from any criteria set forth in the approved plans and specifications and MAC 16-2.14(10)-S14340 when erecting a structure and appurtenant facilities in said subdivision without Department approval, is grounds for injunction by the Department of Health and Environmental Sciences.

YOU ARE REQUESTED to record this certificate by attaching it to the Borchers of Finley Point site plan filed in your office as required by law.

DATED this 22nd day of July, 1977.

A.C. KNIGHT, M.D., F.C.C.P. DIPECTOR

By:

W. O. Aikin, P.E. Subdivision Bureau Environmental Sciences Division



Department of Health and Environmental Sciences

P.O. Box 1031 Kalispell, Montana 59901

John S. Ander on M.D.

July 27, 1977

Mr. Douglas E. Daniels, P.E. Thomas, Dean and Hoskins, Inc. 3 Sunset Plaza Kalispell, MT 59901

Re: A commulty water supply system for a portion of the Subdivision known as Borcher's of Finley Point; i.e., a community water supply system composed of a Flathead Lake (source) intake which will pump the required demand flow through an intake consisting of 350 feet of 3-inch P.V.C. which will include a sequential in-line filtration, disinfection, chlorine-contact time and storage capability. Distribution out of the storage tank will be by means of 650 feet of 2-inch P.V.C. with hydropneumatic tank pressure-volume support to the individual services. As specified by plans and specifications provided this office under the seal of Douglas E. Daniels, P.E., dated June 28, 1977. E.S. 77/K345.

Dear Douglas:

The above referenced plans have been reviewed by engineers of the Environmental Sciences Division and were found to be satisfactory. Approval of these plans is given herewith and according to the following provisions:

- (1) THAT the residential-structure site locations which shall be served by this system are those identified on the planning-plat map as 403, 404, 406, 408, 409, 410, 411, 412, 413, 414, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, and
- (2) THAT this community water system will pump water from Flathead Lake at a depth of ten feet below the low-water surface elevation and the flow therefore will be continuously and adequately disinfected and filtered, and,
- (3) THAT any change in the above referenced plans will be submitted to the Water Quality Bureau for review prior to beginning of construction, and,

Mr. Douglas E. Daniels

- (4) THAT upon completion of the project, the engineer will be required to submit a statement that the water supply system has been inspected and found to be installed in accordance with the plans and specifications as approved by the Department, and,
- (5) THAT this approval is given with the understanding that construction will be started within two years of this date. If more than two years elapse before beginning construction, it shall be necessary to resubmit the plans when construction is contemplated, and,
- (6) THAT as soon as the water supply serves ten (10) or more residentialsite locations, the Montana State Department of Health will be given written notification of this fact, and a licensed Water Supply System Operator will be provided by the owner to perform Maintenance and Operation in accordance with Title 69, Section 5901 through 5912, R.C.M. 1947,
- (7) THAT the water supply system serving those residential structure site locations identified on the planning-plat map as 301, 302, 305, 317, 318, 319, 230 is a multi-user water supply system to be constructed in accordance with the plans and specifications provided this office under the seal of Douglas E. Daniels, P.E., dated June 28, 1977, and,
- (8) THAT the water supply system serving those residential structure site locations identified on the planning plat map as 201, 202, 206, 209, 216, 217, 219, 220 is a multi-user water supply system to be constructed in accordance with the plans and specifications provided this office under the seal of Douglas E. Daniels, P.E., dated June 28, 1977.
- (9) THAT, should the multi-user water supply system or the individual water supply systems at structure site locations identified on the planning plat map as 203, 204, 205, 210, 211, 306, 307, 308, 309, 311, 312, 314, 315, 316, 401, 402, became unsatisfactory in terms of quantity, quality or dependability plans and specification will be provided the Department to provide connection to the Borcher's of Finley Point Community Water Supply System, and,
- (10) THAT, departure from any criteria set forth in the approved plans and specifications and MAC 16-2.14(10)-S14340 when constructing the waste water treatment facility in said subdivision without Department approval, is grounds for injunction by the Department of Health and Environmental Sciences.

Sincerely,

Wilbur O. Aikin, P.E. Subdivision Eureau Environmental Sciences

WOA:kah



Mr. Douglas E. Daniels, P.E. Thomas, Dean and Hoskins, Inc. 3 Sunset Plaza Kalispell, Mr 59901

Re: A community waste water treatment plant for that Lake County Subdivision known as BORCHERS OF FINLEY POINT; i.e., a series of 5 separate multi-user collection systems consisting of 6-inch P.V.C. piping, each system to be discharged into a specific septic tank and with each septic tank to be equipped with a dual pump lift station capability by which effluents from said treatment tanks are to be pumped through pressure pipe to a <u>common</u> distribution box for ultimate disposal in an 1800 linear feet absorption trench drainfield as specified by plans and specifications provided this office under the seal of Douglas E. Daniels, P.E., dated June 28, 1977. E.S. 77/K329

Dear Douglas:

The above referenced plans have been reviewed by engineers of the Environmental Sciences Division and were found to be satisfactory. Approval of these plans is given herewith and according to the following provisions:

- (1) THAT the residential-structure site locations herewith approved are only those identified on the planning-plat map as 201, 202, 206, 209, 216, 217, 219, 301, 302, 305, 318, 319, 320, 403, 404, 406, 408, 409, 410, 411, 412, 413, 414, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, and,
- (2) THAT any failure or inadequacy of the existing individual or multiuser systems now in use at those residential-structure site locations indentified as 203, 204, 205, 210, 211, 311, 312, 313, 314, 316, 317, 401, 402, will be corrected by inclusion into this comunity disposal system as soon as it can be determined whether the comunity disposalsite must be enlarged to provide required additional adsorption area, and,
- (3) THAT any change in the above referenced plans will be submitted to the Water Quality Bureau for review prior to beginning of construction, and,

Mr. Douglas E. Daniels, P.E. Page Two July 21, 1977 Borchers of Finley Point E.S. 77/K329

- (4) THAT upon completion of the project, the engineer will be required to submit a statement that the sewer system has been inspected and found to be installed in accordance with the plans and specifications as approved by the Department, and,
- (5) THAT this approval is given with the understanding that construction will be started within two years of this date. If more than two years elapse before beginning construction, it shall be necessary to resubmit the plans when construction is contemplated, and,
- (6) THAT as soon as the waste water treatment plant serves ten (10) or more residential-site locations, the Montana State Department of Health will be given written notification of this fact, and a licensed Waste Water Treatment Operator will be provided by the owner to perform Maintenance and Operation in accordance with Title 69, Section 5901 through 5912, R.C.M. 1947.
- (7) THAT the area delineated for drainfield use will be clearly identified upon the surface of the ground and this area isolated by whatever means the developer might choose to make certain that the surface of said drainfield area is not used by wheeled vehicles for any additional purpose other than that of siting sewage disposal absorption trenches.
- (8) THAT, because the system utilizes septic tanks and absorption tranches, the plans and specifications will be reviewed and approved and a septic tank permit issued by the Lake County Health Department before construction is started, and,
- (9) THAT, departure from any criteria set forth in the approved plans and specifications and MAC 16-2.14(10)-S143420 when constructing the waste water treatment facility in said subdivision without Department approval, is grounds for injunction by the Department of Health and Environmental Sciences.

Sincerely,

Wilbur O. Aikin, P.E. Subdivision Bureau Environmental Sciences Division

WCA:kah





APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENTSYS INSTALLATION PERMIT

Bhone # 🐨

DAKE COUNTY ENVIRONMENTAL HEALTH 106 FOURTH/AWENUE EAST ROLSON /MT: 59860-2175

Email:envhealth@loke

Deed Restriction

Check

Return the completed application with the \$300.00 permit fee to the above address 53 261 ABY

TIM ROSE Property Owner

O REDTAIL ED CITY POUSON State/ZID MI Malling Addres Property Address: Borzanerza Lame

Range Lead Description & Section Township Tax IDI GEO Code: 😪

Block $() \cap () \cap ()$ Subdivision/COS New CReplacement Down Falled Alteration Wastewater System: (Oircle) Structure ((Circle) Cingle Family MUII Family Mobile Home Commercial Garage

(IN) Basement Bedroom #: (Circle) Well (Loke) Spring Community Water System: (Circle) (Existing) Proposed

Water.Soffener/Treatment.units(s) in useror proposing to install. *** Yes Phone# General Contractor: Phone #

Septic Installer: I hereby declare that the information submitt system components are installed unless other conducted by Loke County Environmental Her dge: 11 understand that an installation permit must b anils interand, completed to the best of my knowle authorized: by: a. Lake: County: Registered: Sanitarian: I raiso: understand: a in insolution) per nim raus: Devisore: Cary authorized: by: a. Lake: County: Registered: Sanitarian: I raiso: understand: a 'final-inspection: and: approval: of the system: must: be for i o back. Iffing and use of the system: My signature also authorizes access to the described, property for, purposes of reviewing

FOR TIM KOSED ate Owner/Agent Signature:

OFFICE USE ONLY

for Use of Septic Shared Affidavit Other Easement Guest House Level 2 Document: Tank as Completed Required Not Required ES# Sanitation Approval: (Circle) lemonouri 10 Design Flow -- Number of Bedrooms: Gal Per Day ittelding

DUMP TONIC Soll Type. Application Rate:

Level II system required? Y System Design: 31 sching: ismodu ust como u wyhall action of Approved: MUSU VEDUID hen appe muller runit Planner Initials

Signature of Registered Sanitarian

THE DESIGN, LOCATION, & ORIENTATION OF THE DRAINFIELD MAY NOT BE ALTERED WITHOUT PRIOR APPROVAL FROM LAKE COUNTY ENVIRONMENTAL HEALTH. APPROVED PERMIT IS INVALID IF SYSTEM IS NOT INSTALLED WITHIN TWENTY FOUR MONTHS OF ISSUANCE



Zowland Environmental Consulting, Inc.

P.O. Box 171 Polson, Montana 59860 Phone: 406-883-1015 Fax: 406-883-1780 Email: rec1@centurytel.net

May 3, 2011

Joel Nelson Lake County Planning Department 106 4th Avenue East Polson, MT 59860

RE: "The Lodge" at Borchers of Finley Point

Dear Mr. Nelson,

The owners of "The Lodge" at Borchers of Finley Point have requested that I comment on the placement of a new septic tank on the property. The new tank will be a 2500 gallon combination septic tank and pump chamber and is large enough to accommodate the proposed four-bedroom home. The proposed location (see attached schematic) meets the 50.0' setback from Flathead Lake, the 10.0' setbacks from structures and the 10.0' setbacks from property lines.

Finally, the tank size and location should allow easy connection to any new drainfield designed for the project

If you have any questions regarding this letter, please feel free to contact me.

Sincerely,

Zouch

Shawn D. Røwland, R.S MS President

Circular DEQ 4 Page 71 of 103

CHAPTER 24

HOLDING TANKS

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General

24.1

Holding tank are used to hold wastewater until pumping occurs by a licensed septic tank pumping service and wastewater is disposed at an approved location.

- 24.2 Holding tanks are septic tanks that have no standard outlets and are modified to provide full time access for pumping.
 - 24.2.1 Holding tanks must have a minimum capacity of 1000 gallons. Larger tank capacity may be required by the reviewing authority as determined on a case by case basis.
 - 24.2.2 Holding tanks must meet the construction standards of chapter 7 except that no outlet opening shall be cast in the tank walls. Holding tanks installed where the seasonal groundwater table may reach any portion of the tank must be a single pour (seamless) tank design.
- 24.2.3 Holding tanks must have an audible or visual warning alarm that signals when the tank level has reached 75 percent of capacity. The tank must be pumped as soon as possible after the alarm is triggered and before the tank reaches 100 percent capacity.
- 24.2.4 Holding tanks must be stabilized against flotation if the tank is installed where seasonal groundwater may reach any portion of the tank.
 - 24.2.5 Holding tanks must be waterproofed against infiltration and exfiltration.
- 24.2.6 Holding tanks must meet the separation distances and other requirements in the subdivision and county minimum standard regulations, ARM 17.36.101 through 1107.

* tightness lest negulad - fill with water check after minimum of 8 hrs - must be Rose permit # 17600 <2" loss. * required elements Page Two - Deed Restriction - Lodge Tract - Borchers of Finley Point

- 12. This restriction applies to all current and subsequent owners of the property and may only be rescinded with the mutual written consent of the Board of Lake County Commissioners and the property owner(s) of record at the time.
- 13. Once the lodge tract is connected to a District wastewater treatment system or other permanent system approved by the Lake County Board of Health, this Deed Restriction will be considered satisfied and void without further documentation.

Uth day of MA DATED this ____, 2011. STATE OF (UASHALGTON County of Kday of // On this , 2011 before me a Notary Public for the State of personally appeared Timothy L. Rose known to me to be the person whose name is subscribed to the above instrument and acknowledged to me that he executed the same. IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year above/written. , ₂ සුගුරු සුග TERI L. FINNEY Signature: NOTARY PUBLIC Notary Public for the State of STATE OF WASHINGTON Residing at COMMISSION EXPIRES JUNE 9, 2014 My Commission expires:





APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENT SYSTEM INSTALLATION PERMIT

	PH: 406-883-7236
POLSON, MT 59860-2175	FAX: 406-883-7205 Emgil: envbegith@lakemt.gov
100,00	enter, officiality and an gov
Return the completed application with the \$300:00 pe	rmit fee to the above address.
Property Owner: Blake & Diane Johnson	Phone #
Mailing Address: <u>345 E 58th 8th Apt 2</u> Cit	y <u>Naw York</u> state/Zip <u>NY 10022-225</u> 2
Property Address: <u>Borchers of Finley Point</u>	
Legal Description: Section Township	<u>23N</u> Range_ <u>19W</u>
GEO Code: <u>3351-01-2-02-01- 1401</u>	Tax ID: 2665
subdivision/COS: Barchers of Finley Point Lot_	<u>401</u> Block Parcel Size <u>NA</u>
Wastewater System: (Circle) New Replac	ement Failed Alteration
Structure: (Circle) Single Family Multi-Family, M	obile Home Commercial Garage
Bedroom #: <u>5</u> Basement: Yes	No
Water System: (Circle) Existing Proposed (Circle	e) Well (Lake) Spring Community
General Contractor: <u>NA</u>	Phone #
Septic Installer. Lived Bjork	Phone # <u>261-4898</u>
I hereby declare that the information submitted herein is true and comp installation permit must be issued before any system components are install Sanitarian. I also understand a final inspection and approval of the system prior to back filling and use of the system. My signature also authorizes acc application.	leted to the best of my knowledge. I understand that an ed unless otherwise authorized by a Lake County Registered must be conducted by Lake County Environmentol Health sess to the described praperty for purposes of reviewing this
Owner/Agent Signature:	Date: <u>3/11/10</u>
Replaces Permit # 10019 1913 Borch	ers (Johnson & Halseth)
OFFICE USE ONLY	to be created when drainfield is permitted
Document: Level 2 Guest House Easement	Shared Affidavit Other
Sanitation Approval: (Circle) <u>Required</u> Completed	Not Required $ES # 24 - 17 - 19()2 Needed$
Design How - Number of Bedrooms;	Gal Per Day:171 830
	Hic Pank: <u>200 QUON COMPINATION TANK</u> PUMP
System Design:	101:
Nate: tank many very internation abacination ware	Final homestile to actions at C. I
insteanter obn. Drivenuer has manufast if tour is to	what in driving of parties and the I
Approved Development: Installation of MG 200 Grinder	Planno Basin & Planno with 141 110 PST
Polyethylone Pipes to softer trank to include strandord his	th under ahm Tank will some as
emborshy hydring tank parting subdivision under where	schm(s) Planner Initials
policie. I Breland by Belwand Env Consulting	
Sun The s 3-11-	2010 11440 2381
Signature of Registered Sanitarian Date of articler pump basin must be located to further blocated the THE DESIGN, LOCATION, & ORIENTATION OF THE D	t Issue Permit # Check # In building buildations to meet 20 milling 521 setback.
WITHOUT PRIOR APPROVAL FROM LAKE COUN	IY ENVIRONMENTAL HEALTH.
Nated 11/02/04	ITTIN IWENTY-FOUR MONTHS OF ISSUANCE,



Rowland Environmental Consulting, Inc.

P.D. Box 171 Polson Montana 59860

Phone 406-885-105 Fax 406-885-1750 Email: recl@centurytel.net

February 24, 2010

DRAFT

Lake County Environmental Health Department 106 4th Avenue East Polson, MT 59860

RE: Septic Tank Upgrade for Units 401 and 402, Borchers of Finely Point

To Whom It May Concern:

Attached you will find the Application for Lake County Wastewater Treatment Installation Permit. This application is for the upgrade of the existing, shared septic tank serving Units 401 and 402 of Borchers of Finley Point. The existing septic tank is Located in the crawl space of Unit 402 and will be replaced by a Myers MG200 grinder pump and pump basin. The Myers pump package will be Located between the two units, where it will pump raw sewage and effluent through a 1 1/4 200 psi polyethylene pipe to a 3000 gallon combination septic tank and pump chamber located near the existing drainfield Lake County Permit #10010. Due to the rocky terrain between the grinder pump and septic tank, the lift line may be installed near ground surface or hung from the existing stairwell. A valve will be installed to allow the system to be drained back into the pump basin during the winter months.

I have also attached comment from the Timbrshor Association which indicates that the association will allow the installation of the system on the Timbrshor's Common Property.

If you have any questions regarding this application, please let me know.

Sincerely,

Shawn D. Rowland, MS R.S.

cc. Blake Johnson Jack Manning. Greg McKormick. Tom Cox. Greg Bjork




	orchers of fir	alcy Pt
HYSICAL ADDRESS	<u></u>	·
EGAL DESCRIPTION	_1/21/41/4	SECTION, TWPN, RNG
EOCODE <u>3251-07-</u> ERMIT NO. <u>Assignud</u> , #	2 <i>-02-01</i> SUBDI 5000-B	VISION Borchers of Finler ALOT BLK X TIMBORShors ' BLK CONTRACTOR John Dohandorf
	INSPE	ECTION SKETCH
Share	d Drainfield	For lots
		403/404*
		406
		410
	Permit 50.50	411 412 Thomas & Caryl Potter Cox - 1st 408
all serves		40.9
HS K Dan		414
Mr. Er		
NE GETON		
		* 403/404 is considered as one hook up - only one dwelling can be erected on the unit

SIGNATURE OF APPLICANT OR AUTHORIZED AGENT





. et . . LAKE COUNTY BOARD OF HEALTH FINAL INSPECTION AND USE PERMIT OF INDIVIDUAL SEWAGE DISPOSAL SYSTEM - 医乳子 医子子 PROPERTY OWNER ٢Ď Ŵ . . . PHYSICAL ADDRESS Uni 4-20 LEGAL DESCRIPTION 1/4 Sec W Twn 📈 N, Rng 7. n NSQU Permit No. Contractor INSPECTION SKETCH 5 A tol: 20'6" The second second B to 1:21 C to 2: 10'6" D to 2:86" 1500 gal sentic tank inet well os /alan 0 in 20 2 204 to drawbed connection to drawbed 2" POCpipe Existing pres يەن _ ÷ ; ng to approved pre-sketch? No talled accord Yes Is system i Date 3-31 _qu · Inspected b Signature of Applicant or Authorized Agent the state of the second se 2 FOR OFFICE USE ONLY: Computer 73., с. <u>+</u> 3Z3

December 18, 1989

John Dohrendorf Box 802 Polson, Montana 59860

Dear John,

45

Enclosed please find the inspection sketch/permit fee receipt for the Borchers of Finley Point multi-residence sewage disposal system. Provide this to the property owner for his records.

Another good job. Thanks for the cooperation. I wish you and your family a Merry Christmas.

Sincerely,

Albert M. Hawkaluk R.S. Lake County Land Services L

26

AMH/vhd Evel: Pervied #1837 December 18, 1989

John Dohrendorf Box 802 Polson, Montana 59860

Dear John,

Enclosed please find the inspection sketch/permit fee receipt for the Borchers of Finley Point multi-residence sewage disposal system. Provide this to the property owner for his records.

Another good job. Thanks for the cooperation. I wish you and your family a Merry Christmas.

Sincerely,

Albert M. Hawkaluk R.S. Lake County Land Services

240

AMH/vhd Evel: Perus #1837

APPLICATION FOR LAXE COUNTY SEMAGE DISPOSAL SYSTEM INSTALLATION
Property Owner Phil Kovell Boucheve of Finley Pt. Tax Statement 1
Mailing Address 9/0 Howestake LANE #12 city gread FAILS ST WW Zip 59405
Property Address7_23_19Telephone 452-7004
Legal Description
lot 3 (Unit' 201)
GED Code
Is the property zoned? yes \times no $\not\equiv$ Has a valid construction permit been issued? yes \times no_Permit $\frac{92}{8}$
Property Type: Agricultural Lake ShoreX Residential_X Commercial Floodhazard
State Septic Approval:RequiredCompleted XKot Required Reference Date Hame Contractor's nameLiCeuse D in LiAke Co
SITE INFORMATION
This application is for replacementnew
Dwelling Type: single family welti-family mobile home other
Other improvements on property?
Is the mater system proposed or existing χ ? What type is it?
Drainfield Sizing Reference: number of bedrooms $2 - 3$ other
Soil type in area of proposed drainfield?
Percolation test results? Absorption area proposedft ² /per bedroom
Required septic tank size 1500 pol st/web web (splinns P/ pump Scheen, Type of absorption area proposed to existing Organized Supreme

The pre-sketch of proposed layout should be drawn on the back of this application. Please show the property lines, the direction of the slope and the distance to the wells, streams, irrigation ditches, lake, and any other bodies of water.

I hereby declare that the information submitted herein is true and complete to inspection of the approved system must be conducted by the Lake County Health	the best of my knowledge. I understand that a final Department prior to backfilling.
	1-19-94 962
by nature of Applicant or Authorized Agent	Date
Albawhalich	9947
bighature of Registered Sanitarian	Permit Number
ADDODIVED DEDNIT IS INVALID TE SYSTEM IS NOT INSTALLED WITH	HTH STY (4) NONTUS OF TESUANCE

ADDONNER DEDNIT IS YAVALIN TE SYSTEM IS ANT INSTALLER MITHIN STY (2) MONTUS OF TESHANCE



"我们的你的好好。"

August 31, 1992

E COUNTY LAND SERVICES PLANNING AND SANITATION 1 106 Fourth Avenue East Polson, Montana 59860-2175

Phil Korell Homestake Lane #12 Great Falls, Montana 59405

Re: Finley Point Zoning - Building Notification Permit #F.P.92/8

Dear Mr. Korell

ine. Refering The Lake County Planning staff has reviewed your request for a Building Notification Permit. Based on the information provided by you and verified by an on-site evaluation, we find this project approvable under the guidelines contained in Resolution #852. This letter shall constitute a Building Notification Permit as required by Section 10 of the Finley Point Zoning Regulations, and is subject to the following conditions:

- 1. The structure shall not exceed 30 feet in height as measured from average project grade.
- 2. The structure shall not be located on slopes of 25% or greater.
- 3. The owners shall, prior to the start of construction, obtain a sewage disposal permit from the Lake County Sanitarian. A copy of this permit shall be forwarded to this office.
- 4. No portion of the structure, to include attached decks, shall extend to within 30 feet of the high water mark of Flathead Lake.
- 5. This permit shall not be construed as insurance that the structure is contained within the applicants property boundary or that it will accomplish its intended purpose.
- 6. This permit does not supersede or negate any stricter regulations or other encumbrances which may apply to this particular property.



BORCHERS OF FINLEY POINT

Evaluation of Drainfield - Permit # 1837 Serving Area 2

Site Number	Number of Bedrooms	GPD.
201	2 .	225
202		-
203	2	225
204	3	300
205	2	225
206	4	350
209	2	225
210	2	225
211	2	225
216	-	<u> </u>
217	Not to be developed	-
219	-	
Lodge?	(5)	(400)
TOTAL	19	2000

Existing Drainfield Permitted 1989 4 100' laterals - 2' trenches @ 12" g ravel = 800sf drainfield existing.

2000gpd X application rate .6gpd = 3333 sf drainfield needed 800sf is acceptable drainfield size for 480 gpd = 1 6-bedroom home = 2 2-bedroom homes

(Old standard = 150sf/bedroom X 19 bedrooms = 2850sf needed)

Conclusion: drainfield is undersized for lots served

- 41 - 1^{- 1}- 1





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Property leased to Bob and Dr. Halseth of greatfalls SEPTIC TANK PERMIT COUNTY HEALTH DEPARTMENT Date Sog 9. 6 1973 PROPERTY OWNER BOILDAN Address Fuller R TO BE BUILT BY Phone Fee Paid \sim yes no Application Plans Approved For The Following Minimum Specifications: in sand. 1000 Lilung Gallon Septic Tank) and 440 Square Feet of Absorption Area Consisting of agrain for dimens -see d WHEN INSTALLATION IS COMPLETE AND BEFORE BACKFILLING - ÇALL HEALTH DEPARTMENT FOR INSPECTION. Issued By INSPECTED BY DATE

. . . .

existing drainfields serving the existing residences failed, they were to be connected to this community drainfield.

The wastewater treatment systems serving the subdivision are clearly not as approved. The largest drainfield located near the "lodge" residence was not installed as per the approved design for the community drainfield. This drainfield has been determined to be undersized for the number of residences it serves; see evaluation page included. Some homesites are served by individual, shared, or multi-user drainfields. Some of the systems existing at the time of the subdivision are not known and probably do not meet minimum setbacks or other standards.

The newer systems installed are excellent drainfields and use advanced technologies unavailable at the time the subdivision was approved. Most of the systems installed since the subdivision approval have county permits. It is not clear why these systems did not follow the MDEQ approval for one community system.

In order to correct the legal record for this subdivision, Borchers of Finley Point must revise its MDEQ approval regarding water and wastewater systems. This involves an application made to the MDEQ that defines: h ow the residences are currently served by water and wastewater systems; how inadequate systems will be brought into compliance; and how shared user agreements, easements, and/or homeowner association documents will address system installation, maintenance and operation. The application is typically submitted by an environmental consultant, and, in this case, will likely require professional engineering.

Now that it is understood that the subdivision is not in compliance with its MDEQ approval, the Lake County Environmental Health Department will not issue wastewater permits for this subdivision nor allow new construction or changes to existing systems until the MDEQ approval is revised. Revision of the MDEQ approval, while a substantial undertaking, will both bring the subdivision into compliance with state law and provide an orderly plan for the future water and wastewater infrastructure of this condominium subdivision.

Please do not hesitate to contact me for further information and discussion on what is needed to resolve the above issues.

Sincerely,

Susan K. Brueggeman, R.S. Environmental Health Director

Enc: MDEQ Certificate of Subdivison Approval Water System Approval Letter Wastewater System Approval Letter Evaluation of Community Drainfield



February 17, 2010

Borchers of Finley Point/Timbrshor Association c/o Phil Grainey 324 Main Street SW Ronan, MT 59864

Dear Timbrshor Association,

In early November 2009, at a meeting with the Board of Lake County Commissioners to discuss the proposed alternative locations of the units created by the Borchers Of Finley Point condominium declaration, it was requested that the Commissioners visit the site to visually inspect the staked locations of each unit and provide feedback to the owners regarding each proposed location. This letter is intended to provide comment from the Lake County Commissioners regarding the proposed unit locations that were staked and/or pointed out by a group of owners during a site visit on December 18, 2009. The proposed unit locations that were pointed out are also depicted on the Carstens Land Surveying document dated, April 21, 2008 and entitled, "Borchers of Finley Point REV 11-03-08", which represents proposed amendments to the site plan ("Plat") of Borchers of Finley Point Country Planning Department on December 17, 2008, and has been the subject of correspondence previously issued by the Lake County Planning Department on January 28, 2009 and by the Lake County Planning and Environmental Health Departments on June 11, 2009 (copies attached).

The County Commissioners reviewed each proposed alternative unit location to determine if the change would bring the subdivision out of compliance with the original subdivision, the Finley Point Zoning District Regulations or the review criteria specified in 76-3-608, MCA. If the Commissioners determine that a proposed change would not bring the subdivision out of compliance with these items, the change can be deemed immaterial and there would be no requirement for a formal subdivision application submittal and review process as established in the Lake County Subdivision Regulations and the Montana Subdivision and Platting Act. These amendments could be included on an amended site plan for the subdivision and submitted for recordation with the Lake County Clerk and Recorder, but the Board of Commissioners finds it necessary to require that any amended site plan identify the exact footprint in which the building unit, as well as the location of the driveway and parking areas that would serve the building unit, would be required to be constructed. In the case where more than one building unit is being proposed in an area that is not currently accessible by an internal subdivision access road, the exact location of the access roadway will also be required to be depicted on the amended site plan.

The proposed alternative locations for units numbered 318, 319, 320, 408, 414, 417, 426, and 427 appear reasonable and could be approved without additional review. Of these units, 408, 414 and 417 can be accessed via a driveway from an existing internal roadway but the following units will-have to have an access road constructed from an existing roadway: 318-320 and 426-427. Prior to approval of the final amended site plan, a draft document to be recorded with the amended site plan

The additional information necessary to review the proposed alternative location for unit 422 includes:

• A site plan that includes the building footprint, parking area and an access driveway for the unit from Osprey Lane. The driveway is required to meet the standards included in this letter.

The alternative unit locations for units 202, 421, 424, and 430 do not appear reasonable to Lake County. It is the opinion of the County at this time, that without a formal application for subdivision review that includes evaluation of an environmental assessment, compliance with the local subdivision regulations, a public hearing, and Department of Environmental Quality review of the impacts of storm water drainage ways, that these units would impact the primary review criteria of 76-3-608, MCA regarding impacts to the natural environment, and impacts to public health and safety. In support of this conclusion, the County cites the following limiting factors:

- The proposed alternative location for unit 202 does not currently have a legal and physical vehicular access suitable for provision of public services; the area lacks reasonable pedestrian access; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; the area does not comply with the zoning district regulations as it is 44ft to the highwater mark of Flathead Lake and 9 ft to the boundary of the Borchers of Finely Point property and the area is in close proximity to a platted unit that has not yet been constructed to demonstrate there is area for two units that meet the zoning district regulations; and there are several alternative locations on the property for development of a unit that would comply with the local zoning regulations and not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 421 does not currently have a physical vehicular access suitable for provision of public services; the area is 60 ft from Flathead Lake and is in a natural drainage way; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 424 does not currently have physical vehicular access suitable for provision of public services; the area is 85 ft from Flathead Lake and is in a natural drainage way; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 430 does not currently have physical vehicular access suitable for provision of public services; the area does not comply with the zoning district regulations as it is 35 ft from the highwater mark of Flathead Lake and appears to be located outside the boundary of the Borchers of Finely Point property; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment:

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Driveway Standards:

o A minimum 12-foot wide driveway

• A maximum 12 percent slope and a maximum 5 percent slope for the initial 20 feet from the primary access road

The Board of Commissioners recognizes that the need for this amendment is the result of extraordinary circumstances and therefore we are attempting to be as reasonable as possible while working with the owners of the units of Borchers of Finley Point/Timbrshor Association. It will be necessary to demonstrate concurrence from the unit owners in regards to the locations of all units, driveways, and access roadways that are currently located in common area and because of the exceptions being made to allow for a reduction in roadway development standards, the unit owners will have to agree to exempt Lake County from liability as it relates to the legal and physical access to the units in the subdivision.

Sincerely, Board of Lake County Commissioners

Bill Barron

Member

Paddy Trusler Member

Chuck Whitson Chairman

huck

cc: Burke Townsend, President, Timbrshor Association Kurt Moser, Office of the Lake County Attorney

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FINAL INSPECTION AN	LAKE COUNTY LAND SE D USE PERMIT OF INDIVIDU	RVICES IAL SEWAGE DISPOSAL SYST	EM
PROBERTY OWNER Phill	Korell (Borcherb	of finley Pt)	
PHYSICAL ADDRESS % Home	stake In # 12. Mile	at fallo, MT 59405	
FEGAL DESCRIPTION	¼¼ SECTION	<u>7</u> , twp_ <u>23_</u> n, rng_	19w
Guess 3351-07-2-0	2-01- SUBDIVISION Lot 3	3. Unit 201_ LOT	BLK
REPAIL NO 9947	CONTRA	CTOR	
	INSPECTION SKETC	СН	
Installed accordin	g to presketch		
	. •		
		SKETCH? YES V NO	

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leased to Bob Dr. Halseth of griestacia Listin Durn Summer callin sites ЮΡ E COUNTY HEALTH DEPARTMENT Date Soor 19 13 PROPERTY OWNER BON CHEN, WIE Address Finden B TO BE BUILT BY Phone Fee Paid yes no Application Plans Approved For The Following Minimum Specifications: in sand. 000 hillunglagion Septic Tank & and 440 Square Feet of Absorption Area Consisting of for dimens agnesin WHEN INSTALLATION IS COMPLETE AND BEFORE BACKFILLING - CALL HEALTH DEPARTMENT FOR INSPECTION. Issued By

14. ; ;

NSPECTED BY DATE

2 Stam 2 Rountree 2 78 302 78 3 Estvold 305 > qo to Olimpster greg > unknow septic tank- common > 1sts of cleanants - may go under 302 > no permit of record

	SEWA DISPOSAL SYSTEM INSTALLATION.
	File
Property own	er Lou Porchers
Legal Descri	ption
General Desc	ription Borchers of Fully Pt
Address 4	AST LAKE SHOPE REP. POISTA Phone No. DOG
Size of Parce	1Fione No. 801-1500
Application i	s for replacement new sewage disposal system
Ano any land	ling <u>3B(L)</u>
	use regulations in effect? Yes × No
Contractor MA	dwelling conform to land use requirements? Yes ¥ No
	License No.
to #?	3351-01-2-02-0000 PROPOSED SYSTEM
proposed or ex	isting water supply
Size of propose	ed septic tank contin that a province in the
Soil type in a.	THE THE PEPLIKE MENT STEEL SEPTIC
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rercolation tes	t results OPALLON CONCRETE \$550000 Thank
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Pre-sketch of prito wells, stream I hereby decord of my knowledge. ducted by the Lak Applicant or Author Approved permit	Deposed system layout - (use back of application; show property lines distance s, irrigation ditches, lake, etc. percent and direction of slope). Clare that the information submitted herein is true and complete to the best I understand that a final inspection of the approved system must be con- county Health Department.
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menter the second of the second 10-74 AKE COUNTY HEALTH DEPARTMENT APPLICATION FOR SEWER PERMIT Saul Oak a Property Owner Finler Address or Phone Legal Description of Property يعامدوا No. of Bedrooms Non inum ROWINDY Size of Septic Tank 3700 Size of Drainfield Type of Drainfield Soil Type of Drainfield Location Water Supply Flathead He Dav Must include property lines, buildings, and proposed sewer layout. Important! Sketch must show distance from absorp-tion area to wells, spring, streams, lakes or any surface SKETCH: water, Direction and % slope where applicable. wearen of the last source of the Briller · ·· KLARTONELLUI way installed. Vallarizino Swer drawtile laterals - 110 long below & over draintill gardenel drainfield ditch 6' deep fill around & over ! dranifield area. The drainfield site is used as a parking area. 3,700 gallon septic tank and fift station. location Worth > South deviction desinheld Palso Contractor Len Rak Address ыb 1971-72!! Inspected witalled Вy Sanitarian





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LAKE COUNTY Property Print 2009

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Page: 1

Name	TW	Rang SC Le	gal Descr	iption
2324				
BANTRY LLC	23	19 07 BORC	HERS OF FI	INLEY POINT
91 FAIRMONT AVE		UNIT	317	
CHATHAM NJ 07928-2315		04FF		
	Geo	code: 3351-0	7-2-02-01-	-0317
Class	Dist	Quantity	Market	Taxable/\$
4-2101 TRACT LAND	23MC	0.06	29066	875.00
4-3301 IMPS ON RURAL LAND	23MC	0.00	105263	3168.00
98-9001 SOLID WASTE MANAGEMENT DIST	SAN	1.00	0	135.00
98-9002 BLACKTAIL TV	TV	1.00	0	5.00
99-9020 STATE FOREST FIRE	FF	0.00	0	5.00
98-9004 SOIL CONSERVATION	SOIL	0.00	0	4043.00
*****	******	********	*******	*****

(981) 267

4 Plax 1954 Selly 2 306 1956 Payson Ł 301 齿 1950 Noviuski 1954 Cde > df / tank unknown -> well under 4-plax? no pump - gravity >not 100' setback tank?

ap LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT FINAL INSPECTION AND USE PERMIT OF WASTEWATER TREATMENT SYSTEM PROPERTY OWNER: PHYSICAL ADDRESS: 7, TWP 23 1/4 1/4 N, RNG 1/2 LEGAL DESCRIPTION: SECTION ___ GEOCODE: 3351-07-2-02-01-0000 SUBDIVISION: LOT: 430 . CONTRACTOR: PERMIT NO: 4N TWO-INDEPENDENT ALTRANATING DOS MIG LINES - 40 1000 GALLON SIPHON TANK powers. ~¹⁹ 2 dudine each 2 dudine each 3 bed Kash Hrdest Dorth Mr INFUTPHIOS INVILLE BARDE Xal and www.commerced. PHA S'X BO' TRENCHES TWO WALTS WO - QUIX 75' LATTEAKS i PHASE. WI INFILTRATORS SOURT TEST: GODD. 7 SERVICE FOR TWO WANTS ISTAGE 112 TOTAL APPROVED FOR 15 BEDROOMS GPD 118200 DATE INSPECTED BY: SIGNATURE OF APPLICANT OR AUTHORIZED AGENT: 329 R



TATERAL AT ELEVATION	#3			
Residual head in FT	7			
Orifice diameter (inches)	0.1875	3/16 " holes	3	
Flow through orifice	0.000	1.096		
Number of orifices		11.34	12	
Lateral length	35			
Orifice separation(ft)		2.92	35 inches	
Flow per lateral(epm)		13.15		
Number of laterals	I			
LATERAL AT ELEVATION	#4 1	nighest lateral		
Residual head in FT	5			
Orifice diameter (inches)	0.1875	3/16 " holes		
Flow through orifice		0.927		
Number of orifices		13.41	14	
Lateral length	35			
Orifice separation(ft)		2.5	30 inches	
Flow per lateral(gpm)		12.98		
Number of laterals	I			
TOTAL FLOW		51.45	51.45	
Velocity in Delivery pipe				
	Pipe dia	2.067		
	Velocity	4.92 ft/s		
ORIFICE PLACEMENT				
LATERAL #1	Lead dist	21 inches		
LATERAL #2	Lead dist	19 inches		
LATERAL #3	Lead dist	17 inches		
LATERAL #4	Lead Dist	15 inches		



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APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENT INSTALLATION PERMIT

LAKE COUNTY ENVIRONMENTAL HEALTH 106 FOURTH AVENUE EAST POLSON, MT 59860-2175 PH: 406-883-7236 FAX: 406-883-7205 Email: <u>envhealth@lakecounty-mt.org</u>

Return the completed application with the \$150.00 permit fee to the above address.

Phone # 406-788 0719 Property Owner: Mailing Address: State/7 6R Property Address: OSPREG 6 23 Section: Legal Description: Ranae Township Subdivision Name: Jorchers Parcel Size Block Bedroom $\#_3$ Wastewater System: (Circle) New Replacement Water System: (Circle) Well Lake Spring Community (Circle) Existing (Proposed Property Zoned: Yes No Dwelling: (Circle) (Single Famil) Multi-Family Mobile Home Commercial Garage I hereby declare that the information submitted herein is true and completed to the best of my knowledge. I understand that a final inspection and approval of the system must be conducted by Lake County Environmental Healtin prior to back filling and use of the system. My signature also authorizes access to the described property for purposes of reviewing this application. Owner Signature: OFFICE USE ONLY Planning Review: Incon Geo Code: 3351-07-4/bax Statement # Property Type: (Circle) Residential Commercial Agricultural Letteshore) Required State Septic Approval: (Circle) Completed Not Required of Finley fin Reference Date: _ Name: _ Borchers States Es # Absorption Area Required: Soil Type: Grassel Contractor: Jon Shultz Required Septic Tank: 1500 tiberglass 7 Drainfield/Sizing Reference: # of Bedrooms Other: 100 Absorption Area Required: Ċò Siphon Type of ETA Chambon trench ハウレー compon cations Énitarian Signature of Redistered S Date of issue Permit Number Check Number THE DESIGN, LOCATION, & ORIENTATION OF THE DRAINFIELD MAY NOT BE ALTERED OCT - 1 200 WITHOUT PRIOR APPROVAL FROM LAKE COUNTY ENVIRONMENTAL HEALTH. APPROVED PERMIT IS INVALID IF SYSTEM IS NOT INSTALLED WITHIN TWELVE MONTHS OF ISSUANCE.



PROPERTY OWNER	ers of Finley Pt			,, ,,, ,,, , ,,, , , ,,, , , , , , , , , , , , , , , , , , , ,
PHYSICAL ADDRESS				. <u>.</u>
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	414		- 	
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	× 403/404	is consid only one (on the v	ered as one dwclling con b wit	hook up be erected

LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT FINAL INSPECTION AND USE PERMIT OF INDIVIDUAL SEWAGE DISPOSAL SYSTEM

PROPERTY OWNER: THOMAS LOK + CARIL POTTER COK PHYSICAL ADDRESS: 30 OSprey Ln, Holson LEGAL DESCRIPTION: SECTION _____, TWP _____, RNG _____W ______ GEOCODE: 3351.07-2-02-01-0412 SUBDIVISION: BOPHERS OF FINLE PERMIT NO: 5050 CONTRACTOR: STANDARD CONSTRUCTION.

INSPECTION SKETCH


APPLICATION FOR LAKE COUNTY SEWAGE DISPOSAL SYSTEM INSTALLATION PERMIT
Section A: To be completed and signed by property owner or their representative. Permit fee determination to be made by sanitarian. Please remit payment with application to : Lake County Land Services, 106 Fourth Avenue East, Polson, MT, 59860.
Property Owner Thomas J Cary Potter COK Rhone # 618-549-3986
Mailing Address 105 WEST ELM ST City CARBONDALE State/Zip JL 602101
Property Address (If known)
Legal Description: Section 0.7 Township 23 N Range 19 W, 14 14 14 14 14
Subdivision Name (if applicable) Bovaneve of Finkey Pt. (What 412 Block
Size of Parcel Water system: Proposed Existing Type
Dwelling: Single family Multi-family Mobile home #Bedrms
Is the property zoned? Yes // No Zoning District Finite, Pt
Zoning Conformance Permit # F. P. 00-#17 If zoning conformance permit has not been issued, contact Lake County Planning Dept. to obtain a permit prior to Septic Permit being issued.)
I hereby declare that the information submitted herein is true and complete to the best of my knowledge. I understand that a final inspection of the approved system must be conducted by Lake County Land Services prior to backfilling.
Signature of Applicant or Authorized Agent Date
Section B: To be completed by Lake County Sanitarian.
GED Code 3351-07-202-01-0412 Toy Statement # \$199
System is a replacement new holding tank sewage disposal system. J-no
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchess of Finley Point State ES # 24-77-K90 7 / 74 / K330.
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchest of Finley Point State ES # 24-77-K90 7 / 74 / K330 Does property require a building notification permit? Yes No Permit #
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System is a replacement new _X_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _X_ Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Baccheck of Finley Faint State ES # 24-77-K907 / 74 / K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy learn Percolation test results 10-12 mun/under Absorption area proposed ft²/per bedroom Contractor Hu_ Beaver - how Be refuels Required septic tank size: 1500 gallons. Drainfield sizing reference: # of bedrooms other Bouchers of Funley Pt The presketch of the proposed layout-will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. WWW MAMMANANA
System is a replacement new _k_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _k Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bacchest of Finley Point State ES # 24-77-K907 / 74/ K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results /o- 12 mm/onch Absorption area proposed /90 ft²/per bedroom Contractor Au Berdu 25 _ Required septic tank size: /500 gallons. Drainfield sizing reference: # of bedrooms other House of absorption area proposed layout-will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. Mathematical State of Kamed Layout will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. Mathematical State of Kamed Layout will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. Mathematical State of Kamed Layout will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation dit



Install a 4" diameter standing check pipe with both ends capped. Only the bottom cap should be drilled. Drill several 1/8" to 1/4" holes in the bottom of the pipe and wrap the pipe in filter cloth.

APPENDIX C: NON-DEGRADATION

NITRATE SENSITIVITY, PHOSPHORUS BREAKTHROUGH, HYDRAULIC CONDUCTIVITY SPREADSHEET

NITRATE SENSITIVITY ANALYSIS

Model Updated 01/24/96

SITE NAME:	Timbrshor
COUNTY:	Lake
LOT NO:	Α
NOTES:	Preliminary

VARIABLES	DESCRIPTION	VALUE	<u>UNITS</u>
K	Hydraulic Conductivity	94	ft/day
I	Hydraulic Gradient	0.0500	ft/ft
D	Depth of Aquifer (usually constant)	15	ft
L	Mixing Zone Length (see ARM 17.30.517(1)(d)(viii)	200.00	ft
Y	Width of Drainfield Perpendicular to Ground Water Flow	130	ft
Ng	Background Nitrate (as Nitrogen)	0.05	mg/L
Nr	Nitrate (as Nitrogen) in Precipitation (usually constant)	1	mg/L
Ne	Nitrates in Effluent (50 for conventional; 24 for level II)	50	mg/L
#I	Number of Single Family Homes on the Drainfield	17	
QI	Quantity of Effluent per Single Family Home (constant)	26.7	ft ³ /day
Р	Precipitation	14	in/year
V	Percent of Precipitation Recharging Ground Water (usually constant)	0.2	
EQUATIONS			
W	Width of Mixing Zone Perpendicular to Ground Water Flow = (0.175)(L)+(Y)	165	ft
Am	Cross Sectional Area of Aquifer Mixing Zone = (D)(W)	2475	ft ²
As	Surface Area of Mixing Zone = $(L)(W)$	33000	ft ²
Qg	Ground Water Flow Rate = (K)(I)(Am)	11632.50	ft ³ /day
Qr	Recharge Flow Rate = (As)(P/12/365)(V)	21.10	ft ³ /dav
0e	Effluent Flow Rate = $(\#)(\Omega)$	453.9	ft ³ /day
SOLUTION Nt	Nitrate (as Nitrogen) Concentration at End of Mixing Zone =((Ng)(Qg)+(Nr)(Qr)+(Ne)(Qe)) / ((Qg)+(Qr)+(Qe))	1.92	mg/L

BY: A.Short

DATE: December 17, 2012

PHOSPHOROUS BREAKTHROUGH ANALYSIS

SITE NAME:	Timbrshor	
COUNTY:	Lake	
<u>LOT #:</u>	Α	
<u>NOTES:</u>	Preliminary	

VARIABLES	DESCRIPTION	VALUE	UNITS
Lg	Length of Primary Drainfield as Measured Perpendicular to Ground	130	ft
	Water Flow		
L	Length of Primary Drainfield's Long Axis	130	ft
W	Width of Primary Drainfield's Short Axis	75	ft
В	Depth to Limiting Layer from Bottom of Drainfield Laterals*	20	ft
D	Distance from Drainfield to Boundary	800	ft
Т	Phosphorous Mixing Depth in Ground Water (0.5 ft for coarse soils,	0.5	ft
Ne	1.0 ft for fine soils)**		
Sw	Soil Weight (usually constant)	100	lb/ft3
Pa	Phosphorous Adsorption Capacity of Soil (usually constant)	200	ppm
#I	Number of Single Family Homes on the Drainfield	17	
CONSTANTS			
PI	Phosphorous Load per Single Family Home (constant)	6.44	lbs/yr
Х	Conversion Factor for ppm to percentage (constant)	100000	-
EQUATIONS			
Pt	Total Phosphorous Load = (PI)(#I)	109.5	lbs/yr
W1	Soil Weight under Drainfield = (L)(W)(B)(Sw)	19500000	bs
W2	Soil Weight from Drainfield to Surface Water = $[(Lg)(D) + (0.0875)(D)(D)] (T)(Sw)$	8000000	lbs
Р	Total Phosphorous Adsorption by Soils = (W1 + W2)[(Pa)/(X)]	5500	lbs
SOLUTION			
BT	Breakthrough Time to Surface Water = P / Pt	50.2	years

BY: A.Short DATE: December 17, 2012

NOTES:

* Depth to limiting layer is typically based on depth to water in a test pit or bottom of a dry test pit minus two feet to account for burial depth of standard drainfield laterals.
** Material type is usually based on test pit. A soil that contains more than 35% silt and clay sized particles is considered fine grained.

NITRATE SENSITIVITY ANALYSIS

Model Updated 01/24/96

SITE NAME:	Timbrshor
COUNTY:	Lake
LOT NO:	В
NOTES:	Preliminary

VARIABLES	DESCRIPTION	VALUE	<u>UNITS</u>
K	Hydraulic Conductivity	94	ft/day
1	Hydraulic Gradient	0.0200	ft/ft
D	Depth of Aquifer (usually constant)	15	ft
L	Mixing Zone Length (see ARM 17.30.517(1)(d)(viii)	200.00	ft
Y	Width of Drainfield Perpendicular to Ground Water Flow	100	ft
Ng	Background Nitrate (as Nitrogen)	0.05	mg/L
Nr	Nitrate (as Nitrogen) in Precipitation (usually constant)	1	mg/L
Ne	Nitrates in Effluent (50 for conventional; 24 for level II)	50	mg/L
#I	Number of Single Family Homes on the Drainfield	12	
QI	Quantity of Effluent per Single Family Home (constant)	26.7	ft ³ /day
Р	Precipitation	14	in/year
V	Percent of Precipitation Recharging Ground Water (usually constant)	0.2	
EQUATIONS			
W	Width of Mixing Zone Perpendicular to Ground Water Flow = (0.175)(L)+(Y)	135	ft
Am	Cross Sectional Area of Aquifer Mixing Zone = (D)(W)	2025	ft ²
As	Surface Area of Mixing Zone = (L)(W)	27000	ft ²
Qa	Ground Water Flow Rate = $(K)(I)(Am)$	3807.00	ft ³ /dav
Qr	Recharge Flow Rate = $(As)(P/12/365)(V)$	17.26	ft ³ /dav
0	Effluent Elow Bate = $(\#)(O)$	320 4	ff ³ /day
		020.4	it iddy
<u>SOLUTION</u> Nt	Nitrate (as Nitrogen) Concentration at End of Mixing Zone =((Ng)(Qg)+(Nr)(Qr)+(Ne)(Qe)) / ((Qg)+(Qr)+(Qe))	3.92	mg/L

BY: A.Short

DATE: December 17, 2012

PHOSPHOROUS BREAKTHROUGH ANALYSIS

SITE NAME:	Timbrshor
COUNTY:	Lake
<u>LOT #:</u>	В
NOTES:	Preliminary

VARIABLES	DESCRIPTION	VALUE	<u>UNITS</u>
Lg	Length of Primary Drainfield as Measured Perpendicular to Ground	100	ft
	Water Flow		
L	Length of Primary Drainfield's Long Axis	100	ft
W	Width of Primary Drainfield's Short Axis	30	ft
В	Depth to Limiting Layer from Bottom of Drainfield Laterals*	20	ft
D	Distance from Drainfield to Boundary	1300	ft
Т	Phosphorous Mixing Depth in Ground Water (0.5 ft for coarse soils,	0.5	ft
Ne	1.0 ft for fine soils)**		
Sw	Soil Weight (usually constant)	100	lb/ft3
Pa	Phosphorous Adsorption Capacity of Soil (usually constant)	200	ppm
#	Number of Single Family Homes on the Drainfield	12	
CONSTANTS			
Pi	Phosphorous Load per Single Family Home (constant)	6.44	lbs/yr
Х	Conversion Factor for ppm to percentage (constant)	1000000	-
EQUATIONS			
Pt	Total Phosphorous Load = (PI)(#I)	77.3	lbs/yr
W1	Soil Weight under Drainfield = (L)(W)(B)(Sw)	600000	lbs
W2	Soil Weight from Drainfield to Surface Water = $[(Lg)(D) + (0.0875)(D)(D)]$ (T)(Sw)	13893750	lbs
P	Total Phosphorous Adsorption by Soils = (W1 + W2)[(Pa)/(X)]	3979	lbs
SOLUTION			
ВТ	Breakthrough Time to Surface Water = P / Pt	51.5	years

BY: A.Short DATE: December 17, 2012

NOTES: * De

* Depth to limiting layer is typically based on depth to water in a test pit or bottom of a dry test pit minus two feet to account for burial depth of standard drainfield laterals.
** Material type is usually based on test pit. A soil that contains more than 35% silt and clay sized particles is considered fine grained.

NITRATE SENSITIVITY ANALYSIS

Model Updated 01/24/96

SITE NAME:	Timbrshor
COUNTY:	Lake
LOT NO:	C
NOTES:	Preliminary

VARIABLES	DESCRIPTION	VALUE	<u>UNITS</u>
К	Hydraulic Conductivity	94	ft/day
I	Hydraulic Gradient	0.0200	ft/ft
D	Depth of Aquifer (usually constant)	15	ft
L	Mixing Zone Length (see ARM 17.30.517(1)(d)(viii)	200.00	ft
Y	Width of Drainfield Perpendicular to Ground Water Flow	100	ft
Ng	Background Nitrate (as Nitrogen)	0.05	mg/L
Nr	Nitrate (as Nitrogen) in Precipitation (usually constant)	1	mg/L
Ne	Nitrates in Effluent (50 for conventional; 24 for level II)	50	mg/L
#1	Number of Single Family Homes on the Drainfield	12	
QI	Quantity of Effluent per Single Family Home (constant)	26.7	ft ³ /day
Р	Precipitation	14	in/year
V	Percent of Precipitation Recharging Ground Water (usually constant)	0.2	
EQUATIONS			
W	Width of Mixing Zone Perpendicular to Ground Water Flow = (0.175)(L)+(Y)	135	ft
Am	Cross Sectional Area of Aquifer Mixing Zone = (D)(W)	2025	ft ²
As	Surface Area of Mixing Zone = $(L)(W)$	27000	ft ²
Qq	Ground Water Flow Rate = (K)(I)(Am)	3807.00	ft ³ /day
Qr	Recharge Flow Rate = (As)(P/12/365)(V)	17.26	ft ³ /dav
0e	Effluent Flow Rate = $(\#)(O)$	320.4	ft ³ /day
		520.4	it rouy
Nt	Nitrate (as Nitrogen) Concentration at End of Mixing Zone =((Ng)(Qg)+(Nr)(Qr)+(Ne)(Qe)) / ((Qg)+(Qr)+(Qe))	3.92	mg/L

BY: A.Short

DATE: December 17, 2012

PHOSPHOROUS BREAKTHROUGH ANALYSIS

SITE NAME:	Timbrshor	
COUNTY:	Lake	
<u>LOT #:</u>	С	
NOTES:	Preliminary	

VARIABLES	DESCRIPTION	VALUE	<u>UNITS</u>
Lg	Length of Primary Drainfield as Measured Perpendicular to Ground	100	ft
	Water Flow		
L	Length of Primary Drainfield's Long Axis	90	ft
W	Width of Primary Drainfield's Short Axis	30	ft
В	Depth to Limiting Layer from Bottom of Drainfield Laterals*	20	ft
D	Distance from Drainfield to Boundary	1400	ft
Т	Phosphorous Mixing Depth in Ground Water (0.5 ft for coarse soils,	0.5	ft
Ne	1.0 ft for fine soils)**		
Sw	Soil Weight (usually constant)	100	lb/ft3
Ра	Phosphorous Adsorption Capacity of Soil (usually constant)	200	ppm
#1	Number of Single Family Homes on the Drainfield	12	
<u>CONS⊺ANTS</u> PI X	Phosphorous Load per Single Family Home (constant)	6.44	lbs/yr
EQUATIONS			
Pt	l otal Phosphorous Load = (PI)(#I)	77.3	lbs/yr
W1	Soil Weight under Drainfield = (L)(W)(B)(SW)	5400000	lbs
W2	Soil Weight from Drainfield to Surface Water = $[(Lg)(D) + (0.0875)(D)(D)] (T)(Sw)$	15575000	lbs
Р	Total Phosphorous Adsorption by Soils = (W1 + W2)[(Pa)/(X)]	4195	lbs
SOLUTION			
BT	Breakthrough Time to Surface Water = P / Pt	54.3	years

BY: A.Short DATE: December 17, 2012

NOTES:

* Depth to limiting layer is typically based on depth to water in a test pit or bottom of a dry test pit minus two feet to account for burial depth of standard drainfield laterals.
** Material type is usually based on test pit. A soil that contains more than 35% silt and clay sized particles is considered fine grained.

NITRATE SENSITIVITY ANALYSIS

Model Updated 01/24/96

SITE NAME:	Timbrshor
COUNTY:	Lake
LOT NO:	D
NOTES:	Preliminary

VARIABLES	DESCRIPTION	VALUE	UNITS
к	Hydraulic Conductivity	94	ft/day
1	Hydraulic Gradient	0.0200	ft/ft
D	Depth of Aquifer (usually constant)	15	ft
L	Mixing Zone Length (see ARM 17.30.517(1)(d)(viii)	200.00	ft
Y	Width of Drainfield Perpendicular to Ground Water Flow	100	ft
Ng	Background Nitrate (as Nitrogen)	0.05	mg/L
Nr	Nitrate (as Nitrogen) in Precipitation (usually constant)	1	mg/L
Ne	Nitrates in Effluent (50 for conventional; 24 for level II)	50	mg/L
#[Number of Single Family Homes on the Drainfield	12	_
QI	Quantity of Effluent per Single Family Home (constant)	26.7	ft ³ /day
Р	Precipitation	14	in/year
V	Percent of Precipitation Recharging Ground Water (usually constant)	0.2	
EQUATIONS			
W	Width of Mixing Zone Perpendicular to Ground Water Flow = (0.175)(L)+(Y)	135	ft
Am	Cross Sectional Area of Aquifer Mixing Zone = (D)(W)	2025	ft ²
As	Surface Area of Mixing Zone = (L)(W)	27000	ft ²
Qg	Ground Water Flow Rate = (K)(I)(Am)	3807,00	ft ³ /day
Qr	Recharge Flow Rate = (As)(P/12/365)(V)	17.26	ft ³ /dav
Qe	Effluent Flow Rate = (#I)(QI)	320.4	ft ³ /day
<u>SOLUTION</u> Nt	Nitrate (as Nitrogen) Concentration at End of Mixing Zone =((Ng)(Qg)+(Nr)(Qr)+(Ne)(Qe)) / ((Qg)+(Qr)+(Qe))	3.92	mg/L

BY: A.Short DATE: December 17, 2012

PHOSPHOROUS BREAKTHROUGH ANALYSIS

SITE NAME:	Timbrshor	
COUNTY:	Lake	
<u>LOT #:</u>	D	
NOTES:	Preliminary	

VARIABLES	DESCRIPTION	VALUE	UNITS
Lg	Length of Primary Drainfield as Measured Perpendicular to Ground	100	ft
	Water Flow		
L	Length of Primary Drainfield's Long Axis	100	ft
W	Width of Primary Drainfield's Short Axis	30	ft
В	Depth to Limiting Layer from Bottom of Drainfield Laterals*	20	ft
D	Distance from Drainfield to Boundary	1400	ft
Т	Phosphorous Mixing Depth in Ground Water (0.5 ft for coarse soils,	0.5	ft
Ne	1.0 ft for fine soils)**		
Sw	Soil Weight (usually constant)	100	lb/ft3
Pa	Phosphorous Adsorption Capacity of Soil (usually constant)	200	ppm
#1	Number of Single Family Homes on the Drainfield	12	• •
CONSTANTS			
Pl	Phosphorous Load per Single Family Home (constant)	6.44	lbs/vr
Х	Conversion Factor for ppm to percentage (constant)	1000000	
EQUATIONS			
Pt	Total Phosphorous Load = (PI)(#I)	77.3	lbs/yr
W1	Soil Weight under Drainfield = (L)(W)(B)(Sw)	600000	lbs
W2	Soil Weight from Drainfield to Surface Water	15575000	lbs
	= [(Lg)(D) + (0.0875)(D)(D)] (T)(Sw)		
P	Total Phosphorous Adsorption by Soils = (W1 + W2)[(Pa)/(X)]	4315	lbs
SOLUTION			
BT	Breakthrough Time to Surface Water = P / Pt	55.8	years

BY: A.Short DATE: December 17, 2012

NOTES:

* Depth to limiting layer is typically based on depth to water in a test pit or bottom of a dry test pit minus two feet to account for burial depth of standard drainfield laterals.
** Material type is usually based on test pit. A soil that contains more than 35% silt and clay sized particles is considered fine grained.

Territorial-Landworks, Inc. Missoula, MT 59806

PO Box 3851 (406) 721-0142

TES.																		
		1														_		
ell locations shown on USGS Vicinity/Well Locations iradient calculation shown on USGS Vicinity/Well Loc	Map in Se ations Ma	action E	action E	m										Average k Average Yield	from well I from we	s identified Ils ID'd on I	on USGS: JSGS:	94
insmissivity (T) = (33.6((Q)(192.5)/S)^0.67) (From: <i>J</i> widown (S) = Pumping Water Level (Pw) - Static Wit OR (S) = Drill Stem Setting (Dss) - Static Water Level (S OR (S) = Total Depth (Td) - Static Water Level (S en Length (b) = "To" - "From" (when both are known) OR (b) = 10 freet (when the well is come bottom	upplied H) tter Level .evel (Swl .wl) (wher	/droge((Swl) ((wher) (wher	when F when F n pump	3rd Edition pumping v ping water or Dss we	n by Fette vater leve level was re known	r) & Hydr l is known) s unknown	aulic Co	air test v	ity (k) = T/b vas used)									
wic ld Site Name	PL	d Iwa	Y IW	field	Test	Test	Dee	Ima	Date	Erom	Ę	-	acontabilare	Drawdown	Open	Hydraulic		
					Type	Time	2		Page		2	2	rescription	(s)	(p)	Cond. (k)	Use 'k'?	k User
168825 BISHOP LAURRY	115	55	80	50 AIF	~	1	0	0	6/24/1998	95	115		OMESTIC	25.00	20.0	91	Ves	91
77513 CRERAR DAVID	266	9	260	75 AIF	~	+	0	0	4/14/1981	206	266		INKNOWN	254.00	60.0	0		5
151779 JALLITE NEIL	500	185	0	10 OT	HER	0	0	0	7/5/1988	0	0		INKNOWN	315.00	10.0	NA	ou	
151799 JOLLITE NEIL	505	185	0	10 OT	HER	0	0	0	7/5/1988	0	0		DOMESTIC	320.00	10.0	11	oL	
143247 TURNER DON	283	8	210	10 AIF	~	2.5	0	0	5/11/1994	0	0		DOMESTIC	202.00	10.0	15	0	
(1514 WARD IRVINE C.	140	11	25	20 AIF	~	2	0	0	7/31/1973	140	140		DOMESTIC	14.00	10.0	145	ves	145
/03355 STEVENSON EVELYN	466	123	130	6 OT	HER	0	0	0	5/6/1977	0	0		DOMESTIC	7.00	10.0	103	ves	103
150667 METZ MONDELL	240	28	150	25 AIF		1.5	0	0	11/22/1994	200	240		DOMESTIC	122.00	40.0	10	ou	
77517 CANNON RICHARD & M.	403	98	300	15 AIF		3	0	0	3/29/1985	323	343		DOMESTIC	202.00	20.0	10	ou	
148606 MC CORMICK BILL & BARBARA	210	18	100	40 AIF	~	1.5	0	0	9/21/1994	0	0		DOMESTIC	82.00	10.0	70	ves	02
77518 WOODAHL ROBERT L AND ARLENE R	180	20	94	25 AIF		2	0	0	12/10/1970	0	0		DOMESTIC	74.00	10.0	55	ves	55
241970 KEAST MIKE AND KIM	400	27	0	12 AIF		-	390	27	3/11/2008	360	400		OMESTIC	363.00	40.0	9	DOL	
225011 STEFFES, DIANA	325	2	0	30 AIF		2	320	2	5/11/2006	260	325		OMESTIC	313.00	65.0	4	DO	
7702 FARNUM FREUA/VINCEN	390	27	250	20 AIF		3	0	0	3/5/1967	0	0		OMESTIC	223.00	10.0	23	ou	
77500 MOUN J. BRUCE	402	34	250	38 AIF		-	0	0	10/22/1982	0	0		INKNOWN	216.00	10.0	36	ou	
	326	4 1	250	35 AIF		8	0	0	2/13/1979	281	323		OMESTIC	246.00	42.0	7	no	
	202	C.01	303	AIA BL		-	0	0	6/20/1995	263.8	302.2		OMESTIC	292.50	38.4	5	no	
77515 HEAD FRANK AND MARY	126	101	000	AIN 20 AIN		0	0	0	11/1/1988	284	304		DOMESTIC	298.00	20.0	6	Po	
77525 ROTH URBAN	235	909	180	20 AIR	MIL	4 0			1/61/02/14	971	971		OMESTIC	20.00	10.0	102	yes	102
209521 I.O.O.F. MISSION LODGE C/O	128	43	0	16 AIR		-	103	42	3/1/2004	100	120		INICALO ANI	00.021	0.01	34	ou	
258987 RATZBURG DAYLE OR DOREEN	405	40	0	17 AIR		2	400	40	10/22/2010	385	405		OMESTIC	360.00	20.02	24	02 02	
77516 THIEME FRED E	199	5	20	100 AIR		4	0	0	5/22/1967	0	0		OMESTIC	15.00	10.04	ADE	0	
77519 LAVOIE EUGENE E.	335	10	20	25 PUI	MP	2	0	0	6/24/1983	0	0		OMESTIC	10.00	10.01	211		
77526 GARY SAMUEL	331	59	168	25 AIR	-	1.5	0	0	7/13/1972	0	0		DOMESTIC	109.00	10.0	43	00	
77527 REBER J.B./M.E.	294	47 2	294	20 AIR	~	2	0	0	8/20/1971	0	0		OMESTIC	247.00	10.0	21	0	
77528 VALETT BRYAN/ GOOD VELMA E	116	39	105	20 AIR		5	0	0	8/19/1975	20	115		DMESTIC	66.00	45.0	11	Q	

T:11_ACTIVE FILES/2011 Projects/2760- Timbrehor & Lake County Water & Sewer Districtl3_ENG DESIGN (green folders)[3.4_DEQ4 (On-site Sewer)]Well logs.01

APPENDIX D: ENGINEER'S ESTIMATE

	Sewer Construction Cost Estimate								
	Timbrshor Feasibility - Primary Plan								
	Lake County		-		-				
	TLI Project #11-2760								
					_				
SVST	EM A: PUBLIC SYSTEM		_						
Item	Description	Qtv. (Fotal)	Unit Cost	<u> </u>	Sub-Total			
1	1.5" Sch. 40 PVC Force Main	700	LF	\$15.00	\$	10,500.00			
2	1.5" Sch. 40 PVC Manifold	80	LF	\$10.00	\$	800.00			
3	1.5" Sch. 40 PVC Drainfield Laterals	1,260	LF	\$12.00	\$	15,120.00			
4	3000 Gallon Dosing Tank	3	EA	\$3,000.00	\$	9,000.00			
5	Distribution Valve	1	EA	\$500.00	\$	500.00			
6	Elevated Sand Mound (4250 SF)		LS	\$30,240.00	\$	30,240.00			
	COSA Rowrite Contract Administration Cortifications Inspections & As builts	1		\$7,000.00	\$	20,000,00			
Ŀ	1003A Ne-wille, Contract Administration, Centifications, Inspections, & As-builts	SUB-T		SYSTEM A	9	102 160 00			
┣──	CONSTRUCTIO	ON CON	ITING	ENCY 20%;	\$	20.432.00			
L	SYSTEM A	+ CON	ITING	ENCY 20%:	\$	122,592.00			
SYST	EM B: PUBLIC SYSTEM			-					
1	1.5" Sch. 40 PVC Force Main	100	LF	\$15.00	\$	1,500.00			
2	1.5" Sch. 40 PVC Manifold	60	LF	\$10.00	\$	600.00			
3	1.5" Sch. 40 PVC Drainfield Lateral	855		\$12.00	\$	10,260.00			
4	Jour Galion Dosing Tank			\$3,000.00	\$	3,000.00			
6	Elevated Sand Mound (3000 SE)			\$20.00 \$20.520.00	¢ ¢	20 520 00			
	Pumos and Control Panel	1	1.5	\$7,000,00	\$	7 000 00			
8	COSA Re-write. Contract Administration. Certifications. Inspections. & As-builts	1	EA	\$27.000.00	\$	27.000.00			
		SUB-TO	OTAL	SYSTEM B	\$	70,380.00			
	CONSTRUCTION CONTINGENCY 20%:								
	SYSTEM B TOTAL	. + CON	TING	ENCY 20%:	\$	84,456.00			
<u> </u>									
SYST	EM C: ASSUMES WELL TO BE ABANDONED AND SYSTEM WILL REMAIN AS IS AND CAN BI	E APPR	OVE	D BY MDEQ	FO	R			
7		1	EA	40 500 00	¢	0.500.00			
<u> </u>		SUB-TO		SYSTEM CI	φ \$	9,500.00			
<u> </u>					Ŷ	3,000.00			
SYST	EM D: MULTI-USER SYSTEM - COMPLETE SYSTEM AS PERMITED								
1	1.5" Sch. 40 PVC Manifold	10	LF	\$10.00	\$	100.00			
2	1.5" Sch. 40 PVC Drainfield Lateral	75	LF	\$12.00	\$	900.00			
3	Excavation and Instalation	1	LS	\$1,800.00	\$	1,800.00			
4	COSA Re-write	1	EA	\$6,000.00	\$	6,000.00			
		SUB-TO		SYSTEM D	\$	8,800.00			
		IN CON	TING	ENCY 20%:	\$	1,760.00			
<u> </u>	STSTEM D TOTAL	+ CON	FING	ENCY 20%:]	\$	10,560.00			
SYST	EM E: MULTI-USER SYSTEM								
1	1.5" Sch. 40 PVC Force Main	340	LF	\$15.00	\$	5.100.00			
2	1.5" Sch. 40 PVC Manifold	22	LF	\$10.00	\$	220.00			
3	1.5" Sch. 40 PVC Drainfield Lateral	600	LF	\$12.00	\$	7,200.00			
4	3000 Gallon Dosing Tank	1	EA	\$3,000.00	\$	3,000.00			
5	Elevated Sand Mound (2100 SF)	1	LS	\$14,400.00	\$	14,400.00			
6	Distribution Valve	1	EA	\$500.00	\$	500.00			
7	Pumps and Control Panel	1	LS	\$7,000.00	\$	7,000.00			
8	COSA Re-write, Contract Administration, Certifications, Inspections, & As-builts	1 5119 77		\$24,000.00	\$	24,000.00			
			TINCI	ENCY 20%	¢ ¢	12 28/ 00			
	SYSTEM D TOTAL	+ CON	TING	ENCY 20%:	\$	73,704.00			
					*				

T:\1_ACTIVE FILES\2011 Projects\2760- Timbrshor & Lake County Water & Sewer District\3_ENG DESIGN (green folders)\Technical.Report.CD\2012.12.13.Engineers.Estimate.Timbrshor.Sewer.Final

Sewer	Construction	Cost	Estimate
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Timbrshor Feasibility - Alternative #1

Lake County

TLI Project #11-2760

SYST									
Item	Description	Qty. (Total)	Unit Cost		Sub-Total			
	1.5" Sch. 40 PVC Force Main	700	LF	\$15.00	\$	10,500.00			
2	1.5" Sch. 40 PVC Manifold	60	LF	\$10.00	\$	600.00			
3	1.5" Sch. 40 PVC Drainfield Laterals	882	LF	\$12.00	\$	10,584.00			
4	3000 Gallon Dosing Tank	1	EA	\$3,000.00	\$	3,000.00			
5	2000 Gallon Dosing Tank	1	EA	\$2,000.00	\$	2,000.00			
6	Distribution Valve	1	EA	\$500.00	\$	500.00			
7	Elevated Sand Mound (3,000 SF)	1	LS	\$23,000.00	\$	23,000.00			
8	Pumps and Control Panel	1	LS	\$7,000.00	\$	7,000.00			
9	COSA Re-write, Contract Administration, Certifications, Inspections, & As-builts	1	EA	\$26,280.00	\$	26,280.00			
SUB-TOTAL SYSTEM A-1 \$									
CONSTRUCTION CONTINGENCY 20%: \$									
SYSTEM A + CONTINGENCY 20%: \$									
SYSTI	EM A - 2:								
1	1.5" Sch. 40 PVC Force Main	520	ĹF	\$15.00	\$	7,800.00			
2	1.5" Sch. 40 PVC Manifold	21	LF	\$10.00	\$	210.00			
3	1.5" Sch. 40 PVC Drainfield Lateral	300	LF	\$12.00	\$	3,600.00			
4	2000 Gallon Dosing Tank 2 EA \$2,000.00								
5	Distribution Valve	EA	\$500.00	\$	-				
6	Elevated Sand Mound (2,025 SF) 1 LS \$15,500.00 \$								
7	Pumps and Control Panel	1	LS	\$7,000.00	\$	7,000.00			
8	COSA Re-write, Contract Administration, Certifications, Inspections, & As-builts	1	EA	\$24,400.00	\$	24,400.00			
SUB-TOTAL SYSTEM A-2 \$									
	CONSTRUCTIO	N CON	TING	ENCY 20%:	\$	12,502.00			
	SYSTEM B TOTAL	+ CON	TING	ENCY 20%:	\$	75,012.00			
SYSTE	EM B-1:								
1	1.5" Sch. 40 PVC Force Main	180	LF	\$15.00	\$	2,700.00			
2	1.5" Sch. 40 PVC Drainfield Lateral	400	LF	\$12.00	\$	4,800.00			
3	1.5" Sch. 40 PVC Manifold	28	LF	\$10.00	\$	280.00			
4	2000 Gallon Dosing Tank	2	EA	\$2,000.00	\$	4,000.00			
5	Elevated Sand Mound Drainfield (2,725 SF)	1	LS	\$9,600.00	\$	9,600.00			
6	Pumps and Control Panel	1	LS	\$5,000.00	\$	5,000.00			
7	COSA Re-write, Contract Administration, Certifications, and Inspections	1	LS	\$24,400.00	\$	24,400.00			
	SL	JB-TOT	AL S	YSTEM B-1	\$	50,780.00			
	CONSTRUCTIO	N CON	TING	ENCY 20%:	\$	10,156.00			
	SYSTEM C TOTAL	+ CON	TING	ENCY 20%:	\$	60,936.00			

	Sewer Construction Cost Estimate				·	· · · · · · · · · · · · · · · · · · ·			
	Timbrshor Feasibility - Alternative #1 Continued								
	Lake County								
_	TLI Project #11-2760								
SYST	SYSTEM C: ASSUMES A PORTION OF THE DRAINFIELD WILL BE MOVED.								
Item	Description	Qty. (Total)	Unit Cost		Sub-Total			
1	Investigate, Remove, and Replace Drainfield Laterals	1	EA	\$3,500.00	\$	3,500.00			
2	COSA Re-write	1	EA	\$9,500.00	\$	9,500.00			
	SUB-TOTAL SYSTEM C								
	CONSTRUCTIO	N CON	ITING	ENCY 20%:	\$	700.00			
	SYSTEM A	+ CON	ITING	ENCY 20%:	\$	13,700.00			
SYST	EM D: PUBLIC SYSTEM								
1	1.5" Sch. 40 PVC Force Main	100	LF	\$15.00	\$	1,500.00			
2	1.5" Sch. 40 PVC Manifold	60	LF	\$10.00	\$	600.00			
3	1.5" Sch. 40 PVC Drainfield Lateral	855	LF	\$12.00	\$	10,260.00			
4	1000 Gallon Dosing Tank	2	EA	\$1,500.00	\$	3,000.00			
5	Elevated Sand Mound (2750 SF)	1	LS	\$20,520.00	\$	20,520.00			
6	Distribution Valve	1	ΕA	\$500.00	\$	500.00			
7	Pumps and Control Panel	1	LS	\$7,000.00	\$	7,000.00			
8	COSA Re-write, Contract Administration, Certifications, Inspections, & As-builts	1	EA	\$28,000.00	\$	28,000.00			
		SUB-T	OTAL	SYSTEM D	\$	71,380.00			
	CONSTRUCTIO	N CON	ITINĜ	ENCY 20%:	\$	14,276.00			
	SYSTEM D TOTAL	+ CON	ITING	ENCY 20%:	\$	85,656.00			

APPENDIX E: CORRESPONDENCE



LAKE COUNTY ENVIRONMENTAL HEALTH

106 FOURTH AVENUE EAST POLSON, MT 59860-2175

PH: 406-883-7236 FAX: 406-883-7205 Email:envhealth@lakemt.gov

April 5, 2011

To Whom It May Concern:

•RE: Letter of Support

Timbrshor/Lake County Water and Sewer District Funding for a Preliminary Engineering Report

This letter is in support of the Timbrshor/Lake County Water and Sewer District's efforts to improve the wastewater system infrastructure in their condominium subdivision. Lake County, along with the Montana Department of Environmental Quality, has recognized the need for such upgrades in order to be in compliance with the Certificate of Subdivision Approval for the subdivision and also to upgrade systems existing prior to the subdivision approval.

Timbrshor, also known as Borchers of Finley Point, is a condominium subdivision filed in 1977. It is located on the east shore of Flathead Lake in a bedrock setting. The approved water system for the subdivision is Flathead Lake. The provision of adequate wastewater treatment is critical for both public health and protection of lake water quality. Currently, several of the wastewater systems require replacement for various reasons including being unpermitted and/or unknown, potentially damaged by vehicle parking, undersized regarding design flow, and/or not meeting minimum setback requirements.

This department and the county commissioners have not allowed new development and have limited upgrades on existing residences until substantial progress is made regarding the subdivision infrastructure compliance. The Montana Department of Environmental Quality has provided guidance regarding the procedure to review and approve the necessary upgrades, so there is a clear way forward to achieve compliance.

The Timbrshor homeowners have been responsive to the need to upgrade the subdivision's infrastructure. The creation of the water and sewer district is one example of this commitment. The Lake County Board of Health, the Lake County Commissioners, and this department supported the creation of the district and now support the district receiving funding to move forward with planning for the infrastructure upgrades.

Sincerely.

Susan K. Brueggeman, R.S. Director

William D. Barron, Chair Lake County Board of Health Lake County Commissioners



June 20, 2012

Pam Smith Montana Department of Natural Resources and Conservation Resource Development Bureau PO Box 201601 Helena, MT 59601

RE: DNRC Project Planning Grant Timbrshor Lake County Water and Sewer District Technical Study for Wastewater System Improvements Agreement Number RPG-11

Dear Pam:

Please find enclosed with this letter a draft copy of the Technical Presentation of Feasibility Study prepared in accordance with the DNRC Project Planning Grant for the Timbrshor Lake County Water and Sewer District (District). Territorial-Landworks, Inc. (TLI) is submitting this draft report on behalf of the District.

Please contact me at (406) 721-2891 or andys@territoriallandworks.com if you have any questions.

Sincerely, Territorial-Landworks, Inc.

Andy Short, R.S. Managing Partner

Enclosures: Technical Presentation of Feasibility Study

C. File (w/ enclosures) Sue Roy (letter only) Tom Cox (letter only)

T:\1_ACTIVE FILES\2011 Projects\2760- Timbrshor & Lake County Water & Sewer District\1_ADMIN (manila folders)\2012-05-20.1b: Pam SMith.PG.docx

	DEPARTMEN ANI	F OF NATURAL I O CONSERVATIO	RESOURC DN	ES
	BRIAN SCHWEITZER, GOV	ernor OF MONITA		1625 ELEVENTH AVENUE
	DIRECTOR'S OFFICE (406) FAX NUMBER (406)	144-2684	HE	PO BOX 201601 LENA, MONTANA 59620-1601
July 2, 201	2			
Andy Shor Territorial P.O. Box 3 Missoula, I	t, R.S. ₋andworks, Inc. 851 M⊤ 59806			
Subject:	DNRC Review Comme Feasibility Report Wastewater System Im Timbrshor Lake County	nts provements Water and Sewer District		
Dear Andy:				
l have revie Agreement	wed the subject report and f RPG-12-0317.	ind that it meets the condition	ons of Planning G	irant
As stated in identified, a not been dis	the report, the information c long with possible solutions. scussed.	ontained therein is prelimina However, alternatives and	ary. Problems ha associated inform	ave been nation have
If the intent sources suc such as the prepared by requirement grant fundin Your client r	of the District is to seek fund th as RRGL and TSEP, or if SRF Program or Rural Deve a professional engineer (PE s of the Uniform Application g is expected to be available nay request up to 50% of the	ing for a major project from oan funding is to be applied dopment, it will be necessar) a Preliminary Engineering for Montana Public Facility i through this and the TSEP	state and federa I for through publ y for the District f Report addressi Projects. Additio Programs next s	l funding ic programs to have ng the nal planning pring. final 50%
may be requ	ested with the submittal of th	ne final report.		
Sincerely, Boolf a	silw			
Bob Fischer, Civil Enginee	PE er, DNRC			
CC:	Sue Roy, President Timbrshor Lake County V 541 Evans Ave. Missoula, MT 59801	Vater and Sewer District		
CENTRALIZED SERVICES DIVISION (406) 444-2074	CONSERVATION & RESOURCE DIVISION (406) 444-6667	RESERVED WATER RIGHTS COMPACT COMMISSION (406) 444-6841	OIL & GAS DIVISION (406) 444-6675	TRUST LAND MANAGEMENT DIVISION (406) 444-2074

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APPENDIX F: PRELIMINARY LAYOUT

Timbrshor/Lake County Sewer and Water District

Appendices



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TERRITORIAL CIVIL ENGINEERING • SURVEYING • LAND USE CONSULTING www.TerritorialLandworks.com Ph. 406/721-0142 Pax. 406/721-5224 PL. 406/721-5224 PL. 406/721-5224		РЕЗІВИСИ DESIGNED: DRAFTED: CHECKED: DATE: DATE: 01/10/12	Состіои: ВОЯСНЕЯ'S OF FINLEY POINT, LOT 3, SECTION 7, T23, R20W, P.M.M., LAKE COUNTY, MONTANA MONTANA MONTANA TIMBRSHOR H.O.A.	Rohsramit 9am ətiz	PROJECT NAME SHEET TITLE:	1 OF 2 НЕЕТ: 11-2760 РОГ 2
LEGEND	Image: State of the state	 (E) SEWER MANHOLE (E) SEWER CLEANOUT (E) SEWER CLEANOUT (E) SOIL PROFILE (E) PERCOLATION TEST (E) GROUNDWATER MONITORING 	(c) (c) SEPTIC TANK (c) (c) DRAINFIELD (c) (c) URAINFIELD (c) (c) WELL (c) (c) WELL (c) (c) UTUTY MANHOLE (c) (c) UTUTY MANTON BOX (c) (c) CONENTARY (c) (c) CONENTARY (c) (c) CONENTARY (c) (c) CONENTARY	 (E) POWER POLE (E) MAILBOX (E) MAILBOX (E) DECIDUOUS TREE (E) DECIDUOUS TREE (E) CONIFEROUS TREE (E) BUSH/ SHRUB (E) CONIFEROUS TREE (E) BUSH/ SHRUB (E) BUSH/ SHRUB (E) CONIFEROUS TREE (E) DECIDUOUS TREE (E) BUSH/ SHRUB (E) BUSH/ SHRUB (E) CONIFEROUS TREE (E) BUSH/ SHRUB (E) CONIFEROUS TREE (E) CONIFEROUS TRE	 FOUND PVC PIPE FOUND PROPANE TANK EXISTING BUILDING SP# EXISTING SOIL PROFILE NOTE: NOTE: NOTE: 	APPEAR IN DRAWING.

DWG.0975-11_2/DWG/TOIRT2IG REWER & RETAW YTNUOD EXAL & ROH2RBMIT -0875/27DELOR9 1105/28-119 EVITOA_1/;T :NOITADO DWG

SHEET:



CIVIL ENGINEERING • SURVEYING • LAND USE CONSULTING Ph: 406/721-0142 Pax: 406/721-5224 Pax: 406/721-52224 Pax: 406/721-52224 Pax: 406/721-5224 Pax: 406/721-522	BUL	.A.O.H AOH2AAMIT	AAM BITTER & SEWER DISTRICTION OF STRUCTORY OF STRUCTURY	
TERRITORIAL LANDWORKS, INC	DATE DESIGNS DATE DATE DATE	BORCHER'S OF FINLEY POINT BORCHER'S OF FINLEY POINT LAKE COUNTY, MONTANA MED FOR		
YSTEH: 301, 302, 305 - Dranheld by Dunpater Area Units Connected 301 - Stand <u>System Permit</u> 301, 302, 355 - Dranheld by Dunpater Area <u>System Permit</u> 303, 565 - Dranheld by Dunpater Area <u>System Permit</u> 301, 302, 355 - Distribution <u>System Permit</u> 201, 302, 303, 303, 545 - Distribution <u>System Permit</u> 201, 301, 302, 301, 301, 302, 303, 545 - Distribution <u>Units Connected 31, 1-Tilliorhett</u> Common bank, does not imet <u>Tank Siste</u> 313, - <u>Frieteberdid</u> Printed on vision <u>System Permit</u> 313, - <u>Hours and and and and and and and and and and</u>	Image: Section of the section of th	Units Connected Virtual conneconected Virtual connected	3 203 Archer 2 225 300 256 6 206 Willenst 2 225 300 256 7 209 Venterial 5 200 256 256 7 209 Peterson 34.0rt 350 350 256 7 209 Peterson 34.0rt 350 300 256 10 216 Berchers, Alice 3 300 300 250 11 Berchers, Michone 4 300 300 250 256 12 Storders, Alice 3 300 379 300 250 12 Berchers, Michone 4 300 300 256 255 307 Person 2 2 2 2 2 2 206 Berchers, Michone 3 300 300 2 2 207 Descreters, Michone 3 2 2 2	1 Ordentifield SystemC 2 408/404 5and 3 300 300 300 300 2 408 Sand 3 300 300 300 300 300 3 409 Rev 3 300 300 300 300 300 4 410 Sand 3 300
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APPENDIX C

BHI SITE PLAN MODIFIED FROM CARSTENS AND TLI FILES





SCALE IN FEET

NOTES:

- 1. THE PROPOSED DRAINFIELD LOCATIONS AND SIZES SHOWN ARE BASED ON DRAINFIELD SIZING REQUIREMENTS WITH ANY SIZING REDUCTIONS AS OUTLINED IN THE REPORT.
- 2. DESIGN ASSUMES ALL HOME OWNERS WILL PROVIDE INDIVIDUAL TANKS, PIPING, PUMPS (IF NECESSARY) TO GET EFFLUENT TO MAIN COLLECTION AREA FOR EACH PARTICULAR SYSTEM

OPTION 1

SYSTEM A

- 19 UNITS 4,750 GALLONS PER DAY BASED ON DEQ-4, 2013 EDITION WHERE 10 OR MORE UNITS ALLOW FOR A FLOW OF
- MORE UNITS ALLOW FOR A FLO 250 GPD/UNIT STANDARD DRAINFIELD LEVYEL II TREATMENT FOR SIZE REDUCTION 16 99 FT LATERALS 2 ZONES

- SYSTEM B 5 UNITS LAUNDRY DISCONTINUED 1,500 GALLONS PER DAY CHAMBERS FOR SIZE REDUCTION
 - 9 84 FT. LATERALS
 1 ZONE

SYSTEM C

- 8 UNITS
 2,400 GALLONS PER DAY
 CUT AND CAP LATERALS WITHIN WELL
 ISOLATION ZONE AND ADD EQUIVALENT
 AREA TO SOUTH END OF DRAINFIELD

SYSTEM D

- 5 UNITS
- 1,500 GALLONS PER DAY APPLY FOR PERMIT TO COMPLETE DRAINFIELD AS DESIGNED BY ADDING • LAST LATERAL

SYSTEM E

- 7 UNITS
- 7 UNITS
 2,100 GALLONS PER DAY
 SAND MOUND DRAINFIELD FOR BEDROCK SEPARATION
 LEVEL II TREATMENT FOR SIZE REDUCTION
 6 73 FT LATERALS
 1 ZONE

- SYSTEM F 3 UNITS 950 GALLONS PER DAY STANDARD DRAINFIELD 6 106 FT. LATERALS 1 ZONE

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LEGEND		۵ ۱									
		SION									
	– – (E) ADJACENT PROPERTY BOUNDARY – – (E) LOT LINE	REVI									
w	— – (E) EASEMENT —— (E) WATER LINE										
—ws—ws— —s —	WS— (E) WATER SERVICE —— (E) SEWER LINE										
—SS—SS— ——FM—	-SS- (E) SEWER SERVICE (E) SEWER FORCE MAIN		IPTION								
FMSFN ST	(E) SEWER FORCE MAIN SERVICE		DESCR								
0HF	(E) OVERHEAD UTILITY (E) BUBIED POWER			+	+	1				+	
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APPENDIX D

RESULTS OF GEOTECHNICAL INVESTIGATION AND SOILS ANALYSIS



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#1 JOB NO.: T.58.1

PROJECT:	TIMBRSHR	TOTAL DEPTH:	15 FEET
SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
BORE LOCATION:	LOT 3 KALISPELL MARKET PLACE - PHIII	SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
LOGGED BY:	КМН		

DEPTH	SOIL SYMBOLS	USCS DESC	SOIL DESCRIPTION	SAMPLE	DESCRIPTION
0 -2		GM	F-M SEMI-ANGULAR TO SUB-ROUNDED GRAVEL, SOME ORGANIC SILTS AND SAND, DARK BROWN, DAMP		S1 - GRAB SAMPLE 3'
4 -4 		GP	F-M SEMI-ANGULAR TO SUB-ROUNDED GRAVEL, LITTLE TO TRACE SANDS AND SILT, BROWN/GREY, DAMP		S2 - GRAB SAMPLE 4"
-6 - -6 - -		GM	F/C SUB-ROUNDED GRAVEL, W/SILT, SOME TO LITTLE F/C SAND, DARK TAN,MOIST		S3 - GRAB SAMPLE 8'
-8 - - - -10 -		ML	SILT, YELLOW/TAN, STIFF, WET		
 -12 	-	ML	SILT, YELLOW/TAN, SOFT-MEDIUM, WET		S4 - GRAB SAMPLE 12'
-14 — 					S5 - GRAB SAMPLE 15'

BOH 15'

NO WATER ENCOUNTERED DURING DRILLING

BILLMAYER & HAFFERMAN, INC.



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#3 JOB NO.: T.58.1

PROJECT:	TIMBRSHR	TOTAL DEPTH:	10 FEET
SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
BORE LOCATION:		SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
LOGGED BY:	КМН		

DEPTH	SOIL SYMBOLS	USCS DESC	SOIL DESCRIPTION	SAMPLE	WELL	DESCRIPTION
0 -2		ML/SM ML/SM	TOPSOIL; F/C SAND AND ORGANIC SILT, SOME F-M GRAVEL, LOOSE, DARK BROWN, DAMP, ROOT FIBERS			S1 - GRAB SAMPLE 0-2'
-4 - -4 - -			SILT, W/F SAND, VERY SOFT, YELLOW/TAN, DAMP			S2- GRAB SAMPLE 3'-5'
- 0-		NAL.	SILT AND FINE SAND, TAN, VERY SOFT, DAMP TO DRY			S3 - GRAB SAMPLE 6'-7'
-0 -			SILT, YELLOW/TAN, MED-FIRM, MOIST			S4 - GRAB SAMPLE 9.5'
 -10			SILT, YELLOW/TAN, SOFT, DAMP			S5 - GRAB SAMPLE 10'

BOH 10'

NO WATER ENCOUNTERED DURING DRILLING

BILLMAYER & HAFFERMAN, INC.



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#4 JOB NO.: T.58.1

PROJECT:	TIMBRSHR	TOTAL DEPTH:	11 FEET
SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
BORE LOCATION:		SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
LOGGED BY:	КМН		

DEPTH	SOIL SYMBOLS	USCS DESC	SOIL DESCRIPTION	SAMPLE		DESCRIPTION
0 -	→ · → →	0.1/0				
- - -2 -		SM/OL	TOPSOIL; ORGANIC SILT SOME TO W/ F-C SAND, SOME GRAVEL, DARK BROWN, DAMP			S1 - GRAB SAMPLE0-2'
-4 -4 -4						
-		ML	SILT, LITTLE F/C SAND, TRACE FINE GRAVEL, LT TAN, DAMP			S2 - GRAB SAMPLE 5'-6'
-0- - -		ML/SM				
-8 - -		- - - -	SILT, W/F/C SAND. TRACE FINE GRAVEL, LT TAN, DAMP			S3 - GRAB SAMPLE 9'
-		ML	SILT, TRACE TO LITTLE F/C SAND, LT TAN, DAMP			S4 - GRAB SAMPLE 10'
- 10 - - -11 -		ML	SILT, TRACE FINE SAND, LT TAN, SOFT TO FIRM, MOIST			S5 - GRAB SAMPLE 10'

BOH 11'

NO WATER ENCOUNTERED DURING DRILLING



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#5 JOB NO.: T.58.1

PROJECT:	TIMBRSHR	TOTAL DEPTH:	10 FEET
SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
BORE LOCATION:		SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
LOGGED BY:	КМН		

DEPTH	SOIL SYMBOLS	USCS DESC	SOIL DESCRIPTION	SAMPLE	DESCRIPTION
0 		GP SM/ML	F/M GRAVEL, SEMI-ANGULAR TO SUBROUNDED, SOME ORGANIC SILT, TRACE TO LITTLE FINE SAND, DARK BROWN, ROOT FIBERS, LOOSE, DAMP (FILL)		S1 - GRAB SAMPLE 0-2'
-8 - -8 - - - -10 -		ML	SILT, SOME F/C SAND, LITTLE FINE GRAVEL, DARK TAN, SOFT, DAMP SILT, TRACE FINE SAND, TAN SOFT, DAMP		S2 - GRAB SAMPLE 8' S3 - GRAB SAMPLE 10'

BOH 10'

NO WATER ENCOUNTERED DURING DRILLING

BILLMAYER & HAFFERMAN, INC.



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#6 JOB NO.: T.58.1

_				
	PROJECT:	TIMBRSHR	TOTAL DEPTH:	13.5 FEET
	SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
	BORE LOCATION:		SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
	DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
	LOGGED BY:	КМН		

DEPTH	SOIL SYMBOLS	USCS DESC	SOIL DESCRIPTION	SAMPLE	DESCRIPTION
0 —	→ → →				
		SM/OL	TOPSOIL; ORGANIC SILT SOME TO W/ F-C SAND, TRACE GRAVEL, DARK BROWN, DAMP, ROOT FIBERS		S1 - GRAB SAMPLE 0-4'
	$\begin{array}{c} \bullet \\ \bullet \\ \bullet \\ \bullet \\ \end{array}$				
6		ML	SILT, TRACE TO LITTLE F/C SAND, TRACE SOFT, LT TAN, DAMP		S2 - GRAB SAMPLE 4'-6.5'
-					
-8 —					
_					
-10 —					
-11 -		ML	SILT, LT TAN, STIFF, MOIST		
-12 — 		ML	SILT, TRACE FINE SAND, LT TAN, FIRM,		S4 - GRAB SAMPLE 13.5
-13 —			BOH 13.5'		

NO WATER ENCOUNTERED DURING DRILLING

BILLMAYER & HAFFERMAN, INC.



2191 Third Avenue East Kalispell, Montana 59901 (406) 257-8708 Fax 257-8710

FIELD BOREHOLE LOG

BOREHOLE NO.: BH#8 JOB NO.: T.58.1

PROJECT:	TIMBRSHR	TOTAL DEPTH:	13.5 FEET
SITE LOCATION:	FINLEY POINT, MONTANA	METHOD OF DRILLING:	6" HOLLOW-STEM AUGER
BORE LOCATION:		SAMPLING METHODS:	GRAB SAMPLE /AUGGER FLITES
DRILLED BY:	DAN	DATE DRILLED:	5/14/2013
LOGGED BY: I	КМН		

DEPTH	SOIL	USCS	SOIL DESCRIPTION	SAM	1PLE	DESCRIPTION
	SYMBOLS	DESC				
0						
- U 		OL/SM	ORGANIC, SOME SAND AND SILT, TRACE FINE GRAVEL, DARK BROWN, DAMP, ROOT FIBERS			S1 - GRAB SAMPLE 0-1.8'
-2 - - -3 -		SM/ML	SILT AND F/C SAND, LITTLE MED SEMI-ANGULAR GRAVEL, LT BROWN, DAMP			S2 - GRAB SAMPLE 1.8'-3.0'
0			BOH 3.0' BEDROCK ENCOUNTERED			

NO WATER ENCOUNTERED DURING DRILLING

BILLMAYER & HAFFERMAN, INC.

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 6/5/2013 Date:

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH8 0-1.8' S1		Sample Description:		Topsoil/Organic Silt	
Container #	ЗA	18	6B			
Container Wt. (gm)	14.92	14.15	14.88			
Wet Wt. + Container (gm)	33.49	36.36	35.83			
Dry Wt. +Container (gm)	30.31	32.91	32.45			
Wt. of Water (gm)	3.18	3.45	3.38			
Dry Wt. of Soil (gm)	15.39	18.76	17.57			
Water Content (%)	20.66	18.39	19.24			
			Δνα	rado mois	ture content	10 / 3%

Average moisture content 19.43%

Insitu Moisture	BH8 1.8-3	S2	Sample De	scription:	Silty-Sand	
Container #	1A	2A	50			
Container Wt. (gm)	15.96	14.14	16.19			
Wet Wt. + Container (gm)	40.22	34.09	38.8			
Dry Wt. +Container (gm)	38.39	32.62	37.05			
Wt. of Water (gm)	1.83	1.47	1.75			
Dry Wt. of Soil (gm)	22.43	18.48	20.86			
Water Content (%)	8.16	7.95	8.39			
Average moisture content						

Average moisture content 8.17%

Insitu Moisture	BH6 0-4'	S1	Sample Description:		Topsoil/Org	ganic Silt
Container #	2	28	6A			
Container Wt. (gm)	14.44	14.25	15			
Wet Wt. + Container (gm)	40.4	39.28	39.72			
Dry Wt. +Container (gm)	36.39	35.68	36.15			
Wt. of Water (gm)	4.01	3.6	3.57			
Dry Wt. of Soil (gm)	21.95	21.43	21.15			
Water Content (%)	18.27	16.80	16.88			
			A	reas main		47.000/

Average moisture content 17.32%

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/5/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH6 4-6.5'	S2	Sample Description:		Silt	
Container #	6	5	13			
Container Wt. (gm)	14.28	14.56	14.85			
Wet Wt. + Container (gm)	44.41	44.19	45.41			
Dry Wt. +Container (gm)	39.13	39.23	40.37			
Wt. of Water (gm)	5.28	4.96	5.04			
Dry Wt. of Soil (gm)	24.85	24.67	25.52			
Water Content (%)	21.25	20.11	19.75			
			Δνα	rado mois	ture content	20 37%

Average moisture content 20.37%

Insitu Moisture	BH6 6.5-13.5' S3		Sample De	escription:	Silt/Clay		
Container #	2B	29	10				
Container Wt. (gm)	15.94	14.1	14.66				
Wet Wt. + Container (gm)	47.26	53.58	43.07				
Dry Wt. +Container (gm)	40.37	45.03	36.85				
Wt. of Water (gm)	6.89	8.55	6.22				
Dry Wt. of Soil (gm)	24.43	30.93	22.19				
Water Content (%)	28.20	27.64	28.03				
Average moisture content							

Average moisture content 27.96%

Insitu Moisture	BH4 0-2' S1		Sample De	scription:	Topsoil/Organic Silt			
Container #	22	7	12					
Container Wt. (gm)	14.38	14.11	14.24					
Wet Wt. + Container (gm)	56.89	43.76	44.34					
Dry Wt. +Container (gm)	54.62	41.49	42.24					
Wt. of Water (gm)	2.27	2.27	2.1					
Dry Wt. of Soil (gm)	40.24	27.38	28					
Water Content (%)	5.64	8.29	7.50					
As a reasonable to the constant -7.140								

Average moisture content 7.14%

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/5/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH4 5-6' S2		Sample Description:		Silt		
Container #	4	19	21				
Container Wt. (gm)	14.4	14.23	14.2				
Wet Wt. + Container (gm)	45.04	50.66	47.29				
Dry Wt. +Container (gm)	41.4	45.96	43.19				
Wt. of Water (gm)	3.64	4.7	4.1				
Dry Wt. of Soil (gm)	27	31.73	28.99				
Water Content (%)	13.48	14.81	14.14				
Average moisture content 1/							

Average moisture content 14.15%

Insitu Moisture	BH4 9' S	3	Sample Description:		Silt w/Sand	
Container #	11	3B	1B			
Container Wt. (gm)	14.74	14.29	14.41			
Wet Wt. + Container (gm)	43.48	43.9	43.41			
Dry Wt. +Container (gm)	40.47	40.76	40.4			
Wt. of Water (gm)	3.01	3.14	3.01			
Dry Wt. of Soil (gm)	25.73	26.47	25.99			
Water Content (%)	11.70	11.86	11.58			
Average moisture content						

Insitu Moisture	BH4 10'	S4	Sample Description:		Silt	
Container #	5A	7B	6B			
Container Wt. (gm)	14.54	14.37	14.87			
Wet Wt. + Container (gm)	41.13	49.18	43.84			
Dry Wt. +Container (gm)	37.2	43.98	39.55			
Wt. of Water (gm)	3.93	5.2	4.29			
Dry Wt. of Soil (gm)	22.66	29.61	24.68			
Water Content (%)	17.34	17.56	17.38			

Average moisture content 17.43%

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/5/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH4 11' S5 Sample Description:		Silt			
Container #	50	2A	18			
Container Wt. (gm)	16.19	14.14	14.15			
Wet Wt. + Container (gm)	44.54	52.49	41.52			
Dry Wt. +Container (gm)	39.32	45.5	36.53			
Wt. of Water (gm)	5.22	6.99	4.99			
Dry Wt. of Soil (gm)	23.13	31.36	22.38			
Water Content (%)	22.57	22.29	22.30			
Average moisture content						

Average moisture content 22.38%

Insitu Moisture	BH6 13.5'	S4	Sample Description:		Silt	
Container #	28	2	26			
Container Wt. (gm)	14.26	14.45	15			
Wet Wt. + Container (gm)	32.63	42.3	50.91			
Dry Wt. +Container (gm)	28.18	35.48	41.93			
Wt. of Water (gm)	4.45	6.82	8.98			
Dry Wt. of Soil (gm)	13.92	21.03	26.93			
Water Content (%)	31.97	32.43	33.35			
Average moisture content						

Insitu Moisture	BH5 0-2'	S1	Sample Description:		Gravel	
Container #	5	13	6			
Container Wt. (gm)	14.56	14.85	14.28			
Wet Wt. + Container (gm)	45.24	51.2	45.1			
Dry Wt. +Container (gm)	42.89	48.9	43.35			
Wt. of Water (gm)	2.35	2.3	1.75			
Dry Wt. of Soil (gm)	28.33	34.05	29.07			
Water Content (%)	8.30	6.75	6.02			

Average moisture content 7.02%
BH BILLMAYER & HAFFERMAN, INC.

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/5/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH5 8' S2		Sample Description:		Sandy Silt/Silty Sand	
Container #	1A	ЗA	12			
Container Wt. (gm)	15.97	14.93	14.22			
Wet Wt. + Container (gm)	40.8	40.73	47.88			
Dry Wt. +Container (gm)	36.36	36.32	42.21			
Wt. of Water (gm)	4.44	4.41	5.67			
Dry Wt. of Soil (gm)	20.39	21.39	27.99			
Water Content (%)	21.78	20.62	20.26			
Average maisture content						

Average moisture content 20.88%

Insitu Moisture	BH5 10'	S3	Sample Description:		Silt	
Container #	8	6	5			
Container Wt. (gm)	14.92	14.28	14.55			
Wet Wt. + Container (gm)	41.28	42.71	48.45			
Dry Wt. +Container (gm)	36.91	38.11	43.06			
Wt. of Water (gm)	4.37	4.6	5.39			
Dry Wt. of Soil (gm)	21.99	23.83	28.51			
Water Content (%)	19.87	19.30	18.91			
Average moisture content						

Insitu Moisture	BH1 0-3'	S1	Sample De	scription:	Gravel	
Container #	1A	13	17			
Container Wt. (gm)	15.97	14.85	14.42			
Wet Wt. + Container (gm)	44.52	42.53	54.69			
Dry Wt. +Container (gm)	43.05	40.85	52.87			
Wt. of Water (gm)	1.47	1.68	1.82			
Dry Wt. of Soil (gm)	27.08	26	38.45			
Water Content (%)	5.43	6.46	4.73			
			٨			E E 40/

Average moisture content 5.54%

BILLMAYER & HAFFERMAN, INC.

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 6/6/2013 Date:

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH1 3-5' S2		Sample Description:		Gravel	
Container #	3B	11	12			
Container Wt. (gm)	14.28	14.74	14.23			
Wet Wt. + Container (gm)	60.69	61.51	61.18			
Dry Wt. +Container (gm)	59.57	60.25	60.08			
Wt. of Water (gm)	1.12	1.26	1.1			
Dry Wt. of Soil (gm)	45.29	45.51	45.85			
Water Content (%)	2.47	2.77	2.40			
Average moisture content						

Average moisture content 2.55%

Insitu Moisture	BH1 5-8'	S3	Sample Description:		Silty Grave	
Container #	21	4	19			
Container Wt. (gm)	14.1	14.39	14.22			
Wet Wt. + Container (gm)	46.36	52.2	53.38			
Dry Wt. +Container (gm)	43.62	48.72	49.99			
Wt. of Water (gm)	2.74	3.48	3.39			
Dry Wt. of Soil (gm)	29.52	34.33	35.77			
Water Content (%)	9.28	10.14	9.48			
			Ave	rage moist	ure content	9.63%

Average moisture content 9.03%

Insitu Moisture	BH1 8-12	S4	Sample Description:		Silt	
Container #	7	27	7B			
Container Wt. (gm)	14.1	14.53	14.36			
Wet Wt. + Container (gm)	30.48	33.99	37.02			
Dry Wt. +Container (gm)	26.84	29.83	32.42			
Wt. of Water (gm)	3.64	4.16	4.6			
Dry Wt. of Soil (gm)	12.74	15.3	18.06			
Water Content (%)	28.57	27.19	25.47			
			A	rogo mode		07.000/

Average moisture content 27.08%

BH BILLMAYER & HAFFERMAN, INC.

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/6/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH1 12-15' S5		Sample Description:		Silt	
Container #	22	29	10			
Container Wt. (gm)	14.37	14.1	14.66			
Wet Wt. + Container (gm)	33.77	35.01	39.68			
Dry Wt. +Container (gm)	29.68	30.65	34.45			
Wt. of Water (gm)	4.09	4.36	5.23			
Dry Wt. of Soil (gm)	15.31	16.55	19.79			
Water Content (%)	26.71	26.34	26.43			
			Δνα	rago moje	turo contont	26 50%

Average moisture content 26.50%

Insitu Moisture	BH3 0-2'	S1	Sample Description:		Topsoil	
Container #	1B	50	2A			
Container Wt. (gm)	14.16	16.18	14.13			
Wet Wt. + Container (gm)	52.57	58	47.72			
Dry Wt. +Container (gm)	49.5	54.04	44.11			
Wt. of Water (gm)	3.07	3.96	3.61			
Dry Wt. of Soil (gm)	35.34	37.86	29.98			
Water Content (%)	8.69	10.46	12.04			
Average moisture content						

Insitu Moisture	BH3 3-5'	S2	Sample Description:		Sandy-Silt	
Container #	26	2	28			
Container Wt. (gm)	15.01	14.44	14.26			
Wet Wt. + Container (gm)	43.53	45.84	50.34			
Dry Wt. +Container (gm)	38.19	39.91	43.67			
Wt. of Water (gm)	5.34	5.93	6.67			
Dry Wt. of Soil (gm)	23.18	25.47	29.41			
Water Content (%)	23.04	23.28	22.68			

Average moisture content 23.00%

BH BILLMAYER & HAFFERMAN, INC.

Moisture Content Determination

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/6/2013

Project No.:	T.58.1
Project:	Timbrshr

Insitu Moisture	BH3 6-7'	S3	Sample De	scription:	Sandy Silt/	Silty Sand
Container #	11	12	8			
Container Wt. (gm)	14.74	14.22	14.91			
Wet Wt. + Container (gm)	44.28	52.79	47.03			
Dry Wt. +Container (gm)	39.53	46.55	41.83			
Wt. of Water (gm)	4.75	6.24	5.2			
Dry Wt. of Soil (gm)	24.79	32.33	26.92			
Water Content (%)	19.16	19.30	19.32			
			Δνα	rado moje	ure content	10.26%

Average moisture content 19.26%

Insitu Moisture	BH3 9.5'	S4	Sample De	scription:	Silt	
Container #	5	6	13			
Container Wt. (gm)	14.56	14.29	14.87			
Wet Wt. + Container (gm)	53.59	58.52	41.2			
Dry Wt. +Container (gm)	46.17	50	36.14			
Wt. of Water (gm)	7.42	8.52	5.06			
Dry Wt. of Soil (gm)	31.61	35.71	21.27			
Water Content (%)	23.47	23.86	23.79			
			Ave	erage moist	ture content	23.71%

Insitu Moisture	BH3 10'	S5	Sample Description:	Silt
Container #	3B	15	17	
Container Wt. (gm)	14.28	15.97	14.41	
Wet Wt. + Container (gm)	45.36	40.66	49.73	
Dry Wt. +Container (gm)	39.79	36.36	43.63	
Wt. of Water (gm)	5.57	4.3	6.1	
Dry Wt. of Soil (gm)	25.51	20.39	29.22	
Water Content (%)	21.83	21.09	20.88	

Average moisture content 21.27%



Project No.: Project:		T.58.1 Timbrshr		Revised:	
		Visual	Field	Moisture	
BH #	Depth	classification	Classification	Cont (%)	Comment
61	0' 5'	Topooil group		4 77	Topooil and groupl mix
31 \$1	03	Gravel		4.77	
<u> </u>	3-5'	Gravel	GP	2.55	Fill
<u>53</u>	5'-8'	Silty-Gravel	GM	9.63	Fill/Native
S4	8'-12'	Silt	ML	27.08	
S5	12'-15'	Silt	ML	26.50	
3					
S1	0-2'	Silt Topsoil	SM	10.40	Mostly silt
S2	3'-5'	Sandy-Silt	SM/ML	23.00	
S3	6'-7'	Sandy-Silt	SM/ML	19.26	
S4	9.5'	Silt	ML	23.71	
S 5	10.5'	Silt	ML	21.27	
4					
S1	0-2'	Topsoil and sil	OL/ML	7.14	Mostly silt
S2	5'-6'	Silt	ML	14.15	
S3	9'	Silty-Sand	SM	11.71	
S4	10'	Slt	ML	17.43	
S 5	11'	Silt	ML	22.38	
5					
S1	0-2'	Gravel	GP	7.02	Top soil then fill a Gap Graded Gravel
S2	7'	Sandy-Silt	SM	20.88	
S3	8'	Silty-sand	SM/ML	19.75	
S4	10'	Silt	ML	19.36	
6					
S1	0-4'	Topsoil then si	OL/ML	17.32	Thin topsoail, mostly silt
S2	4'-6.5'	Silt	ML	20.37	
S3	6.5'-13.5'	Silt	ML	27.96	
S4	13.5'	Silt	ML	32.58	
7					
S1	0'-0.2'	Topsoil	OL	7.10	Topsoil over bedrock
S2	0.2'-0.3'	Bedrock	No sample	No MC	Bedrock at 0.3'
8					
S1	0-1.8'	Topsoil	SM/OL	19.43	Thin tosoil with silt
S2	1.8' - 3.0'	Sandy-Silt	SL/ML	8.17	
S2	3.0'-3,2'	Silt	ML	8.17	Bedrock at 3'

2191 Third Avenue East · P.O. Box 1139 · Kalispell, Montana 59903-1139 · (406) 257-8708 · FAX (406) 257-8710 Date: 6/7/2013

APPENDIX E

COPIES OF PERMITTED DRAINFIELDS



APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENTSYS INSTALLATION PERMIT

Bhone # 🐨

DAKE COUNTY ENVIRONMENTAL HEALTH 106 FOURTH/AWENUE EAST ROLSON /MT: 59860-2175

Email:envhealth@loke

Deed Restriction

Check

Return the completed application with the \$300.00 permit fee to the above address 53 261 ABY

TIM ROSE Property Owner:

O REDTAIL ED CITY POUSON State/ZID MI Malling Addres Property Address: Borzanerza Lame

Range Lead Description & Section Township Tax IDI GEO Code: 😪

Block $() \cap () \cap ()$ Subdivision/COS New CReplacement Down Falled Alteration Wastewater System: (Oircle)

(IN) Basement Bedroom #: (Circle) Well (Loke) Spring Community Water System: (Circle) (Existing) Proposed

Water.Soffener/Treatment.units(s) in useror proposing to install. *** Yes Phone# General Contractor: Phone #

Septic Installer: I hereby declare that the information submitt system components are installed unless other conducted by Loke County Environmental Her dge: 11 understand that an installation permit must b anils interand, completed to the best of my knowle authorized: by: a. Lake: County: Registered: Sanitarian: I raiso: understand: a in insolution) per nim raus: Devisore: Cany authorized: by: a. Lake: County: Registered: Sanitarian: I raiso: understand: a 'final-inspection: and: approval: of the system: must: be for i o back. Iffing and use of the system: My signature also authorizes access to the described, property for, purposes of reviewing

FOR TIM KOSED ate Owner/Agent Signature:

OFFICE USE ONLY

for Use of Septic Shared Affidavit Other Easement Guest House Level 2 Document: Tank as Completed Required Not Required ES# Sanitation Approval: (Circle) lemonouri 10 Design Flow -- Number of Bedrooms: Gal Per Day ittelding

DUMP TONIC Soll Type. Application Rate:

Level II system required? Y System Design: 20 sching: ismodu ust como u wyhall action of Approved: MUSU VEDUID hen appe minal lise front Planner Initials

Signature of Registered Sanitarian

THE DESIGN, LOCATION, & ORIENTATION OF THE DRAINFIELD MAY NOT BE ALTERED WITHOUT PRIOR APPROVAL FROM LAKE COUNTY ENVIRONMENTAL HEALTH. APPROVED PERMIT IS INVALID IF SYSTEM IS NOT INSTALLED WITHIN TWENTY FOUR MONTHS OF ISSUANCE



Zowland Environmental Consulting, Inc.

P.O. Box 171 Polson, Montana 59860 Phone: 406-883-1015 Fax: 406-883-1780 Email: rec1@centurytel.net

May 3, 2011

Joel Nelson Lake County Planning Department 106 4th Avenue East Polson, MT 59860

RE: "The Lodge" at Borchers of Finley Point

Dear Mr. Nelson,

The owners of "The Lodge" at Borchers of Finley Point have requested that I comment on the placement of a new septic tank on the property. The new tank will be a 2500 gallon combination septic tank and pump chamber and is large enough to accommodate the proposed four-bedroom home. The proposed location (see attached schematic) meets the 50.0' setback from Flathead Lake, the 10.0' setbacks from structures and the 10.0' setbacks from property lines.

Finally, the tank size and location should allow easy connection to any new drainfield designed for the project

If you have any questions regarding this letter, please feel free to contact me.

Sincerely,

Zouch

Shawn D. Røwland, R.S MS President

Circular DEQ 4 Page 71 of 103

CHAPTER 24

HOLDING TANKS

·

General

24.1

Holding tank are used to hold wastewater until pumping occurs by a licensed septic tank pumping service and wastewater is disposed at an approved location.

- 24.2 Holding tanks are septic tanks that have no standard outlets and are modified to provide full time access for pumping.
 - 24.2.1 Holding tanks must have a minimum capacity of 1000 gallons. Larger tank capacity may be required by the reviewing authority as determined on a case by case basis.
 - 24.2.2 Holding tanks must meet the construction standards of chapter 7 except that no outlet opening shall be cast in the tank walls. Holding tanks installed where the seasonal groundwater table may reach any portion of the tank must be a single pour (seamless) tank design.
- 24.2.3 Holding tanks must have an audible or visual warning alarm that signals when the tank level has reached 75 percent of capacity. The tank must be pumped as soon as possible after the alarm is triggered and before the tank reaches 100 percent capacity.
- 24.2.4 Holding tanks must be stabilized against flotation if the tank is installed where seasonal groundwater may reach any portion of the tank.
 - 24.2.5 Holding tanks must be waterproofed against infiltration and exfiltration.
- 24.2.6 Holding tanks must meet the separation distances and other requirements in the subdivision and county minimum standard regulations, ARM 17.36.101 through 1107.

* tightness lest negulad - fill with water check after minimum of 8 hrs - must be Rose permit # 17600 <2" loss. * required elements Page Two - Deed Restriction - Lodge Tract - Borchers of Finley Point

- 12. This restriction applies to all current and subsequent owners of the property and may only be rescinded with the mutual written consent of the Board of Lake County Commissioners and the property owner(s) of record at the time.
- 13. Once the lodge tract is connected to a District wastewater treatment system or other permanent system approved by the Lake County Board of Health, this Deed Restriction will be considered satisfied and void without further documentation.

Uth day of MA DATED this ____, 2011. STATE OF (UASHALGTON County of Kday of // On this , 2011 before me a Notary Public for the State of personally appeared Timothy L. Rose known to me to be the person whose name is subscribed to the above instrument and acknowledged to me that he executed the same. IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year above/written. , ₂ සුගුරු සුග TERI L. FINNEY Signature: NOTARY PUBLIC Notary Public for the State of STATE OF WASHINGTON Residing at COMMISSION EXPIRES JUNE 9, 2014 My Commission expires:





APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENT SYSTEM INSTALLATION PERMIT

	PH: 406-883-7236
POLSON, MT 59860-2175	FAX: 406-883-7205 Emgil: envbegith@lakemt.gov
100,00	enter, on meaning arean, gov
Return the completed application with the \$300:00 pe	rmit fee to the above address.
Property Owner: Blake & Diane Johnson	Phone #
Mailing Address: <u>345 E 58th 8th Apt 2</u> Cit	y <u>New York</u> state/Zip <u>NY 10022-225</u> 2
Property Address: <u>Borchers of Finley Point</u>	
Legal Description: Section Township	<u>23N</u> Range_19W
GEO Code: <u>3351-01-2-02-01- 1401</u>	Tax ID:2665
subdivision/COS: Barchers of Finley Point Lot_	<u>401</u> Block <u>Parcel Size NA</u>
Wastewater System: (Circle) New Replac	ement Failed Alteration
Structure: (Circle) Single Family Multi-Family, M	obile Home Commercial Garage
Bedroom #: <u>5</u> Basement: Yes	No
Water System: (Circle) Existing Proposed (Circle	e) Well (Lake) Spring Community
General Contractor: <u>NA</u>	Phone #
Septic Installer. Lived Bjork	Phone # <u>2614898</u>
I hereby declare that the information submitted herein is true and comp installation permit must be issued before any system components are install Sanitarian. I also understand a final inspection and approval of the system prior to back filling and use of the system. My signature also authorizes acc application.	leted to the best of my knowledge. I understand that an ed unless otherwise authorized by a Lake County Registered must be conducted by Lake County Environmentol Health cess to the described praperly for purposes of reviewing this
Owner/Agent Signature:	Date: <u>3/11/10</u>
Replaces Permit # 10019 1913 Borch	ers (Johnson & Halzeth)
OFFICE USE ONLY	to be created when drainfield is permitted
Document: Level 2 Guest House Easement	Shared Affidavit Other
Sanitation Approval: (Circle) <u>Required</u> Completed	Not Required $ES # 24 - 17 - 19()2 Needed$
Design How - Number of Bedrooms;	Gal Per Day:171 830
	stic lank: <u>200 QUON COmpirention tank</u> pump
System Design:	1er:
Nate: tank many very internation abacination ware	Final homestide to actions at P 1
insteanter obn. Drivenuer has manufast if tour is to	what in driving of eaching a war
Approved Development: Installation of MG 200 Grinder	Planin Basin & Alamo with 144 1910 PST
Polyethylone Pipes to softer trank to include strandord his	the upper ahm Tank will some as
emborshy hydring tank parting subdivision under where	sichem (s) Planner Initiale
policie. I Breland by Belwand Env Consulting	
Sun The s 3-11-	2010 11440 2381
Signature of Registered Sanitarian Date of articler pump basin must be located to further blocated the THE DESIGN, LOCATION, & ORIENTATION OF THE D	1 Issue Permit # Check # In building to under the prive of setback.
WITHOUT PRIOR APPROVAL FROM LAKE COUN	IY ENVIRONMENTAL HEALTH.
Nated 11/02/04	ININ IWENTY-FOUR MONTHS OF ISSUANCE,



Rowland Environmental Consulting, Inc.

P.D. Box 171 Polson Montana 59860

Phone 406-885-105 Fax 406-885-1750 Email: recl@centurytel.net

February 24, 2010

DRAFT

Lake County Environmental Health Department 106 4th Avenue East Polson, MT 59860

RE: Septic Tank Upgrade for Units 401 and 402, Borchers of Finely Point

To Whom It May Concern:

Attached you will find the Application for Lake County Wastewater Treatment Installation Permit. This application is for the upgrade of the existing, shared septic tank serving Units 401 and 402 of Borchers of Finley Point. The existing septic tank is Located in the crawl space of Unit 402 and will be replaced by a Myers MG200 grinder pump and pump basin. The Myers pump package will be Located between the two units, where it will pump raw sewage and effluent through a 1 1/4 200 psi polyethylene pipe to a 3000 gallon combination septic tank and pump chamber located near the existing drainfield Lake County Permit #10010. Due to the rocky terrain between the grinder pump and septic tank, the lift line may be installed near ground surface or hung from the existing stairwell. A valve will be installed to allow the system to be drained back into the pump basin during the winter months.

I have also attached comment from the Timbrshor Association which indicates that the association will allow the installation of the system on the Timbrshor's Common Property.

If you have any questions regarding this application, please let me know.

Sincerely,

Shawn D. Rowland, MS R.S.

cc. Blake Johnson Jack Manning. Greg McKormick. Tom Cox. Greg Bjork





	orchers of fir	alcy Pt
HYSICAL ADDRESS	<u></u>	·
EGAL DESCRIPTION	_1/21/41/4	SECTION, TWPN, RNG
EOCODE <u>3251-07-</u> ERMIT NO. <u>Assignud</u> , #	2 <i>-02-01</i> SUBDI 5000-B	VISION Borchers of Finler ALOT BLK X TIMBORShors ' BLK CONTRACTOR John Dohandorf
	INSPE	ECTION SKETCH
Share	d Drainfield	For lots
		403/404*
		406
		410
	Permit 50.50	411 412 Thomas & Caryl Potter Cox - 1st 408
all serves		40.9
HS K Dan		414
Mr. Er		
NE GETON		
		* 403/404 is considered as one hook up - only one dwelling can be erected on the unit

SIGNATURE OF APPLICANT OR AUTHORIZED AGENT





. et . . LAKE COUNTY BOARD OF HEALTH FINAL INSPECTION AND USE PERMIT OF INDIVIDUAL SEWAGE DISPOSAL SYSTEM - 医乳外病 人名 PROPERTY OWNER ٢Ď Ŵ . . . PHYSICAL ADDRESS Uni 4-20 LEGAL DESCRIPTION 1/4 Sec W Twn 📈 N, Rng 7. n NSQU Permit No. Contractor INSPECTION SKETCH 5 A tol: 20'6" The second second B to 1:21 C to 2: 10'6" D to 2:86" 1500 gal sentic tank inet well os /alan 0 in 20 2 204 to drawbed connection to drawbed 2" POCpipe Existing pres يەن _ ÷ ; ng to approved pre-sketch? No talled accord Yes Is system i Date 3-31 _qu · Inspected b Signature of Applicant or Authorized Agent All and the second second 2 FOR OFFICE USE ONLY: Computer 73., с. <u>+</u> 3Z3

December 18, 1989

John Dohrendorf Box 802 Polson, Montana 59860

Dear John,

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Enclosed please find the inspection sketch/permit fee receipt for the Borchers of Finley Point multi-residence sewage disposal system. Provide this to the property owner for his records.

Another good job. Thanks for the cooperation. I wish you and your family a Merry Christmas.

Sincerely,

Albert M. Hawkaluk R.S. Lake County Land Services L

26

AMH/vhd Evel: Pervied #1837 December 18, 1989

John Dohrendorf Box 802 Polson, Montana 59860

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Enclosed please find the inspection sketch/permit fee receipt for the Borchers of Finley Point multi-residence sewage disposal system. Provide this to the property owner for his records.

Another good job. Thanks for the cooperation. I wish you and your family a Merry Christmas.

Sincerely,

Albert M. Hawkaluk R.S. Lake County Land Services

240

AMH/vhd Evel: Perus #1837

APPLICATION FOR LAXE COUNTY SEMAGE DISPOSAL SYSTEM INSTALLATION
Property Owner Phil Kovell Boucheve of Finley Pt. Tax Statement 1
Mailing Address 9/0 Howestake LANE #12 city gread FAILS ST WW Zip 59405
Property Address7_23_19Telephone 452-7004
Legal Description
lot 3 (Unit' 201)
GED Code
Is the property zoned? yes \times no $\not\equiv$ Has a valid construction permit been issued? yes \times no_Permit $\frac{92}{8}$
Property Type: Agricultural Lake ShoreX Residential_X Commercial Floodhazard
State Septic Approval:RequiredCompleted XKot Required Reference Date Hame Contractor's nameLiCeuse D in LiAke Co
SITE INFORMATION
This application is for replacementnew
Dwelling Type: single family welti-family mobile home other
Other improvements on property?
Is the mater system proposed or existing χ ? What type is it?
Drainfield Sizing Reference: number of bedrooms $2 - 3$ other
Soil type in area of proposed drainfield?
Percolation test results? Absorption area proposedft ² /per bedroom
Required septic tank size 1500 pol st/web web (splinns P/ pump Scheen, Type of absorption area proposed to existing Organized Supreme

The pre-sketch of proposed layout should be drawn on the back of this application. Please show the property lines, the direction of the slope and the distance to the wells, streams, irrigation ditches, lake, and any other bodies of water.

I hereby declare that the information submitted herein is true and complete to inspection of the approved system must be conducted by the Lake County Health	the best of my knowledge. I understand that a final Department prior to backfilling.
	1-19-94 962
by nature of Applicant or Authorized Agent	Date
Albawhalich	9947
bighature of Registered Sanitarian	Permit Number
ADDODIVED DEDNIT IS INVALID TE SYSTEM IS NOT INSTALLED WITH	HTH STY (4) NONTUS OF TESUANCE

ADDONNEN DEDNIT IS YAVALIN TE SYSTEM IS ANT INSTALLEN MITHIN STY (2) MONTUS OF TESHANCE



"我们的你的好好。"

August 31, 1992

E COUNTY LAND SERVICES PLANNING AND SANITATION 1 106 Fourth Avenue East Polson, Montana 59860-2175

Phil Korell Homestake Lane #12 Great Falls, Montana 59405

Re: Finley Point Zoning - Building Notification Permit #F.P.92/8

Dear Mr. Korell

ine. Refering The Lake County Planning staff has reviewed your request for a Building Notification Permit. Based on the information provided by you and verified by an on-site evaluation, we find this project approvable under the guidelines contained in Resolution #852. This letter shall constitute a Building Notification Permit as required by Section 10 of the Finley Point Zoning Regulations, and is subject to the following conditions:

- 1. The structure shall not exceed 30 feet in height as measured from average project grade.
- 2. The structure shall not be located on slopes of 25% or greater.
- 3. The owners shall, prior to the start of construction, obtain a sewage disposal permit from the Lake County Sanitarian. A copy of this permit shall be forwarded to this office.
- 4. No portion of the structure, to include attached decks, shall extend to within 30 feet of the high water mark of Flathead Lake.
- 5. This permit shall not be construed as insurance that the structure is contained within the applicants property boundary or that it will accomplish its intended purpose.
- 6. This permit does not supersede or negate any stricter regulations or other encumbrances which may apply to this particular property.



BORCHERS OF FINLEY POINT

Evaluation of Drainfield - Permit # 1837 Serving Area 2

Site Number	Number of Bedrooms	GPD.
201	2 .	225
202		-
203	2	225
204	3	300
205	2	225
206	4	350
209	2	225
210	2	225
211	2	225
216	-	<u> </u>
217	Not to be developed	-
219	-	
Lodge?	(5)	(400)
TOTAL	19	2000

Existing Drainfield Permitted 1989 4 100' laterals - 2' trenches @ 12" g ravel = 800sf drainfield existing.

2000gpd X application rate .6gpd = 3333 sf drainfield needed 800sf is acceptable drainfield size for 480 gpd = 1 6-bedroom home = 2 2-bedroom homes

(Old standard = 150sf/bedroom X 19 bedrooms = 2850sf needed)

Conclusion: drainfield is undersized for lots served

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Property leased to Bob and Dr. Halseth of greatfalls SEPTIC TANK PERMIT COUNTY HEALTH DEPARTMENT Date Sog 9. 6 1973 PROPERTY OWNER BOILDAN Address Fuller B TO BE BUILT BY Phone Fee Paid \sim yes no Application Plans Approved For The Following Minimum Specifications: in sand. 1000 Lilung Gallon Septic Tank) and 440 Square Feet of Absorption Area Consisting of agrain for dimens -see d WHEN INSTALLATION IS COMPLETE AND BEFORE BACKFILLING - ÇALL HEALTH DEPARTMENT FOR INSPECTION. Issued By INSPECTED BY DATE

. . . .

existing drainfields serving the existing residences failed, they were to be connected to this community drainfield.

The wastewater treatment systems serving the subdivision are clearly not as approved. The largest drainfield located near the "lodge" residence was not installed as per the approved design for the community drainfield. This drainfield has been determined to be undersized for the number of residences it serves; see evaluation page included. Some homesites are served by individual, shared, or multi-user drainfields. Some of the systems existing at the time of the subdivision are not known and probably do not meet minimum setbacks or other standards.

The newer systems installed are excellent drainfields and use advanced technologies unavailable at the time the subdivision was approved. Most of the systems installed since the subdivision approval have county permits. It is not clear why these systems did not follow the MDEQ approval for one community system.

In order to correct the legal record for this subdivision, Borchers of Finley Point must revise its MDEQ approval regarding water and wastewater systems. This involves an application made to the MDEQ that defines: h ow the residences are currently served by water and wastewater systems; how inadequate systems will be brought into compliance; and how shared user agreements, easements, and/or homeowner association documents will address system installation, maintenance and operation. The application is typically submitted by an environmental consultant, and, in this case, will likely require professional engineering.

Now that it is understood that the subdivision is not in compliance with its MDEQ approval, the Lake County Environmental Health Department will not issue wastewater permits for this subdivision nor allow new construction or changes to existing systems until the MDEQ approval is revised. Revision of the MDEQ approval, while a substantial undertaking, will both bring the subdivision into compliance with state law and provide an orderly plan for the future water and wastewater infrastructure of this condominium subdivision.

Please do not hesitate to contact me for further information and discussion on what is needed to resolve the above issues.

Sincerely,

Susan K. Brueggeman, R.S. Environmental Health Director

Enc: MDEQ Certificate of Subdivison Approval Water System Approval Letter Wastewater System Approval Letter Evaluation of Community Drainfield



February 17, 2010

Borchers of Finley Point/Timbrshor Association c/o Phil Grainey 324 Main Street SW Ronan, MT 59864

Dear Timbrshor Association,

In early November 2009, at a meeting with the Board of Lake County Commissioners to discuss the proposed alternative locations of the units created by the Borchers Of Finley Point condominium declaration, it was requested that the Commissioners visit the site to visually inspect the staked locations of each unit and provide feedback to the owners regarding each proposed location. This letter is intended to provide comment from the Lake County Commissioners regarding the proposed unit locations that were staked and/or pointed out by a group of owners during a site visit on December 18, 2009. The proposed unit locations that were pointed out are also depicted on the Carstens Land Surveying document dated, April 21, 2008 and entitled, "Borchers of Finley Point REV 11-03-08", which represents proposed amendments to the site plan ("Plat") of Borchers of Finley Point Country Planning Department on December 17, 2008, and has been the subject of correspondence previously issued by the Lake County Planning Department on January 28, 2009 and by the Lake County Planning and Environmental Health Departments on June 11, 2009 (copies attached).

The County Commissioners reviewed each proposed alternative unit location to determine if the change would bring the subdivision out of compliance with the original subdivision, the Finley Point Zoning District Regulations or the review criteria specified in 76-3-608, MCA. If the Commissioners determine that a proposed change would not bring the subdivision out of compliance with these items, the change can be deemed immaterial and there would be no requirement for a formal subdivision application submittal and review process as established in the Lake County Subdivision Regulations and the Montana Subdivision and Platting Act. These amendments could be included on an amended site plan for the subdivision and submitted for recordation with the Lake County Clerk and Recorder, but the Board of Commissioners finds it necessary to require that any amended site plan identify the exact footprint in which the building unit, as well as the location of the driveway and parking areas that would serve the building unit, would be required to be constructed. In the case where more than one building unit is being proposed in an area that is not currently accessible by an internal subdivision access road, the exact location of the access roadway will also be required to be depicted on the amended site plan.

The proposed alternative locations for units numbered 318, 319, 320, 408, 414, 417, 426, and 427 appear reasonable and could be approved without additional review. Of these units, 408, 414 and 417 can be accessed via a driveway from an existing internal roadway but the following units will-have to have an access road constructed from an existing roadway: 318-320 and 426-427. Prior to approval of the final amended site plan, a draft document to be recorded with the amended site plan

The additional information necessary to review the proposed alternative location for unit 422 includes:

• A site plan that includes the building footprint, parking area and an access driveway for the unit from Osprey Lane. The driveway is required to meet the standards included in this letter.

The alternative unit locations for units 202, 421, 424, and 430 do not appear reasonable to Lake County. It is the opinion of the County at this time, that without a formal application for subdivision review that includes evaluation of an environmental assessment, compliance with the local subdivision regulations, a public hearing, and Department of Environmental Quality review of the impacts of storm water drainage ways, that these units would impact the primary review criteria of 76-3-608, MCA regarding impacts to the natural environment, and impacts to public health and safety. In support of this conclusion, the County cites the following limiting factors:

- The proposed alternative location for unit 202 does not currently have a legal and physical vehicular access suitable for provision of public services; the area lacks reasonable pedestrian access; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; the area does not comply with the zoning district regulations as it is 44ft to the highwater mark of Flathead Lake and 9 ft to the boundary of the Borchers of Finely Point property and the area is in close proximity to a platted unit that has not yet been constructed to demonstrate there is area for two units that meet the zoning district regulations; and there are several alternative locations on the property for development of a unit that would comply with the local zoning regulations and not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 421 does not currently have a physical vehicular access suitable for provision of public services; the area is 60 ft from Flathead Lake and is in a natural drainage way; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 424 does not currently have physical vehicular access suitable for provision of public services; the area is 85 ft from Flathead Lake and is in a natural drainage way; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment.
- The proposed alternative location for unit 430 does not currently have physical vehicular access suitable for provision of public services; the area does not comply with the zoning district regulations as it is 35 ft from the highwater mark of Flathead Lake and appears to be located outside the boundary of the Borchers of Finely Point property; the area contains significant geological obstacles for development of a unit, parking and access; there has been no evaluation of the potential for environmental degradation or natural hazards such as fire and wildland fire; and there are several alternative locations on the property for development of a unit that would not involve impacts on the public health, safety, or welfare or impacts to the natural environment:

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Driveway Standards:

o A minimum 12-foot wide driveway

• A maximum 12 percent slope and a maximum 5 percent slope for the initial 20 feet from the primary access road

The Board of Commissioners recognizes that the need for this amendment is the result of extraordinary circumstances and therefore we are attempting to be as reasonable as possible while working with the owners of the units of Borchers of Finley Point/Timbrshor Association. It will be necessary to demonstrate concurrence from the unit owners in regards to the locations of all units, driveways, and access roadways that are currently located in common area and because of the exceptions being made to allow for a reduction in roadway development standards, the unit owners will have to agree to exempt Lake County from liability as it relates to the legal and physical access to the units in the subdivision.

Sincerely, Board of Lake County Commissioners

Bill Barron

Member

Paddy Trusler Member

Chuck Whitson Chairman

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cc: Burke Townsend, President, Timbrshor Association Kurt Moser, Office of the Lake County Attorney

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FINAL INSPECTION AN	LAKE COUNTY LAND SE D USE PERMIT OF INDIVIDU	RVICES IAL SEWAGE DISPOSAL SYST	EM
PROBERTY OWNER Phill	Korell (Borcherb	of finley Pt)	<u></u>
PHYSICAL ADDRESS % Home	stake In # 12. Mile	at fallo, MT 59405	
FEGAL DESCRIPTION	¼¼ SECTION	<u>7</u> , twp_ <u>23_</u> n, rng_	19w
Guess 3351-07-2-0	2-01- SUBDIVISION Lot 3	3. Unit 201_ LOT	BLK
REPAIL NO 9947	CONTRA	CTOR	
	INSPECTION SKETC	СН	
Installed accordin	g to presketch		
	. •		
		SKETCH? YES V NO	

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leased to Bob Dr. Halseth of griestacia Listin Durn Summer callin sites ЮΡ E COUNTY HEALTH DEPARTMENT Date Soor 19 13 PROPERTY OWNER BON CHEN, WIE Address Finden B TO BE BUILT BY Phone Fee Paid yes no Application Plans Approved For The Following Minimum Specifications: in sand. 000 hillunglagion Septic Tank & and 440 Square Feet of Absorption Area Consisting of for dimens agnesin WHEN INSTALLATION IS COMPLETE AND BEFORE BACKFILLING - CALL HEALTH DEPARTMENT FOR INSPECTION. Issued By

14. ; ;

NSPECTED BY DATE

2 Stam 2 Rountree 2 78 302 78 3 Estvold 305 > qo to Olimpster greg > unknow septic tank- common > lats of cleanants - may go under 302 > no permit of record
	SEWA DISPOSAL SYSTEM INSTALLATION.
	Tile
Property own	er Lou Porchers
Legal Descri	otion
General Descr	iption Borchers of Fully Pt
Address	AST LAKE SHOPE REP. POLSAL Phone No. DOG
Size of Parce	1
Application 1.	s for replacement new sewage disposal custor
Ano any load	ling <u>3B(L)</u>
	ise regulations in effect? Yes × No
Contractor MA	awelling conform to land use requirements? Yes ¥ No
	License No.
to #?	3351-01-2-02-0000 PROPOSED SYSTEM
Proposed or ex	isting water supply
Size of propose	ed septic cank contin that a contraction
Soil type in am	THE FINE PEHLICE MENT STEEL SEPTIC
	ea of proposed drainfield TANK REPLACED RY A 1000
Percolation tes	t results OPALLON CONCRETE \$550000 Thank
Absorption area	proposed PUC Dipa masterila A Little A Little
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Pre-sketch of pro to wells, streams I hereby dec of my knowledge. ducted by the Lak Applicant or Authon Approved permit in Septicion	Diposed system layout - (use back of application; show property lines distance s, irrigation ditches, lake, etc. percent and direction of slope). I are that the information submitted herein is true and complete to the best I understand that a final inspection of the approved system must be con- i understand that a final inspection of the approved system must be con- E County Health Department. When the information of the approved system must be con- Date Disapproved Permit No. Health Officer or Supervising Sanitarian nvalid if system is not installed within six (6) months of issuance. Multipled un accondance to Alguenements, for the system of the system o
Pre-sketch of pro to wells, streams I hereby dec of my knowledge. ducted by the Lak Applicant or Authon Approved permit to Septicion	on area proposed posed system layout - (use back of application; show property lines distance is, irrigation ditches, lake, etc. percent and direction of slope). I understand that a final inspection of the approved system must be con- in understand that a final inspection of the approved system must be con- e County Health Department.

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menter the second of the second 10-74 AKE COUNTY HEALTH DEPARTMENT APPLICATION FOR SEWER PERMIT Saul Oak a Property Owner Finler Address or Phone Legal Description of Property يعامدوا No. of Bedrooms Non inum ROWINDY Size of Septic Tank 3700 Size of Drainfield Type of Drainfield Soil Type of Drainfield Location Water Supply Flathead He Dav Must include property lines, buildings, and proposed sewer layout. Important! Sketch must show distance from absorp-tion area to wells, spring, streams, lakes or any surface SKETCH: water, Direction and % slope where applicable. wearen of the last source of the Briller · ·· KLARTONELLUI way installed. Vallarizino Swer drawtile laterals - 110 long below & over draintill gardenel drainfield ditch 6' deep fill around & over ! dranifield area. The drainfield site is used as a parking area. 3,700 gallon septic tank and fift station. location Worth > South deviction desimbeld Palso Contractor Len Rak Address ររង 1971-72!! Inspected witalled Вy Sanitarian





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LAKE COUNTY Property Print 2009

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Page: 1

Name	TW	Rang SC Le	gal Descr	iption
2324				
BANTRY LLC	23	19 07 BORC	HERS OF FI	INLEY POINT
91 FAIRMONT AVE		UNIT	317	
CHATHAM NJ 07928-2315		04FF		
	Geo	code: 3351-0	7-2-02-01-	-0317
Class	Dist	Quantity	Market	Taxable/\$
4-2101 TRACT LAND	23MC	0.06	29066	875.00
4-3301 IMPS ON RURAL LAND	23MC	0.00	105263	3168.00
98-9001 SOLID WASTE MANAGEMENT DIST	SAN	1.00	0	135.00
98-9002 BLACKTAIL TV	TV	1.00	0	5.00
99-9020 STATE FOREST FIRE	FF	0.00	0	5.00
98-9004 SOIL CONSERVATION	SOIL	0.00	0	4043.00
*****	******	********	*******	*****

(981) 267

4 Plax 1954 Selly 2 306 1956 Payson Ł 301 齿 1950 Noviuski 1954 Cde > df / tank unknown -> well under 4-plax? no pump - gravity >not 100' setback tank?

ap LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT FINAL INSPECTION AND USE PERMIT OF WASTEWATER TREATMENT SYSTEM PROPERTY OWNER: PHYSICAL ADDRESS: 7, TWP 23 1/4 1/4 N, RNG 1/2 LEGAL DESCRIPTION: SECTION ___ GEOCODE: 3351-07-2-02-01-0000 SUBDIVISION: LOT: 430 . CONTRACTOR: PERMIT NO: 4N TWO-INDEPENDENT ALTRANATING DOS MIG LINES - 40 1000 GALLON SIPHON TANK powers. ~1⁰ 2 dudine each 2 dudine each 3 bed Kash Hrdest Dorth Mr INFUTPHICK INVILLE BARDE Xal and www.commerced. PHA S'X BO' TRENCHES TWO WALTS WO - QUIX 75' LATTEAKS i PHASE. WI INFILTRATORS SOURT TEST: GODD. 7 SERVICE FOR TWO WANTS ISTAGE 112 TOTAL APPROVED FOR 15 BEDROOMS GPD 118200 DATE INSPECTED BY: SIGNATURE OF APPLICANT OR AUTHORIZED AGENT: 329 R



τΑΤΕΡΑΙ ΑΤ ΕΙΕΝΑΤΙΟΝ	#?			
Residual head in FT	7			
Orifice diameter (inches)	0.1875	3/16 " holes		
Flow through orifice	2.2.4.2	1.096		
Number of orifices		11.34	12	
Lateral length	35			
Orifice separation(ft)		2.92	35 inches	
Flow per lateral(epm)		13.15		
Number of laterals	1			
LATERAL AT ELEVATION	#4 F	ighest lateral		
Residual head in FT	5			
Orifice diameter (inches)	0.1875	3/16 " holes		
Flow through orifice		0.927		
Number of orifices		13.41	14	
Lateral length	35			
Orifice separation(ft)		2.5	30 inches	
Flow per lateral(gpm)		12.98		
Number of laterals	1			
TOTAL FLOW		51.45	51.45	
Velocity in Delivery pipe				
	Pipe dia	2.067		
	Velocity	4.92 ft/s		
ORIFICE PLACEMENT				
LATERAL #1	Lead dist	21 inches		
LATERAL #2	Lead dist	19 inches		
LATERAL #3	Lead dist	17 inches		
LATERAL #4	Lead Dist	15 inches		



24

APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENT INSTALLATION PERMIT

LAKE COUNTY ENVIRONMENTAL HEALTH 106 FOURTH AVENUE EAST POLSON, MT 59860-2175 PH: 406-883-7236 FAX: 406-883-7205 Email: <u>envhealth@lakecounty-mt.org</u>

Return the completed application with the \$150.00 permit fee to the above address.

Phone # 406-788 0719 Property Owner: Mailing Address: State/7 6R Property Address: OSPREG 6 23 Section: Legal Description: Ranae Township Subdivision Name: Jorchers Parcel Size Block Bedroom #_3 Wastewater System: (Circle) New Replacement Water System: (Circle) Well Lake Spring Community (Circle) Existing (Proposed Property Zoned: Yes No Dwelling: (Circle) (Single Famil) Multi-Family Mobile Home Commercial Garage I hereby declare that the information submitted herein is true and completed to the best of my knowledge. I understand that a final inspection and approval of the system must be conducted by Lake County Environmental Healtin prior to back filling and use of the system. My signature also authorizes access to the described property for purposes of reviewing this application. Owner Signature: OFFICE USE ONLY Planning Review: Incon Geo Code: 3351-07-4/bax Statement # Property Type: (Circle) Residential Commercial Agricultural Letteshore) Required State Septic Approval: (Circle) Completed Not Required of Finley fin Reference Date: _ Name: _ Borchers States Es # Absorption Area Required: Soil Type: Grassel Contractor: Jon Shultz Required Septic Tank: 1500 tiber dass 7 Drainfield/Sizing Reference: # of Bedrooms Other: 100 Absorption Area Required: Ċò Siphon Type of ETA Chambon trench ハウレー compon cations Énitarian Signature of Redistered S Date of issue Permit Number Check Number THE DESIGN, LOCATION, & ORIENTATION OF THE DRAINFIELD MAY NOT BE ALTERED OCT - 1 200 WITHOUT PRIOR APPROVAL FROM LAKE COUNTY ENVIRONMENTAL HEALTH. APPROVED PERMIT IS INVALID IF SYSTEM IS NOT INSTALLED WITHIN TWELVE MONTHS OF ISSUANCE.



PROPERTY OWNERBor ch	ices of Finley Pt			
PHYSICAL ADDRESS				<u>.</u>
LEGAL DESCRIPTION1/2 .	%% SECTION	, ŢŴF	N, F	RNG
GEÓCODE	SUBDIVISION	ेते 	LOT	BLK
PERMITNO.		OR Jo	no Dohandor	F
	INSPECTION SKETCH			
Shared	Drainfield For lots			
	403/404 *			-
•	406	i de la companya de l Companya de la companya de la company de la companya de la c		
	410	- "Yes "Salar" "Salar" - "Yes		
	411			·
	412			
	408 Upg	yeran Tanan Tanan Tanan	al de la companya de La companya de la comp La companya de la comp	• •
	414		- - -	
		·	- 	
			-	
	* 403/404	is consid only one c on the r	ered as one dwclling can b nit	hook up be erected

LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT FINAL INSPECTION AND USE PERMIT OF INDIVIDUAL SEWAGE DISPOSAL SYSTEM

PROPERTY OWNER: THOMAS LOK + CARIL POTTER COK PHYSICAL ADDRESS: 30 OSprey Ln, Holson LEGAL DESCRIPTION: SECTION _____, TWP _____, RNG _____W ______ GEOCODE: 3351.07-2-02-01-0412 SUBDIVISION: BOPHERS OF FINLE PERMIT NO: 5050 CONTRACTOR: STANDARD CONSTRUCTION.

INSPECTION SKETCH



APPLICATION FOR LAKE COUNTY SEWAGE DISPOSAL SYSTEM INSTALLATION PERMIT
Section A: To be completed and signed by property owner or their representative. Permit fee determination to be made by sanitarian. Please remit payment with application to : Lake County Land Services, 106 Fourth Avenue East, Polson, MT, 59860.
Property Owner Thomas J Cary Potter COK Rhone # 618-549-3986
Mailing Address 105 WEST ELM ST City CARBONDALE State/Zip JL 602101
Property Address (If known)
Legal Description: Section 0.7 Township 23 N Range 19 W, 14 14 14 14 14
Subdivision Name (if applicable) Bovaneve of Finkey Pt. (What 412 Block
Size of Parcel Water system: Proposed Existing Type
Dwelling: Single family Multi-family Mobile home #Bedrms
Is the property zoned? Yes // No Zoning District Finite, Pt
Zoning Conformance Permit # F. P. 00-#17 If zoning conformance permit has not been issued, contact Lake County Planning Dept. to obtain a permit prior to Septic Permit being issued.)
I hereby declare that the information submitted herein is true and complete to the best of my knowledge. I understand that a final inspection of the approved system must be conducted by Lake County Land Services prior to backfilling.
Signature of Applicant or Authorized Agent Date
Section B: To be completed by Lake County Sanitarian.
GED Code 3351-07-202-01-0412 Toy Statement # \$199
System is a replacement new holding tank sewage disposal system. J-no
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchess of Finley Point State ES # 24-77-K90 7 / 74 / K330.
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchest of Finley Point State ES # 24-77-K90 7 / 74 / K330 Does property require a building notification permit? Yes No Permit #
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchest of Finley Point State ES # 24-77-K90 7 / 74 / K330 . Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly cand y loam
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Boccheck of Finley Point State ES # 24-77-K90 > / 74 / K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results _10-13 mun/cnok Absorption area proposed ft2/per bedroom
System is a replacement new holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Boccheck of Finley Point State ES # 24-77-K907 / 74/K330. Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravellysandy_loam Percolation test results 10-12 mm/cnok Absorption area proposed Contractor Au Beauer Absorption area proposed Gontractor Au Beauer
System is a replacement newX_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Boccheck of Finley Point State ES # 24-777-K907 / 74 / K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results /o- /p mun/unok Absorption area proposed ft²/per bedroom Contractor Au Beaver - her Borchus Required septic tank size: gallons. Drainfield sizing reference: # of bedrooms other
System is a replacement new _X_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _X Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bocchesh of Finley Point State ES # 24-777-K907 / 74 / K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results /0- /a mm/unch Absorption area proposed ft²/per bedroom Contractor Hu_ Beaver - how Borchests Required septic tank size: /500 gallons. Drainfield sizing reference: # of bedrooms other other other
System is a replacement new _xholding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _x Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-777 Name Bocchest of Finley Point State ES # 24-77-K907 / 74 / K330. Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results /o- /s mm/unoch Absorption area proposed ft²/per bedroom Contractor Au. Beauer - how Berchests Required septic tank size: /500 gallons. Drainfield sizing reference: # of bedrooms other Type of absorption area proposed layout-will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc.
System is a replacement new _X_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _X_ Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Baccheck of Finley Faint State ES # 24-77-K907 / 74 / K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy learn Percolation test results 10-12 mun/under Absorption area proposed ft²/per bedroom Contractor Hu_ Beaver - how Be refuels Required septic tank size: 1500 gallons. Drainfield sizing reference: # of bedrooms other Bouchers of Funley Pt The presketch of the proposed layout-will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. WWW MAMMANANA
System is a replacement new _k_ holding tank sewage disposal system. J-no Property Type: Agricultural Lakeshore Residential _k Commercial Flood hazard State Septic Approval: Require Completed Not Required Reference Date 7-28-77 Name Bacchest of Finley Point State ES # 24-77-K907 / 74/ K330 Does property require a building notification permit? Yes No Permit # Soil Type in area of proposed drainfield gravelly sandy loam Percolation test results /o- 12 mm/onch Absorption area proposed ft²/per bedroom Contractor Au Beaux - Them Berdeus Reference Sole gallons. Drainfield sizing reference: # of bedrooms Other Bouchest of Funley. Pt The presketch of the proposed layout-will be drawn on the back of this application by the sanitarian. The sketch will include property lines, direction of slope, distance to wells, streams, irrigation ditches, lake, etc. Max duration of Registered Sahitaran



Note:

Place 6"-12" of quality topsoil with a high sand content and little to no clay or heavy silts

Place 2" of 3/4" to 2 1/2" washed gravel above the laterals, 24" of washed gravel below the laterals The bottom 12" maybe oversized gravel up to 6" in

Install a 4" diameter standing check pipe with both ends capped. Only the bottom cap should be drilled. Drill several 1/8" to 1/4" holes in the bottom of the pipe and wrap the pipe in filter cloth.

APPENDIX F

COST ANALYSIS



BILLMAYER & HAFFERMAN, INC.

	DF A AVAILA	REA BLE	
PROPOSED DRAINFIELD A		19 UNITS	
All Costs are as Installed with Labor and Materials			
Timbrshor HOA	File:	T.57.1	Revised:

	(SF) DE AREA	28,800		
	REQUIRED			
	(SF) ST	22 440	4750	and design flow
ITEM			\$/UNIT	COST
Forcemain	ONIT	QUANTIT	ο, οι ιτι	6051
Permit Application Fee	FΔ	1	\$500.00	\$500.00
2" Forcemain	LF	1400	\$17.25	\$24 150 00
	EA	2.0	\$287.50	\$575.00
Franch Ex & Backfill		1400	\$4.60	\$6.440.00
2" Chack Valvas	EA	1400	\$96.25	\$245.00
		4	\$22.00	\$345.00 \$3.961.00
Security Salid	Cr	117	\$33.00	\$3,801.00 \$25 971
				<i>333,67</i> I
Standard Laterals Drainfield				
I-1/2" PVC Laterals	LF	3168	\$13.80	\$43,718.40
1-1/2" manifold	LF	220	\$11.50	\$2,530.00
French Ex & Backfill	LF	3388	\$4.60	\$15,584.80
Unclassified Fill	CY	416	\$4.60	\$1,913.60
Fonsoil and Seed	Per 1000 SF	22.4	\$195.50	\$4,379,20
Vashed Drain Rock	CY	264	\$41.80	\$11 035 20
Fabric	SE	19008	\$0.13	\$2 471 04
2-zone splitter valve	15	2	\$690.00	\$2,471.04
	LS	1	\$030.00	\$1,380.00
viist.	LJ	1	Standard DF	\$1,320.00
			Standard Di	<i>404,332</i>
Tanks and Controls				
4-2500 gallon septic tanks	LS	4	\$2,285.00	\$9,140.00
1-3000 gallon dose tank	LS	1	\$2,575.00	\$2,575.00
Dosing Pump and Controls	EA	2	\$2,587.50	\$5,175.00
Force Main Line to DF	LF	52	\$18.98	\$986.96
		1	Tank and Controls Costs	\$17,877
System A Standard Trenches Cost				
Force Main and Standard Trenches				\$120,203
Fank and Controls				\$17,877
Contingency	10%		-	\$13,808
Total Estimated Materials and	d Labor		_	\$151,888
Engineering				\$18,227
	TOTAL COST SYS	STEM A WITH	STANDARD TRENCHES	\$170,115
ΤΟΤΑ	I COST PER LINIT SYS	STEM A WITH	STANDARD TRENCHES	\$8,953.41
System A Standard Trenchs with Level II Treatment				
System A Standard Trenchs with Level II Treatment	DF AREA	11,220 \$	ŞF	
System A Standard Trenchs with Level II Treatment	DF AREA	11,220 \$	ŞF.	\$ 78,037
System A Standard Trenchs with Level II Treatment Drainfield with Level II AdvanTex Level II Treatment	DF AREA	11,220 5	SF	\$ 78,037 \$ 75.703
System A Standard Trenchs with Level II Treatment Drainfield with Level II AdvanTex Level II Treatment Contingency	DF AREA	11,220 \$	ŞF.	\$ 78,037 \$ 75,703 \$ 15.374

TOTAL COST SYSTEM A WITH STANDARD TRENCHS, LEVEL II TREATMENT 🖇

TOTAL COST PER UNIT SYSTEM A WITH STANDARD TRENCHS, LEVEL II TREATMENT

186,026

9,791

SYSTEM B

BH BILLMAYER & HAFFERMAN, INC.

			Date:	1/22/2013 NJF
Timbrshor HOA	File:	T.57.1	Revised:	6/5/2014 DAN
Engineers Construction Cost Estimate				
All Costs are as Installed with Labor and Materials				

PROPOSED DRAINFIELD B	5	UNITS		
	DF AREA			
	AVAILABLE			
	(SF)	5,760		
	DF AREA			
	REQUIRED			
	(SF)			
	Chambers	5,133	1500	gpd design flow
ITEM	UNIT	QUANTITY	\$/UNIT	COST
Forcemain				
Permit Application Fee	EA	1	\$500.00	\$500.00
2" Forcemain	LF	250	\$17.25	\$4,312.50
Cleanouts	EA	2	\$287.50	\$575.00
Trench Ex & Backfill	LF	250	\$4.60	\$1,150.00
2" Check Valves	EA	4	\$86.25	\$345.00
3edding Sand	CY	21	\$33.00	\$693.00
				\$7,576
Chambers Drainfield		750	ć12.00	¢10,422,00
1-1/2" PVC Laterals	LF 	/56	\$13.80	\$10,432.80
1-1/2" manifold	LF	59	\$11.50	\$678.50
French Ex & Backfill	LF	815	\$4.60	\$3,749.00
Jnclassified Fill	CY	95	\$4.60	\$437.00
Fopsoil and Seed	Per 1000 SF	5.1	\$195.50	\$997.05
34" Gravelless Chambers	LF	750	\$15.00	\$11,250.00
2-zone splitter valve	LS	0	\$690.00	\$0.00
Misc.	LS	0.5	\$1,320.00	\$660.00
			Chambers DF	\$28,204
Table and Canterla				
I anks and Controls	10	2	¢1 соо го	¢2,200,00
2-2000 gallon	LS	2	\$1,099.50	\$3,399.00
I-1500 gallon dose tank	LS	1	\$1,204.50	\$1,204.50
	EA	1	\$2,587.50	\$2,587.50
Force Main Line to DF	LF	52	\$18.98	\$986.96
System B Chambers Cast			Tank and Controls Costs	\$8,178
System B Chambers Cost				\$35 780
Fank and Controls				\$8 178
Contingency	10%			\$4 396
Total Estimated Mat	erials and Labor		-	\$48 354
Engineering				\$5 802
			H STANDARD TRENCHES	\$5 <u>4</u> 156
	TOTAL COST PFR UNIT SY	STEM B WIT	H STANDARD TRENCHES	\$ 10.831
				- 10,001
Sytem B Chamber Trenchs with Level II Costs		DF AREA	3,850	SF
Drainfield with Level II				\$ 28,729
AdvanTex Level II Treatment				\$ 47,986
Contingency	10%			\$ 7,671
Engineering				\$ 10,126
			=	
TOTAL	COST SYSTEM B WITH STAND	ARD TRENC	IS, LEVEL II TREATMENT	\$ 94,513
TOTAL COST PER	UNIT SYSTEM B WITH STAND	ARD TRENCI	IS, LEVEL II TREATMENT	\$ 18,903

SYSTEM C					
BH BILLMAYER & HAFFERMAN, INC.			Date: Revised:	1/22/2013 6/5/2014	NJF DAN
Timbrshor HOA Drainfield C					
Engineers Construction Cost Estimate					
All Costs are as Installed with Labor and Materials					
System C Expanded to Obtain Separation Distance from Well	8	UNITS			
	DF AREA AVAILABLE (SF) DF AREA REQUIRED	N/A			
	(SF) ST	N/A	2400 0	iPD design flow	
ITEM	UNIT	QUANTITY	\$/UNIT	COST	
Forcemain Permit Application Fee	EA	1	\$500.00	\$500.00 \$500	
Drainfield Reconstruction					
1-1/2" PVC Laterals	LF	50	\$13.80	\$690.00	
1-1/2" manifold	LF	25	\$11.50	\$287.50	
Trench Ex & Backfill	LF	150	\$4.60	\$690.00	
Washed Sand	CY	5	\$44.00	\$220.00	
Unclassified Fill	CY	8	\$4.40	\$36.67	
Topsoil and Seed	1000 SF	0.45	\$175	\$78.75	
Washed Drain Rock	CY	4	\$41.80	\$174.17	
Fabric	SF	300	\$0.12	\$36.00	
Misc.	LS	1	\$1,320	\$1,320.00	
				\$3,533	
DF C Costs					
Permit				\$500.00	
DF Reconstruction				\$3,533	
Contingency	10%		_	\$353	
			Subtotal	\$4,386	
Engineering				\$4,792	
SYST	EM C COST EXP	ANDED TO MOV	E AWAY FROM WELL	\$9,178	
SYSTEM C COST	PER UNIT EXP	ANDED TO MOV	E AWAY FROM WELL	\$1,147	

SYSTEM D

BH BILLMAYER & HAFFERMAN, INC.

1/22/2013 NJF 6/5/2014 DAN

Timbrshor HOA Drainfield D

Engineers Construction Cost Estimate

All Costs are as Installed with Labor and Materials				
SYSTEM D ADD 4th LATERAL 3 NEW UNITS	5	UNITS		
	DF AREA			
	AVAILABLE			
	(SF)	1,000		
1754	(SF) ST	750	1500 g	pd design flow
	UNIT	QUANTITY	Ş/UNII	COST
Forcemain	54	4	6500.00	6500 00
Permit Application Fee	EA	1	\$500.00	\$500.00
2" Forcemain	LF	12	\$17.25	\$207.00
	EA 	1	\$287.50	\$287.50
Irench Ex & Backfill	LF	12	\$4.60	\$55.20
2" Check Valves	EA	1	\$86.25	\$86.25
3edding Sand	CY	1	\$33.00	\$33.00
				\$1,169
Special Trench Drainfield				
1-1/2" PVC Laterals	LF	75	\$12.00	\$900.00
1-1/2" manifold	LF	12	\$10.00	\$120.00
Unclassified Fill	CY	21	\$4.00	\$83.33
Topsoil and Seed	Per 1000 SF	0.75	\$175.00	\$131.25
Washed Drain Rock	CY	38	\$38.00	\$1.430.70
Fabric	SF	1500	\$0.11	\$165.00
2-Zone Splitter Valve	LS	0	\$600.00	\$0.00
Misc.	LS	0.25	\$1.200.00	\$300.00
		Standard 1	French Drainfield Cost	\$3,130
Tanks and Controls				
1-3000 gallon	LS	1	\$2,575.10	\$2,575.10
1-1500 gallon dose tank	LS	1	\$1,204.50	\$1,204.50
Dosing Pump and Controls	EA	1	\$2,587.50	\$2,587.50
Force Main Line to DF	LF	1	\$18.98	\$18.98
		Та	nk and Controls Costs	\$6,386
Forcemain and Special Drainfield Trenchs				\$4,299
Fanks and Controls				\$6,386
Contingency	10%			\$1,069
	Labor	and Materials	Costs DF D Expansion	\$11,754
Engineering			_	\$8,450
	CVCTEA			\$20.204
	STSTEN SVCTEM			\$6 73/ 61
	3131EIVI	COST PER UI	III ADD HUI LATERAL	30,734.01

SYSTEM E

BH BILLMAYER & HAFFERMAN, INC.

Timbrshor HOA Drainfield E

Engineers Construction Cost Estimate

All Costs are as Installed with Labor and Materials

SYSTEM E ELEVATED SAND MOUND WITH LEVEL II TREATMENT	7	UNITS		
	DF AREA			
	AVAILABLE			
	(SF)	3,520		
	DF AREA			
	REQUIRED			
Drainfield E	(SF) ST	2,712	210) gpd design flow
ITEM	UNIT	QUANTITY	\$/UNIT	COST
Forcemain				
Permitting	EA	1	\$500.00	\$500.00
2" Forcemain	LF	575	\$17.25	\$9,918.75
Cleanouts	EA	3	\$287.50	\$862.50
French Ex & Backfill	LF	575	\$4.60	\$2,645.00
2" Check Valves	EA	4	\$86.25	\$345.00
3edding Sand	CY	48	\$33.00	\$1,584.00
				\$15,855.25
Lovel II Sand Red Drainfield				
-1/2" PVC Laterals	IF	440	\$12.00	<u> </u>
1/2" manifold	LE	12	\$12.00	\$120.00
French Ev & Backfill	LE	152	\$4.00	\$1 808 00
Nashad Sand	CV	452 276	\$40.00	\$1,000.00
	CY	50	\$4.00	\$11,040.00
	1000 55	50	\$4.00 ¢175.00	\$200.00
lopsoil and Seed	1000 SF	3	\$175.00	\$525.00
Washed Drain Rock	CY	0	\$38.00	\$0.00
abric	SF	2640	\$0.12	\$316.80
Misc.	LS	2	\$1,200.00	\$2,400.00
AdvanTax Equipment				\$21,689.80
2000 gallon AdvanTex Tank	15	1	\$2 990 00	\$2 990 00
	LS	1	\$2,550.00	\$20 987 50
Mice AdvanTex Parts	15	1	\$6,808,00	\$6,808,00
Dranco Effluent Pump	10	2	\$7/0 20	\$0,000.00 \$1 /00 60
Dranco Abova Ground Heater	10	∠ 1	\$2 2/7 65	\$1,433.00 \$2,217.65
		1 2	53,347,00 \$710 QN	,547.05 \$1 /00 60
	10	<u>د</u> 1	\$749.00 \$779 ED	\$1,433.00 \$1,435.00
		1	2440.30 \$2 520 00	3440.3U \$3 530.00
District installation	LS	1	\$2,330.00 \$3,300.00	ş∠,330.00 ¢2.200.00
niippilig aliu ⊓aliulilig Sustam Tala Comm. Dart	LS	1	\$2,300.00 ¢6 335 00	\$2,300.00 ές 225 00
	LS	T	ο,325.00 AdvanTox Costa	\$0,325.00
			Auvaniex Costs	<u>748,730</u>
			Subtotal	\$86,281
Contingency	10%			\$8,628
			Subtota	l \$94,909
Engineering				\$14,236
SYSTEM E EL	EVATED SAND	MOUND WIT	H LEVEL II TREATMENT	\$109,145
SYSTEM E COST PER UNIT EL	EVATED SAND	MOUND WIT	H LEVEL II TREATMENT	\$15.592

Date: Revised: 1/22/2013 NJF 6/5/2014 DAN

SYSTEM F

B_H

BILLMAYER & HAFFERMAN, INC.

			Date:	1/22/2013 NJF
Timbrshor HOA	File:	T.57.1	Revised:	6/5/2014 DAN
Engineers Construction Cost Estimate				

All Costs are as Installed with Labor and Materials

PROPOSED DRAINFIELD F	3	UNITS		
	DF AREA			
	AVAILABLE			
	(SF)	5,000		
	DF AREA			
	REQUIRED			
	(SF) ST	4,142	950	gpd design flow
ITEM	UNIT	QUANTITY	\$/UNIT	COST
Forcemain				
Permit Application Fee	EA	1	\$500.00	\$500.00
2" Forcemain	LF	250	\$17.25	\$4,312.50
Cleanouts	EA	2.0	\$287.50	\$575.00
Trench Ex & Backfill	LF	250	\$4.60	\$1,150.00
2" Check Valves	EA	4	\$86.25	\$345.00
Bedding Sand	CY	21	\$33.00	\$693.00
				\$7,576
Standard Laterals Drainfield				
1-1/2" PVC Laterals	LF	475	\$13.80	\$6,555.00
1-1/2" manifold	LF	38	\$11.50	\$437.00
Trench Ex & Backfill	LF	513	\$4.60	\$2,359.80
Unclassified Fill	CY	77	\$4.60	\$354.20
Topsoil and Seed	Per 1000 SF	4	\$195.50	\$782.00
Washed Drain Bock	CY	53	\$41.80	\$2,215,40
Fabric	SE	2850	\$0.13	\$370 50
a sone splitter valve		2030	\$600.00	\$0.00 \$0.00
	LS	05	\$0.00	\$0.00 \$660.00
VIISC.	LS	0.5	Standard DF	\$000.00 \$13 734
			Standard Br	<i>\$</i> 25,754
Tanks and Controls				
1-2000 gallon	LS	1	\$1,699.50	\$1,699.50
1-1000 gallon dose tank	LS	1	\$829.40	\$829.40
Dosing Pump and Controls	EA	1	\$2,587.50	\$2,587.50
Force Main Line to DF	LF	52	\$18.98	\$986.96
			Tank and Controls Costs	\$6,103
System F Standard Trenches Cost				\$21 309
Tank and Controls				\$6 103
Contingency	10%			\$2 741
Total Estimated Materials an	d Labor		-	\$30 154
Engineering				\$3.618
	TOTAL COST SYS	TEM E WITH	STANDARD TRENCHES	\$33,773
	AL COST PER UNIT SYS	TEM F WITH	STANDARD TRENCHES	\$11,258
Sytem F Standard Trenchs with Level II Costs		DF AREA	2,071 :	SF
Drainfield with Level II				\$ 14,442
AdvanTex Level II Treatment				\$ 36,774
Contingency	10%			\$ 5,122
Engineering				\$ 6,761
TOTAL COST SI	STEM F WITH STANDA	RD TRENCH	S, LEVEL II TREATMENT	\$ 63.098
TOTAL COST PER UNIT SY	STEM F WITH STANDA	RD TRFNCH	S. LEVEL II TRFATMENT	\$ 21.033
			-,	- 21,000

APPENDIX G

EXAMPLES OF AGREEMENTS AND DEED RESTRICTIONS

Declaration Of Wastewater Treatment System Use Agreement And Easement Agreement Drainfield E Borchers of Finley Point Condominium Subdivision

 THIS AGREEMENT, is made and entered into this _____ day of ______

 ______, 2013, by and between <u>Timbershor/Lake County Water and Sewer District</u>

 (Declarant) and _______
 (Owner) who is the owner of unit _______

 ________in the Borchers of Finley Point Condominium

 Subdivision, Lake County, Montana, according to the map or plat thereof, Lake County records,

State of Montana, and as depicted on Exhibit A and;

WHEREAS, the Declarant is installing a common wastewater treatment system that consists of a sand mound drainfield, sewage pump tank, pressure effluent lines, an AdvanTex secondary treatment system and all necessary and reasonable attachments and connections (herein sometimes the "wastewater treatment system") which will be located within said______

_____, and the Declarant requires the operating costs to be shared proportionally by the Unit Owners of the benefited Units, all as further set forth herein; and

WHEREAS, the parties desire to have a formal agreement to run with the land concerning the right of use by the Unit Owners of the Units, of the water well, water distribution line and water system, the sand mound drainfield, sewage pump tank, pressure effluent lines and an AdvanTex secondary treatment system and the non-potable water system (herein collectively sometimes the "Systems"), and concerning the responsibility for maintenance, operation and the collection of operating costs of the Systems, all as further set forth herein, and

WHEREAS, all Units, and all present and all future owners of the Units are required to be a party to and be bound by this Agreement before they may connect to the potable water system, the waste water treatment system or use water from the non-potable system.

NOW THEREFORE, for valuable consideration including the mutual promises and covenants provided for herein, the Declarant, and ______ covenant and agree as follows:

1. The Owners of the above described shall have the right to the connection and use of, subject to the conditions of this Agreement and based on and limited by the wastewater flows as shown in the wastewater flow table attached in Exhibit B to this Agreement, to that certain common wastewater treatment system (herein sometimes the "wastewater treatment system"), which consists of the sand mound drainfield, sewage pump tank, pressure effluent lines, AdvanTex secondary treatment system and all necessary and reasonable attachments and connections, all as further shown on Exhibit A attached hereto.

2. The common wastewater treatment system is to be used by the Unit Owners of the benefited Units, and operated and maintained by the Declarant (until such time as the wastewater treatment system is transferred to the POA) to assure adequate effluent disposal for the present and future Unit

Owners, all as further described in the Exhibit B Deed Restriction Advanced Wastewater Treatment System.

3. The Unit Owners of the benefited Units shall each pay for their proportional share of the common wastewater treatment system according to actual use. Actual use shall be determined from water flow meter records collected and assessed bi-annually on May 1 and October 1 each year. The Declarant or the POA shall be responsible for determining the cost of operation, repairs, maintenance, electricity, improving or replacing the sand mound drainfield, pump, effluent lines, or the AdvanTex secondary treatment system by May 1 and October 1 of each year or at such times and in such manner as the parties shall determine, and shall provide the Unit Owners their proportional share of all such costs. Notwithstanding anything contained herein to the contrary the Declarant shall have the right to prepare annual budgets which include reasonable reserves for the operation of the wastewater treatment system and to invoice Unit Owners based on such annual budgets, all in accordance with that which is set forth in Section 3 above pertaining to the PWS.

4. The Owners shall construct a service connection to the collection tank at the site immediately adjacent to the edge of Drainfield E. Individual septic tank, effluent lines, cleanouts or check valves running from the Unit Owners improvements on each Unit, and the connection to the common collection tank, as well as any and all additional equipment required to be used solely by one Unit, including any additional line and equipment an individual Unit Owner installs, shall be the sole responsibility of each such individual Unit Owner.

5. In the event that the Unit Owners disagree over allocation of expenses for the operation and maintenance of the common wastewater treatment system they agree to install separate effluent meters and to divide and pay expenses according to volume of effluent produced by each. In the event effluent meters are installed, the Unit Owners agree to pay the cost thereof and to provide effluent flow meter readings to the Declarant on May 1 and October 1 of each year.

6. The parties agree that the common wastewater treatment system is to be used for residential strength wastewater only and is to be maintained to treat the same as set forth above. In the event of damage or contamination to such system as a result of the improper use of such system by any Unit Owner, including the discharge of pollutants or contaminants, the Unit Owner responsible for the discharge shall indemnify and hold all other Unit Owners harmless from any and all damages, including without limitation, cleanup costs, fines and penalties, and any costs for repairs or replacements which are required to be made to the wastewater treatment system.

7. The obligations and rights under this Agreement pertaining to the common wastewater treatment system shall be appurtenant to the Units, shall run with the land and shall be binding on the Declarant and all current Unit Owners, and on their respective heirs, successors and assigns. This Agreement and the benefits and obligations set forth herein is intended as a mutual covenant running with the land, and any and all Unit Owners and their successors may enforce this Agreement and shall be entitled to all benefits conferred hereunder. This Agreement and the benefits and obligations arising hereunder are not severable or assignable apart from the individual Units described herein and may not be utilized to service any other real property except the Units described herein which have a right to connect to the Systems.

8. Should any Unit described herein which has a right to connect to the Systems request to be further subdivided, such action shall be subject to the consent of the Declarant before any subdivision of any Unit shall be allowed.

9. Any assignment, conveyance or other transfer of the use of or interest in the wastewater treatment system without the Declarant's consent, shall be prohibited and shall be in violation of this Agreement. Any violation may be set aside by way of a petition to cease and desist, and/or any other relief available at law or in equity. Nothing herein shall be construed to prevent a Unit Owner from transferring ownership of his/her/its Unit, and upon the transfer or conveyance of a Unit all right, title and interest of such Unit Owner in the common wastewater treatment system with respect to such transferred Unit shall also transfer to the successor Unit Owner. The transfer of any Unit by any Unit Owner shall only occur through the use of a Deed or other document of conveyance which contains restrictive language in accordance with that which is set forth in Exhibit B attached hereto and by this reference incorporated herein.

10. The cost for any and all contracting, labor and material, repairs and maintenance of the wastewater treatment systems shall be accounted for by the Declarant. Prior to formation of the POA, a total amount, not in excess of \$1,500.00 per year of expenses may be accumulated and subject to reimbursement as provided for herein without the majority written consent of all Unit Owners. When the total annual cost is expected to exceed \$1,500.00, the prior written consent of a majority of the Unit Owners shall be required for the excess above such monetary limitation.

20. No Unit Owner other than Declarant shall incur any costs related to the repair, maintenance or operation of the Systems unless such is first approved by Declarant. Unit Owners who are authorized to incur any such costs shall forward documentation of their share of all such costs to Declarant within thirty (30) days, either by mailing (by first class mail) or hand delivery, together with their request for reimbursement. Should any Unit Owner fail or refuse to pay their share of costs which are assessed for operation of the Systems within thirty (30) days from the date of the billing therefore, interest at the rate of 10% per annum shall accrue on the unpaid assessment. In the event that any Unit Owner fails to pay for his/her/its share of the System costs within 90 days following the mailing or hand delivery of billing, the defaulting Unit Owner's Unit(s) may be liened for the unpaid balance, together with interest costs and attorney fees. All parties hereto hereby consent to the filing of a lien on their respective Unit(s) to secure payment of any System costs which have been billed or assessed and which are not so paid within 90 days of the billing date thereof, and the parties agree that any such lien shall secure payment of any and all amounts due hereunder, including interest and collection costs, including attorney's fees, and that such lien may be foreclosed in the same manner provided for under Montana law for the foreclosure of construction liens.

21. In the event of a breach of this Agreement or legal action to enforce this Agreement, the parties agree that the prevailing party in any action brought shall be entitled to an award of all costs and attorneys fees reasonably incurred, together with any other relief to which that party may be entitled.

22. This Agreement can only be terminated by the mutual written consent of a majority of the then current Unit Owners, and should any lender hold a beneficial interest (i.e. as a beneficiary or

mortgagee); its consent shall likewise be required for the termination of this Agreement. This Agreement can likewise only be amended or modified pursuant to a written agreement signed by a majority of the then current Unit Owners.

23. The Owner agrees to pay Declarant the sum of ______ in exchange for the right to connect the herein described property that is owned by _______ to the Drainfield E Systems. Such amount shall be paid on or before the development of such Unit, and before the DHP's connection to the wastewater treatment system.

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and date set forth below,

OWNER:

Signed by			Date		
Printed Name:					
DECLARANT:	NI	\cap		h	
Signed by			Date		
Printed Name:		\mathbf{V}		UU	

STATE OF MONTANA) : ss. County of Flathead)

On this_____Day of _____, in the year 20___, before me_____, Notary Public for the State of Montana personally appeared_____(Owner), known to me acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year herein above first written.





On this____Day of ____, in the year 20__, before me_____, Notary Public for the State of Montana personally appeared_____Declarant known to me acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year herein above first written.

	Notary Public for the State of Montana	
	Residing at	_, Montana
(NOTARIAL SEAL)	My Commission expires:	

-EXHIBIT A-

SITE PLAN

DO NOT COPY

-EXHIBIT B-

DEED RESTRICTION ADVANCED WASTEWATER TREATMENT SYSTEM

DO NOT COPY

-EXHIBIT C-

DRAINFIELD E WASTEWATER TREATMENT SYSTEM MAXIMUM DAILY FLOWS

DO NOT COPY

DEED RESTRICTIONADVANCED WASTEWATER TREATMENT SYSTEM

I, the undersigned, ______, owner of property described as:

Section _____, Township ____ North, Range _ West P.M.M., located in Lake County, Montana, upon which an advanced wastewater treatment system has been installed for nutrient reduction, drainfield size reduction, or other purpose, hereby consent to this restriction being placed on the property deed that acknowledges the following responsibilities and requirements concerning the advanced treatment system serving the property.

- 1. That the system will have an operation and maintenance contract in perpetuity with the system manufacturer, an approved vendor, or other qualified party. The contract must include:
 - a. An on-site inspection of all the major components of the system twice yearly for the first two years and after use of the system begins and annually thereafter.
 - b. Inspections must include verifying proper operation of the system including the visual/audible alarm system determining whether any water treatment devices have been added, modified or removed from the water system that discharges to the wastewater system.
 - c. Annual effluent sampling and analysis for nitrate (as N), nitrite (as N), Ammonia (as N), TKN, (as N), BOD, TSS, fecal coliform, specific conductance and temperature. Effluent sampling must be conducted after all treatment is complete but before discharge to the absorption area.
- 2. That no alteration of the wastewater treatment system will occur without consent of or permit by the Lake County Environmental Health Department.
- 3. That the operation and maintenance records, including sampling results, will be maintained by the property owner and made available for inspection by the Lake County Environmental Health Department upon request.
- 4. That this restriction will apply to all current and subsequent owners of the property and may only be rescinded with the mutual written consent of Lake County, Montana, and the property owner(s) of record at the time.
- 5. That failure to have an operation and maintenance contract in perpetuity may result in legal action and/or administrative penalties.

DATED this	day of	,	20	
------------	--------	---	----	--

Owner	
STATE OF	_
County of	
On this day of	, 20 before me a
Notary Public for the State of	, personally appeared
known to me to be the person whose name is	s subscribed to the above
Instrument and acknowledged to me that he e	executed the same.
IN WHITNESS WHEREOF, I have net Notorial Seal the day and year above written	reunto set my nand and arrived my
Notorial Sear the day and year above written	
Signature:	
Notary Public for the State of	
Residing at	
My Commission expires:	

APPENDIX H

MDEQ SUBDIVISION REVIEW JOINT APPLICATION

SUBDIVISION REVIEW JOINT APPLICATION FORM

Montana Department of Environmental Quality Local Government Joint Application Form Parts I, II, III, IV, and Checklist

Section 76-4-129, Montana Code Annotated (MCA), provides that this Subdivision Review Joint Application Form may be used to apply for Montana Department of Environmental Quality (DEQ) approval of subdivisions under the Sanitation in Subdivision laws and for subdivision approval by local governments under the Subdivision and Platting Act. The form replaces DEQ Form E.S. 91 and local preliminary plat approval forms. Landowners thus are relieved from the burden of providing similar information on different forms under two separate laws. <u>Please</u> consult with your local planning board, health department, or DEQ regarding the proper submittal of this application and supporting materials.

- A. When applying for subdivision review by the planning board and local governing body, the following parts of this form must be completed and submitted to the governing body or its designated agent.
 - 1. Part I must be completed for all subdivisions required to be reviewed and approved by the local governing body.
 - 2. Parts I, II, and III must be completed for all subdivisions for which local subdivision regulations require submittal of an environmental assessment.
- B. When applying for review of subdivisions by DEQ, Parts I and II of this form must be completed and submitted to DEQ. If the proposed subdivision is located in a county contracted to perform the review of subdivisions, the application must be submitted to the local health department.
- C. When applying for concurrent review of the subdivision by the local governing body and by DEQ, the following parts of this form must be completed and submitted to the local governing body or its designated agent, or to DEQ:
 - 1. Parts I and II must be completed for all subdivisions for which concurrent review is requested.
 - 2. Parts I, II and III must be completed for all subdivisions for which local subdivision regulations require submittal of an environmental assessment.
- D. Although not a requirement of this Joint Application, <u>it is highly recommended that the applicant complete</u> <u>Part IV - Subdivision Checklist and submit the checklist with Part I and the information required by Part II</u>. The checklist identifies the application items (with references to applicable rules and technical circulars) that are typically required by the reviewing authority. Depending on the technical complexity of the proposed subdivision, the checklist may not necessarily identify all of the required application items. However, it does provide general guidance to assist the applicant in preparing a more complete application so as to expedite the review/approval process by the reviewing authority.

Copies of this Joint Application Form are available from:

- Montana Department of Environmental Quality, Permitting and Compliance Division;
- Montana Department of Commerce, Economic and Community Development Division;
- Local health departments and sanitarians; and
- Local planning offices.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY/ LOCAL GOVERNMENT JOINT APPLICATION FORM

PART I. GENERAL DESCRIPTION AND INFORMATION

1.	Name of proposed development				
2.	Location: City and/or county				
	Legal description: 1/4 1/4 of Section Township Range				
3.	Is concurrent review by local governing body and DEQ requested? Yes No				
4.	Type of water supply system				
	Individual well				
	Individual cistern				
	Individual surface water supply or spring				
	Shared well (2 connections)				
	Multiple-user water supply system (3-14 connections and fewer than 25 people)				
	Service connection to multiple-user system				
	Service connection to public system				
	Extension of public main New public system (15 or more connections or serving 25 or more people)				
	New public system (15 of more connections of serving 25 of more people)				
5.	Type of wastewater treatment system				
	Individual wastewater treatment system				
	Number of bedrooms (3 bedrooms will be used if unknown)				
	Shared wastewater treatment system (2 connections)				
	Multiple-usel system (3-14 connections and rewer than 25 people)				
	Service connection to multiple-user system				
	Extension of public main				
	New public system (15 or more connections or serving 25 or more people)				
6.	Name of solid waste (garbage) disposal site				
7	Nondegradation				
1.	Ves No Is information included which substantiates that there will be no degradation of				
	state waters or that degradation will be nonsignificant?				
	Yes No If not, have you enclosed an Application to Degrade?				
0	Description Data				
ð.	Descriptive Data Number of lots or rental spaces				
	Total acreage in lots being reviewed				
	Total acreage in streets or roads				
	Total acreage in parks, open space, and/or common facilities				
	Total gross acreage of subdivision				
	Minimum size of lots or spaces				
	Maximum size of lots or spaces				
9	Indicate the proposed use(s) and number of lots or spaces in each				
).	Residential single family				
	Residential, multiple family Number of units				
	Type of multiple family structure (e.g. duplex) Number of units				
	Planned unit development Number of units				
	Condominium Number of units				
	Mobile home park Number of units				
	Recreational vehicle park Number of units				
	Commercial or industrial				
	Other (please describe)				
10.	Provide the	following	information	regarding th	ne development.
-----	-------------	-----------	-------------	--------------	-----------------

Current land use
Depth to ground water at the time of year when water table is nearest to the natural ground surface
within the drainfield area
Depth to bedrock or other impervious material in the drainfield area
Existing zoning or other regulations

11. Include the following attachments, if applicable.

	Yes	NA	An overall development plan indicating the intent for the development of the	ne
	Ves	NΔ	remainder of the tract, if a tract of land is to be subdivided in phases.	te
	105		for sale.	.5
	Yes	NA	Drafts of homeowners' association bylaws and articles of incorporation, if applicable.	
	(Submitt for DEQ documer	ing a draft of to initiate a number of the second s	copy of a homeowners' association bylaws and articles of incorporation is adeq and complete its review of sanitary facilities, but a copy of the fully executed submitted before DEQ can issue final approval.)	late
I understand or disposal o supply of wa reviewing au indicating th Sanitation in that deviates	that a per f sewage atter or disp atthority ur at the sub Subdivis from the	rson may no or solid was posal of sew nder the San division is r ions Act un certificate o	bt dispose of any lot within a subdivision, erect any facility for the supply of warste, erect any building or shelter in a subdivision that requires facilities for the wage or solid waste, or occupy any permanent buildings in a subdivision until the nitation in Subdivisions Act has issued a certificate of subdivision approval not subject to sanitary restriction, unless the subdivision is exempt from the ader 76-4-125, MCA. I understand that a person may not construct or use a facilities of subdivision approval until the reviewing authority has approved the deviation.	e e lity
I designate _			as my representative for purposes of this application	on.
Designated	represent	tative, if an	ny (e.g., engineer, surveyor)	
Name:			Phone:	
Address:				
Owner		C	Company, Street or P.O. Box, City, State, Zip Code	
Name:				
	Sig	nature of ov	wner Print name of owner	
Address :				
			Street or P.O. Box, City, State, Zip Code	
Date:			Phone:	

(The statement must be signed by the owner of the land proposed for subdivision or the responsible officer of the corporation offering the same for sale.)

Notice: The statutory time frame for each review is 60 days. Resubmittal of denied or incomplete applications restarts the time frame. The estimated time for the DEQ to act on a complete subdivision application is 10 days for subdivisions reviewed by a local department of health under contract to the DEQ. Local health departments review subdivisions within 50 days of receipt of a complete application. During non-peak times, a review may take 25 to 45 days. For peak times, the review may take 45 to 60 days.

PART II REQUIRED INFORMATION FOR APPROVAL OF SUBDIVISIONS UNDER SANITATION IN SUBDIVISIONS LAWS (e.g., parcels less than 20 acres, trailer courts, RV parks, condominiums)

All applications must include the information required in ARM 17.36.101-805 and the appropriate circulars. In order to facilitate review, the application should be organized in the same manner as this application form and follow closely the submittal requirements in the rules and circulars.

A. Physical Conditions

Provide the following attachments.

- 1. A vicinity map showing the location of the proposed subdivision in relation to the nearest town, highway(s).
- 2. Soils survey map and most recent interpretations of soil suitability for the proposed land uses.
- 3. Topographic map of the development with contour intervals meeting the preliminary plat requirements of the local subdivision regulations.
- 4. A copy of a preliminary plat* (a minor subdivision plat if applicable) prepared in accordance with local subdivision regulations, or a final plat, show the location of:
 - a. Any rock outcroppings.
 - b. Any areas subject to flood hazard or, if available, 100 year floodplain studies. (The local floodplain administrator or the Floodplain Management Section of the Water Resources Division of the Department of Natural Resources and Conservation may be contracted for assistance in determining flood hazard locations.)
 - c. Any natural water systems such as streams, rivers, intermittent streams, lakes or wetlands (also indicate the names and sizes of each).
 - d. Any man-made water systems such as wells, ponds, canals, ditches, aqueducts, reservoirs and irrigation systems (also indicate the names, sizes and present use of each).
 - e. Any existing or proposed utilities located within or adjacent to the subdivision, including electrical power, natural gas, telephone service, water and sewer pipelines or facilities.

*Submit a preliminary plat or certificate of survey with complete and accurate legal description adequate for DEQ to initiate and complete its review of the subdivision.

B. Water Supply

- 1. <u>Where an individual water supply system is proposed or existing for each parcel</u>
 - a. For a proposed system, provide all information required in ARM 17.36.328 336. Indicate the distance to the nearest public water system.
 - b. If an existing system will be used, provide all information required in ARM 17.36.335.
 - c. Attach four copies of the lot layout showing the proposed or existing location of each water supply source (spring, well or cistern) and indicating the distance to existing or proposed wastewater treatment systems.
- 2. <u>Where a multiple user water system</u> is proposed or existing
 - a. If an existing system will be used:
 - 1) Identify the system and the person, firm or agency responsible for its operation and maintenance.
 - 2) Indicate the system's capacity to handle additional use and its distance from the development.
 - 3) Provide evidence that permission to connect has been granted.
 - 4) Provide three copies of the following attachments:
 - a) Map or plat showing location, size, and depth of any existing water supply lines and facilities that may directly serve parcels within the proposed development.
 - b) Provide plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.335 and DEQ-3.
 - b. If a new system will be used:

- 1) Indicate who will install the system, who will bear the costs, when it will be completed and who will own it.
- 2) Provide all information required in ARM 17.36.330 336 and DEQ-3.
- 3. <u>Where a public water system is proposed or existing</u>
 - a. If an existing system will be used:
 - 1) Identify the system and the person, firm or agency responsible for its operation and maintenance.
 - 2) Provide evidence that the system is approved by DEQ and is in compliance with the regulations.
 - 3) Provide evidence that the managing entity has authorized the connections, the system has adequate capacity to meet the needs of the subdivision, the system is in compliance with department regulations, and the appropriate water rights exist or have been applied for the connections.
 - 4) Provide three copies of the following as attachments.
 - a) A map or plat showing the location, sizes and depth of any existing water lines and facilities which will directly serve parcels within the proposed development.
 - b) Plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.328 330 and DEQ-1 or DEQ-3.
 - b. If a new system will be used:
 - 1) Indicate who will install the system, who will bear the costs, when it will be completed and who will own it.
 - 2) Provide plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.328 330 and DEQ-1 or DEQ-3.

C. Wastewater Treatment

- 1. <u>Where individual wastewater treatment systems</u> are proposed for each parcel:
 - a. Indicate the distance to the nearest public wastewater treatment system.
 - b. Provide all information required in ARM 17.36.320 345 and in DEQ-4.
- 2. For a proposed multiple user wastewater treatment system:
 - a. Where an existing system is to used:
 - 1) Identify the system and the person, firm or agency responsible for its operation and maintenance.
 - 2) Indicate the system's capacity to handle additional use and its distance from the development.
 - 3) Provide evidence that permission to connect has been granted.
 - 4) Provide two copies of the following attachments.
 - a) A map or plat showing the location, sizes and depth of any existing sewer lines and facilities which will directly serve parcels within the proposed development.
 - b) Provide plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.320 345 and DEQ-4.
 - b. Where a new system is proposed:
 - 1) Indicate who will install the system, who will bear the costs, when it will be completed and who will own it.
 - 2) Provide all information required in ARM 17.36.320 326 and DEQ-4.
- 3. For a proposed public wastewater treatment system:
 - a. Where an existing system is to used:
 - 1) identify the system and the person, firm or agency responsible for its operation and maintenance.
 - 2) provide evidence that the system is approved by DEQ and is in compliance with the regulations.

- 3) provide evidence that the managing entity has authorized the connections, the system has adequate capacity to meet the needs of the subdivision, and the system is in compliance with department regulations.
- 4) provide three copies of the following as attachments:
 - a) a map or plat showing the location, sizes and depth of any existing sewer lines and facilities which will directly serve parcels within the proposed development.
 - b) plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.328 and DEQ-2 or DEQ-4.
- b. Where a new system is proposed:
 - 1) indicate who will install the system, who will bear the costs, when it will be completed and who will own it.
 - 2) provide plans and specifications for all proposed extensions and additional lines and facilities as required by ARM 17.36.320 326 and DEQ-2 or DEQ-4 (also see ARM 17.38.101).

D. Solid Waste

- 1. Describe the proposed method of collecting and disposing of solid waste.
- 2. Indicate the name and location of the department-licensed or appropriate out-of-state solid waste disposal site where solid waste will be disposed in accordance with ARM 17.36.309.

E. Drainage

- 1. Streets, roads, and unvegetated areas.
 - a. Describe measures for disposing of storm run-off from streets, roads, parking lots, and other unvegetated areas within the subdivision or onto adjacent property.
 - b. Indicate type of road surface proposed.
 - c. Describe facilities for stream or drainage crossing (e.g., culverts, bridges).
 - d. Describe how surface run-off will be drained or channeled from parcels.
 - e. Indicate if storm run-off will enter state waters and describe any proposed treatment measures. (A storm-water discharge permit may be required)
 - f. Describe any existing or proposed streambank or shoreline alteration, any proposed construction or modification of lakebeds or stream channels. Provide information on location, extent, type and purpose of alternation.
 - g. Provide storm drainage plans and specifications as required by ARM 17.36.310 and DEQ-8.

F. Other Permits That May Be Necessary

1. WATER USE PERMIT (WATER RIGHTS)

The Montana Water Law requires new water developments (after July 1, 1973) to be filed with the Department of Natural Resources and Conservation to receive a water right. For groundwater developments, wells and developed springs, the amount of water to be used will determine which form to file with the department.

Form 602 – Notice of Completion of Groundwater Development: This form is to be filed when the groundwater development is a well, developed spring or a groundwater pit. The amount of water to be used cannot exceed 35 gallons per minute or 10 acre-feet per year. The form is to be filed within 60 days after the well or spring development is completed and the water has been put to the intended beneficial use. Do not file until the well is hooked up and being used. **Form 600 – Application for Beneficial Water Use Permit**: When the groundwater development is a well, developed spring or groundwater pit and the intended use will be over 35 gallons per minute and 10 acre-feet per year, a water use permit must be issued <u>before</u> water can be appropriated. A correct and complete application with the criteria supplement and filing fee must be filed with the Department.

Forms are available at the Water Resources Regional Office at the following addresses: Helena: Water Resources Regional Office, 1424 9th Avenue, PO Box 201601, Helena, MT 59620-1601, (406) 444-6999, or the regional office in your area, Billings: Water Resources Regional Office, Airport Industrial Park, 1371 Rimtop Dr., Billings, MT, 59105-1978, (406) 247-4415 Water Resources Regional Office, 151 Evergreen Dr., Suite C, **Bozeman:** Bozeman, MT 59715, (406) 586-3136 Water Resources Regional Office, 222 6th St South, Glasgow, MT **Glasgow:** 59230, (406) 228-2561 Water Resources Regional Office, 210 6th Ave., Havre, MT 59501, Havre: (406) 265-5516 Kalispell: Water Resources Regional Office, 109 Cooperative Way, Suite 110, Kalispell, MT 59901, (406) 752-2288 Lewistown: Water Resources Regional Office, 613 NE Main St., Suite E, Lewistown, MT 59457, (406) 538-7459 Missoula: Water Resources Regional Office, Town & Country Shopping Center, 1610 S. Third St. West. Suite 103. Missoula. MT 59806. (406) 721-4284

- For a complete listing of environmental permits required by the state, please reference the <u>Montana Index of Environmental Permits</u> from the Environmental Quality Council at (406) 444-3742 or visit the EQC Web site: <u>http://www.leg.state.mt.us/css/publications/lepo/permit_index/permit_tofc.asp</u>. In addition, there may be other permits required by the federal government or local government agencies.
 - ____ Montana Department of Environmental Quality (DEQ), Water Quality web site (deq.state.mt.us/wqinfo)
 - ____ MPDES Wastewater Discharge All discharges to surface water, including those related to construction dewatering. Contact DEQ, Water Protection Bureau (406) 444-3080.
 - ____ Storm Water Discharge Construction activity greater than 1 acre disturbance. Contact DEQ, Water Protection Bureau 444-3080.
 - ____ MGWPCS Discharge All construction and/or operation of wastewater impoundments or conveyances which may cause pollution of groundwater. Also, includes land application of wastewater on a case-by-case basis. Contact DEQ, Water Protection Bureau (406) 444-3080.

- _____ 318 Authorization Any activity in any state water that will cause unavoidable short-term violations of water quality standards. Contact DEQ, Water Protection Bureau (406) 444-3080.
- _____ 310 Permit/SPA (124) Any activity that physically alters or modifies the bed or banks of a stream. Contact the local Conservation District.
- 404 Permit Any activity resulting in the discharge or placement of dredged or fill material into waters of the U.S., including wetlands. Contact U.S. Army Corp of Engineers at (406) 441-1375.
- Montana Land-Use License or Navigable Waters Easement -The construction, placement, or modification of a structure or improvement on land below the low water mark of navigable streams. Contact DNRC (406) 444-2074.
- Water Right Permit Required before constructing new or additional diversion,
 withdrawal, impoundment, or distribution works for appropriation of ground water or surface water. Contact DNRC (406) 444-6614.
- Lakeshore Protection Act Any project in or near a body of water within a county's jurisdictional area. Contact County Government Offices.
- Public Water Supply New construction, alteration, extension or operation of a public water supply or non-State Revolving Fund (SRF) public sewage systems requires approval from the Department of Environmental Quality. Contact DEQ, Public Water and Subdivisions Bureau 444-4400.
- Shoreline Protection Any work in, over, or near any stream, river, lake, or wetland on the Flathead Reservation. Contact the Shoreline Protection Office at (406) 883-2888 or (406) 675-2700 ext. 7201.
- UST Permits Activities involving any type of work related to underground storage tanks (petroleum and hazardous substances). Contact DEQ, Technical Services Bureau (406) 444-1420.
- ____ RW-20 Permit A permit is required when work is to be done within a Montana Department of Transportation (MDT) right of way. Contact the local MDT District Office.
- Floodplain Development Permit Anyone planning new construction within a designated 100-year floodplain. Contact DNRC, Water Operation Bureau, Floodplain Management, (406) 444-0860 or local Floodplain Administrator.

PART III INFORMATION REQUIRED FOR ENVIRONMENTAL ASSESSMENT UNDER THE SUBDIVISION AND PLATTING ACT

Information specified in this Part must be provided in addition to that required in Parts I and II of this application form, when the preparation of an environmental assessment is required by the Montana Subdivision and Platting Act.

A. Geology

- 1. Locate on a copy of the preliminary plat, or on a plat overlay, any known hazards affecting the development which could result in property damage or personal injury due to:
 - a. Falls, slides or slumps soil, rock, mud, snow; or
 - b. Seismic activity.
- 2. Describe any proposed measures to prevent or reduce the danger of property damage or personal injury from any of the hazards referenced above.
- 3. Identify any geological conditions that might affect development, such as areas of bedrock, unsuitable soils, or high ground water. Describe any measures proposed to minimize the problems presented by the identified conditions.

B. Vegetation

- 1. Locate on a copy of the preliminary plat, or on a plat overlay, the location of the major vegetation types such as marsh, grassland, shrub, forest.
- 2. Describe measures to be taken to protect trees and vegetative cover (e.g., design and location of lots, roads, and open spaces).
- 3. Identify areas containing noxious weed growth. Describe proposed means of weed control, especially to prevent weed growth on areas disturbed by construction.

C. Wildlife

- 1. Identify any major species of fish and wildlife use the area to be affected by the proposed subdivision.
- 2. Locate on a copy of the preliminary plat, or on a plat overlay, any known important wildlife areas, such as big game winter range, waterfowl nesting areas, habitat for rare or endangered species, and wetlands.
- 3. Describe any proposed measures to protect wildlife habitat or to minimize degradation (e.g., keeping buildings and roads away from shorelines or setting aside marshland as undeveloped open space).

D. Historical Features

- 1. Describe and locate on a copy of the preliminary plat, or on a plat overlay, any known or possible historic, archaeological, or cultural sites that may be affected by the proposed subdivision.
- 2. Describe any plans to protect such sites or properties.

E. Roads

- 1. Describe any required construction of new public or private access roads or substantial improvements to existing public or private access roads.
- 2. Describe the proposed closure or modification of any existing roads.

- 3. If any of the individual lots is accessed directly from an arterial street or road, explain why access was not provided by means of a frontage road or a road within the subdivision.
- 4. Indicate who will pay the costs of installing and maintaining dedicated or private roadways.
 - a. Estimate how much daily traffic the subdivision, when fully developed, will generate on existing streets and arterials.
 - b. Discuss the capability of existing and proposed roads to safely accommodate this increased traffic.
 - c. Describe any increased maintenance problems and cost that will be caused by this increase in volume.
- 5. Describe any potential year-round accessibility concerns for conventional automobiles over legal rightsof-way available to the subdivision and to all lots and common facilities within the subdivision

Identify the owners of any private property over which access to the subdivision will be provided and indicate whether easements for access have been obtained from those landowners.

F. Utilities

- 1. Identify the utility companies involved in providing electrical power, natural gas, and telephone service. Indicate whether utility lines will be placed underground.
- 2. Identify on the preliminary plat or overlay the locations of any needed utility easements [as required by 76-3-608(3)(c), MCA].
- 3. Indicate whether the preliminary plat has been submitted to affected utilities for review.
- 4. Estimate the completion date of each utility installation.

G. Emergency Services

- 1. Describe the emergency services available to the residents of the proposed subdivision, including number of personnel and number of vehicles or type of facilities and road distance to facilities for:
 - a. Fire protection indicate whether the proposed subdivision is in an urban or rural fire district. If not, describe plans to form or extend an existing fire district, or describe other fire protection procedures.
 - b. Where applicable, information regarding subdivisions planned in areas of high fire hazards as provided in IV-A-18 of these regulations.
 - c. Police protection.
 - d. Ambulance service.
 - e. Medical services.
- 2. Indicate whether the needs of the proposed subdivision for each of the above services will be met by present personnel and facilities.
 - a. If not, describe the additional expenses necessary to make these services adequate.
 - b. Explain who will pay for the necessary improvements.

H. Schools

- 1. Describe the available educational facilities that would serve this subdivision and the road distance to each.
- 2. Estimate the number of school children that will be added by the proposed subdivision. Provide a statement from the administrator of the appropriate school system indicating whether the increased enrollment can be accommodated by the present personnel and facilities and by the existing school bus system.
- I. Land Use

- 1. Describe land uses on lands adjacent to the subdivision.
- 2. Describe any comprehensive plan or other land use regulations covering the area proposed for subdivision or adjacent land. If the subdivision is located near an incorporated city or town, describe any plans for annexation.
- 3. Where public lands are adjacent to or near the proposed development, describe the present and anticipated uses of those lands (e.g., grazing, logging, and recreation). Describe how the subdivision will affect access to any public lands.
- 4. Describe any health or safety hazards on or near the subdivision, such as mining activity, high-pressure gas lines, dilapidated structures, high-voltage power lines or irrigation ditches. Any such conditions should be accurately described and their origin and location identified.
- 5. Describe any on-site or off-site uses creating a nuisance such as unpleasant odor, unusual noises, dust or smoke. Any such conditions should be accurately described and their origin and location identified.

J. Parks and Recreation Facilities

Describe park and recreation facilities to be provided within the proposed subdivision and other recreational facilities which will serve the subdivision.

POSSIBLE SOURCES OF INFORMATION TO CONTACT WHEN COMPLETING THE FORM

Local Agencies

Geological Survey

Natural Resources

Conservation Service

City or County Health Department City Engineer or County Surveyor County Road Supervisor Conservation District County Extension Service Planning Board Staff Floodplain Administer School District Fire District or Department Police or Sheriff's Department Hospital or Ambulance Service Chamber of Commerce Telephone, Electrical Power, Gas, and Cable Companies

State Agencies	Information	Location
Dept of Fish, Wildlife, and Parks	Fisheries, vegetation and wildlife	Helena and regional offices
Dept of Environmental Quality	Water quality	Helena
Dept of Transportation	Access to state highways traffic data maps, aerial photographs	Helena
Dept of Natural Resources and Conservation	Surface and ground water, floodplains, well logs, water rights, fire hazards	Helena and regional offices
Bureau of Mines and Geology	Geology, ground water, water quality well logs, topographic maps	Butte and Billings
Federal Agencies	Information	Location
Farm Service Agency	Aerial photographs	County offices
Bureau of Land Management	Vegetation, maps, topography	Billings and district offices
Forest Service	Topography, surface water, soil maps, vegetation, wildlife fire hazards, maps	Missoula regional, national forest and district offices

Geology, surface and ground water,

water quality, floodways, topographic maps

Soils, surface water,

flood hazards, erosion

Helena

Bozeman and county offices

Part IV SUBDIVISION CHECKLIST

Subdivision:

E.Q. Number (provided by DEQ):

County:_____

Please complete the checklist with your initials or N/A.

Applicant or Representative Initial or N/A	<u>County</u> Initial or N/A	<u>DEQ</u> Initial or N/A	Question	Refer to ARM 17.36 Subsections	Reviewer's Comments
			1. Have deviation or waiver requests been submitted with appropriate fees?	17.36.601	
			2. Is check included with correct fee?	17.36.103(1)(a)	
			3. Is application included with owner's signature/address/ohone/date?	17.36.102(1)&(2)	
			4. Is legible copy of Preliminary Plat or COS included?	17.36.103(1)(m)	
			5. Is legal description included on the Preliminary Plat or COS?	17.36.103(1)(m)	
			6. Are all lots described on survey being reviewed and any exclusions clearly stated on Preliminary Plat or COS?	17.36.103(1)(m), 17.36.605	
			7. Are lots at least 1 acre in size or otherwise meet minimum lot size requirements?	17.36.340, 17.36.322(4)	
			8. Is local health officer approval included?	17.36.102(3)&(6), 17.36.103(1)(n), 17.36.108(2)	
			9. Are Planning Board or County Commissioner comments included?	17.36.103(1)(n)	
			10. Is a clear copy of USGS or other topo map included to show ground slope of property?	17.36.103(1)(h), 17.36.310, 17.36.322	
			11. Are 4 copies of lot layout included with the subdivision name on each?	17.36.103(1)(d), 17.36.104	
			12. Is all required information (e.g., scale, legend, north arrow, etc.) included on the lot layout?	17.36.103(1)(d), 17.36.104	
			13. Are locations of water and sewer mains shown?	17.36.103(1)(d), 17.36.104	
			14. Are on-site sewer systems designed in conformance with DEQ 4?	17.36.320	
			15. Is the slope given for drainfield areas?	17.36.103(1)(h), 17.36.322	
			16. Are drainfields orientated along land contours to meet depth requirements?	17.36.322, DEQ 4, Chap. 8	
			17. Are drainfield replacement areas shown?	17.36.104(2), Table 1	
			18. Are minimum setback requirements met?	17.36.323	
			19. Is adequate test pit (8 ft. excavation) data provided?	17.36.103(1)(h), 17.36.325	
			20. Is SCS/NRCS soils data provided?	17.36.325(3)	
			21. Is information to verify depth to seasonal high ground water or bedrock provided?	17.36.103(1)(h), 17.36.106(2), 17.36.325(2)	
			22. If conducted, does perc test value(s) correspond to soil type?	17.36.103(1)(h)	
			23. Are wells, 100 ft. well isolation zone, mixing zones, and ground water flow direction (verified by wells or other documentation) shown?	17.36.103(1)(e), 17.30.501-518	
			24. Is adequate water supply substantiated?	17.36.103(1)(f)	

<u>Applicant</u> or <u>Representative</u> Initial or N/A	<u>County</u> Initial or N/A	<u>DEQ</u> Initial or N/A	Question	Refer to ARM 17.36 Subsections	Reviewer's Comments
				17.36.103(1)(f),	
			25. Are water quality analyses (nitrate, specific conductivity, and bac-T (for existing wells) provided, along with well log and well location?	17.36.330, 17.36.335	
			26. Is existing well over 25 ft. in depth?	17.36.335, 17.36.331(1)(e)	
			27. Will surface water, spring or cistern system be disinfected and filtered?	17.36.336	
			28. Is nondegradation addressed and supporting data to determine background water quality, hydraulic conductivity and hydraulic gradient provided?	17.36.103(1)(i), 17.30.501-518, 17.30.715	
			29. Is nitrate level at end of mixing zone < 5 ppm (< 7.5 ppm, if level 2 provided), and phosphorous breakthrough > 50 years?	17.36.103(1)(i), 17.30.715	
			30. Are shared users agreements included for shared well, drainfields and/or easements?	17.36.103(1)(o), 17.36.326(3)	
			31. Is a copy of the local septic permit (if issued) for an existing septic system provided?	17.36.327	
			32. Is a septic pumper's report stating an existing septic tank has been pumped within the last 3 years provided?	17.36.327	
			33. Is evidence demonstrating proper hydraulic functioning of an existing septic system provided?	17.36.327	
			34. Are wells, drainfields and/or mixing zones within 100 ft. perimeter outside of subdivision boundaries shown?	17.36.103(1)(e), 17.30.501-518, 17.30.706	
			35. Is proposed subdivision within 500 feet of public water supply and/or sewer system?	17.36.328(1)	
			36. Is authorized statement to connect to existing public water and/or sewer system and statement of adequate capacity provided?	17.36.103(1)(g), 17.36.328(2)(b)	
			37. Is existing public water system approved by DEQ and PWS # provided?	17.36.328(2)(b) & (c)	
			38. Do appropriate water rights exist for the public water connection?	17.36.328(2)(b)	
			39. If needed, are easements for water and/or sewer systems/lines shown?	17.36.103(1)(m) & (o)	
			40. Are plans and specs (3 copies) stamped and signed by PE?	17.36.103 (1)(b) & (c)	
			41. Are 100-year floodplain requirements met, and floodplains and drainages shown?	17.36.104, 17.36.106(2)(c), 17.36.324	
			42. Is solid waste disposal addressed?	17.36.103(1)(k), 17.36.309	
			43. Has storm water drainage been addressed?	17.36.103(j), 17.36.104(2), 17.36.310, DEQ 8	

Applicant/representative:	Name	_Signature	Date	/	1
County reviewer:	Name	Signature	Date	/	1