Flathead City-County Health Department
1035 1st Ave. West Kalispell, MT 59901
(406)-751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
406-751-8110 FAX 866-380-1740
Environmental Health Services
406-751-8130 FAX 406-751-8131
Flathead Family Planning
406-751-8150 FAX 855-931-9091
Population Health Services
406-751-8101 FAX 406-758-2497
WIC Services
406-751-8170 FAX 406-751-8171
Animal Shelter
406-752-1310 FAX 406-752-1546

FLATHEAD CITY–COUNTY BOARD OF HEALTH

MEETING AGENDA
March 17, 2022

1:00-3:00PM

Conference Room A/B in the Earl Bennett Building

We are continuing to use our in person meeting policy. The number of individuals in the audience that can be in the board room at one time will be limited based on social distancing.

In Person OR Zoom/Phone

To register or submit public comment please click here and submit by 11 am on 03/17/2022

1. **Call to Order**
2. **Attendance**
3. **Approval of Agenda**
4. **Citizen Comment**
   - Written Public Comment
   - Verbal Citizen Comment
5. Approve Minutes for February 17, 2022 Meeting
6. **Notice of Rule Making ~ Action Item**
   - Sewage Treatment Regulations and Construction Standards
7. **Appeal of Health Officer's Decision Regarding Applegren-Jones ~ Action Item**
   - Applegren-Jones Appeal to the Board of Health
8. **Departmental Reports**
   - Animal Shelter – Cliff Bennett
   - Community Health – Kilani Klette
   - Population Health – Malia Freeman
   - Finance – Kirk Zander
   - Environmental Health – Joe Russell
   - Health Officers Report – Joe Russell
9. **Board Member Discussion**
10. **Adjournment**
11. **Divisions not providing verbal presentations this month:**
    - Family Planning
    - Mosquito
    - Home Health

Public Comment for Board of Health Meeting - Entry #4403

First and Last Name

Diana Southard

City of Residence

Marion

Public Comment

Dear Sirs and Madams: February 17, 2022

The appearances of a lawless quasi-health board in a time when corruption, monetary kickbacks, and misinformation has driven many law-abiding citizens to the brink of despair by would-be tyrants and their minions. Such oppressive actions by those chosen to represent we the people may be interpreted as an act of aggression and possibly even war (spiritually, financially, physically, etc.). There comes a time where equal justice under the law becomes not only an obligation of each citizen, but a duty to throw off such governing bodies.

Seated as the head chair of the Flathead County City Board of Health, due to a questionable restructuring of this board several years ago, is Pam Holmquist. She also enjoys serving the public as our Chairman of the Flathead City Commissioners. This has the appearance of double-dipping and could be construed as a conflict of interest. Although Ms. Holmquist sits as the 'head' of the Board of Health, it does not look as though she is actually in charge. There is video evidence of possible ex-parte communications, a walking quorum, or other illegal activities which give rise for concerns during an open meeting at the regular Board of Health meeting in January 2022, between her and another board member, Ronalee Skees.

Ms. Skees, who was chosen by Pam Holmquist at a recent Commissioner's meeting, appears to be leading Ms. Holmquist in words and in deeds. At the January (BoH) meeting, Ms. Skees is seen passing a secret note while board member Dr. Annie Bukacek is asking the Health Officer (also appointed by Ms. Holmquist) about consent forms for the experimental inoculations being offered through this county. Then there is a whispering and hand signaling going on between these two board members. Moments later, while Rod Kuntz is speaking, Ms. Skees flips over the secretive note and conceals it within her notepad.

Being an open meeting and subject to the Sunshine Rules, this note should have been place into the official record. This has the appearance of yet another example of a lawless breach of trust, rules of decorum, and smells of conspiracy. I ask that this secretive sidebar note be entered into the public record, along with verbal recantation of the conversation, immediately and I am calling for a sworn testimony of both parties involved (Holmquist & Skees) that this is the original document in question. I am asking for an immediate removal and suspension of these women from their duties as public servants, until a full investigation is completed.
Thank you for your time and serious considerations of this matter.
Diana M. Southard

Public Comment for Board of Health Meeting - Entry #4406

First and Last Name

Jessica Kirkendall

City of Residence

Kalispell

Public Comment

Dear Health Board,

Regarding Mr. Russell describing his own version of “informed consent” in the health update section of agenda, many of his points are clearly not factual if you read the documents tied right onto the end of his update. In fact, among all of the many attached information sheets at the end of his report, NOT ONE addresses vaccinating a child under age 12 with a covid vaccine.

He states that:
“Every person either receives a Vaccine Information Sheet (VIS) OR the Emergency Use Authorization (EUA) Fact Sheet specific for the vaccination requested and their age.”

Statement FALSE....FDA requirement: Patient MUST be provided information consistent with the “Vaccine Information Fact Sheet” PRIOR to the individual receiving Pfizer-BioNTech COVID-19 Vaccine

The current one page form that the parent signs off states right on it: “No vaccine information sheet will be available for this vaccine until after this vaccine has gone through full licensure.” (After asking if they are a woman 18 - 49 or a male 12 - 29)

The signature consent form Mr Russell refers to is titled “COVID-19 vaccine registration and administration form” states a very incomplete list of very minor side effects (omitting all of the many severe ones) and then desperately goes onto state that it is still recommended that you receive a second dose after a reaction....instead of a common sense recommendation such as rushing into see a real doc, your preferred healthcare provider, when severe reactions occur.

The FDA.gov site states the following:

MANDATORY REQUIREMENTS FOR PFIZER-BIONTECH COVID-19 VACCINE ADMINISTRATION UNDER EMERGENCY USE AUTHORIZATION
https://labeling.pfizer.com/ShowLabeling.aspx?id=16073&format=pdf (read requirements & risks here)

Use of unapproved Pfizer-BioNTech COVID-19 Vaccine for active immunization to prevent COVID-19 under this

EUA is limited to the following (all requirements MUST be met):

1. Pfizer-BioNTechCOVID-19Vaccineisauthorizedforuseinindividuals 5 years of age and older.
2. Thevaccinationprovidermustcommunicatetotheindividualreceivingthe Pfizer-BioNTech COVID-19 Vaccine or their caregiver, information consistent with the “Vaccine Information Fact Sheet for Recipients and Caregivers” prior to the individual receiving Pfizer-BioNTech COVID-19 Vaccine.
3. Thevaccinationprovidermustincludevaccinationinformationinthe state/local jurisdiction’s Immunization Information System (IIS) or other designated system.
4. Thevaccinationproviderisresponsibleformandatoryreportingofthe following to the Vaccine Adverse Event Reporting System (VAERS):
• vaccine administration errors whether or not associated with an adverse event,
• serious adverse events* (irrespective of attribution to vaccination),
2 Vaccination providers administering COMIRNATY (COVID-19 Vaccine, mRNA) must adhere to the same reporting requirements.
Revised: 03 January 2022 13
• cases of Multisystem Inflammatory Syndrome (MIS) in adults and children, and
• cases of COVID-19 that result in hospitalization or death.

INFORMATION TO PROVIDE TO VACCINE RECIPIENTS/CAREGIVERS

Vaccine Information Sheet is provided prior to the individual receiving each dose of Pfizer-BioNTech COVID-19 Vaccine, including:

• FDA has authorized the emergency use of the Pfizer-BioNTech COVID-19 Vaccine, which is not an FDA-approved vaccine.
• The recipient or their caregiver has the option to accept or refuse Pfizer-BioNTech COVID-19 Vaccine.
• The significant known and potential risks and benefits of Pfizer-BioNTech COVID-19 Vaccine, and the extent to which such risks and benefits are unknown.
• Information about available alternative vaccines and the risks and benefits of those alternatives.

****

Is this even an attempt at informed consent at an extra critical time when giving zero fatality risk children an unapproved EUA product? When will the parents be provided proper vaccine risks information of the VIS vaccine information sheet PRIOR to injection as is required?

It’s ethically important to provide safety information PRIOR to consent. Not only that, it is REQUIRED per the FDA product regulators.

For reference here was the local vaccine consent form with signature statement used prior to covid-19 push:

https://flatheadhealth.org/wp-content/uploads/2020/07/Pediatric-PDF-19.pdf

Please do what is right, read the forms, and correct this very harmful mess caused by not taking any initiative to fix the form and provide parents with the proper risk information for thorough review.

Thank you,

Jessica Kirkendall
Children's Health Advocate

Flathead City-County Health Department

Public Comment for Board of Health Meeting - Entry #4407

First and Last Name

Carrey Hirt

City of Residence

Whitefish

Public Comment

Greetings Health Board and Commissioners,

First, what is really going on with Joe Russell? What is with the tyrannical “just do what I say and don’t ask questions” stuff?
I will leave it to others to list for you the many statutes Joe ignores, and I agree this lawlessness must be stopped immediately.
In addition, Joe is avoiding serious issues and is instead spreading confusion all over the place hoping that no one will actually read the vague forms and minimal information that he gives the parents.
Full vaccine information forms with all risks clearly outlined are REQUIRED PRIOR to injection! Joe refuses to give any such info. He is vaguely mentioning that he has it all covered due to EUA non approved status. This is not true, not at all helpful, and due to experimental status it’s even more critical to provide the proper vaccine information to parents. Vaccinations must be halted until this informed consent is offered.
Why not? Why all the song and dance around just telling the truth?
This is NOT even a basic level of responsible leadership, let alone the high level this community deserves. Joe and his ways have to go.

Second, the new Health Officer search is now on. Things MUST be different this time. Subcommittee members, you MUST do better! We all saw that last year some applicants got NO answer at all!
Also, the sub-committee kept all candidates out of the public eye, as well as away from any full public board by declining them all at subcommittee initial interview process.
The self appointed personnel subcommittee of Holmquist, Skees, Malberg, and Barnhart is a group that has been known to treat the voices, cares, and concerns of the public as if they are not important; and they instead act as if they know what’s best for the public. This dictatorial attitude and atmosphere must NOT continue! Make the HO selection transparent, and listen to the public’s wishes.

Be Better!

For God and Country,
Carrey

Public Comment for Board of Health Meeting - Entry #4413

First and Last Name

Julie Martin

City of Residence

Kalispell

Public Comment

Dear Flathead County Board of Health,

I am writing to express my disappointment in how public comments were handled at the last meeting. Several members of the public were given their full allotted time and used it to lambast Dr. Bukacek, without interruption. But members of the public who were trying to give public comments regarding legitimate concerns regarding acting Health Officer Joe Russell, were gaveled and cut off, based on not allowing for “personal attacks.” The glaring hypocrisy of this boggles the mind. The first amendment guarantees free speech and you are accountable to the public; therefore, all citizens should be allowed to speak for their allotted time, regardless if you like what they’re saying or not.

Joe Russell has repeatedly overstepped his bounds and instead of reminding him of his limits, he has been allowed to continue, seemingly with full impunity. What the public is asking is not unreasonable. As medical professionals, one of our most important jobs is to give people fully informed consent prior to any medical procedure. He has not done this, particularly for parents.

It is not unreasonable to ask the health officer to give true & factual statistics regarding hospitalizations of vaccinated vs unvaccinated patients, regardless if the accurate statistics back up the narrative/agenda or not.

It is also not unreasonable for the public to expect that the hiring process for the health officer position is fully open and accountable to the public, unlike the completely closed and secretive process it has been in the past.

The Board of health needs to stop pushing an agenda and trampling the free speech rights of the citizens of Flathead county and get back to it’s original intention - truly supporting the health of its citizens.

Thank you for your time and consideration.

Sincerely,

Julie Martin, RN, BSN, ACN
Kalispell

Public Comment for Board of Health Meeting - Entry #4418

First and Last Name Mary Dixon
City of Residence Columbia Falls
Public Comment I support Joe Russel and vaccines. Anyone who says otherwise has the blood of all the unvaccinated dead from COVID on their hands. science and religion are not separate, God teaches us to use our minds!

Public Comment for Board of Health Meeting - Entry #4499

First and Last Name

Patti Harmon

City of Residence

Whitefish

Public Comment

I am responding to a request before the Board of Health regarding an inappropriate septic system which has already been turned down due to high ground water issues. Mr B. Jones is attempting to bypass all known community health safeguards in order to build a 5 bedroom home on a property on Haskill Drive in Whitefish.
Since I moved to this neighborhood on Haskill Drive in 1985 a lake has developed. It is now deep enough to sport white cap waves. Also, home to ducks & geese, as well as beautiful swans.
My most immediate neighbor has 7 sump pumps running each spring.
The size of this body of water has increases every year. Does this sound like an area that support another septic system?
Thank-you for your attention to this health hazard.

Public Comment for Board of Health Meeting - Entry #4530

First and Last Name Diana Southard
City of Residence MARION
Public Comment https://phmpt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf

Public Comment for Board of Health Meeting - Entry #4531

First and Last Name

Suellen Carlson

City of Residence

Whitefish

Public Comment

To the Flathead City-County Board of Health:

I wish to submit a comment regarding the appeal of the Health Officer's Decision for Appelgren-Jones (as pertaining to the denial for a sewage treatment system permit for Lot 9 of Haskill Creek Tracts). As a current adjacent property owner to the parcel in this matter, I am concerned with the possibility of a septic being approved when it is clear that the Health Officer has done their due diligence during the approval process and ultimately denied the permit. As the Health Officer has presented, this particular property has not passed the ground water monitoring on multiple occasions and therefore does not meet the requirements of the Flathead County Regulations for Sewage Treatment Systems, (Section 10.2, table 1, footnote a) which requires a minimum of 48 inches to the groundwater table. The regulations clearly state that a variance to this requirement will not be considered for new construction. This requirement has been put in place for many reasons, including to avoid any harmful impacts upon the environment.
Ultimately, the county regulations are in place for a reason and to grant a variance in this case could have serious negative consequences on the environment. Please do not allow this permit to be approved. Thank you for your time.

Public Comment for Board of Health Meeting - Entry #4533

First and Last Name

Erica Lengacher

City of Residence

Whitefish

Public Comment

First, I thank you all for your service to our community and the work you are undertaking to ensure access to healthcare services, preventive care, immunizations as well as to ensure sound environmental health practice in the Flathead Valley.

Unfortunately, my work schedule has made it increasingly difficult for me to make it to Health Board meetings, however, I do listen to the recorded meetings each month. After the last three meetings, I am deeply concerned by the vitriol, misinformation, and attacks from what I believe to be a very small, but vocal minority of our community. Their anti-government agenda is clear: intimidate and obfuscate so that those with experience and credentials will walk away from the very positions in which they are most needed.

As the County and the Board continue the search for a qualified Health Officer, I am concerned that the Board's lack of unified messaging to combat misinformation and a clear anti-government movement will result in a persistent inability to fill the position with a qualified candidate. Ultimately, the absence of qualified leadership will have profoundly negative consequences across all areas of public health in our community.

Joe Russell has done a commendable job of navigating the Health Department through the pandemic. The Board has the explicit responsibility for governance and ensuring a smooth transition to new leadership. As long as the Board continues to condone and even, in some cases, encourage this kind of divisive behavior and misinformation, we stand little chance of welcoming a Health Officer with the knowledge, integrity, and commitment to public health that our community deserves.

Public Comment for Board of Health Meeting - Entry #4535

First and Last Name

Shaun Pandina

City of Residence

Kalispell

Public Comment

With the judge releasing the information on the Pfizer covid 19 vaccine trials it is imperative that the county stop all Covid19 vaccine clinics. Now that the proof of harm is readily available the county has a tremendous liability in continuing to participate in this experiment at grave risk of harming Flathead county residents.

Sincerely Shaun Pandina

Public Comment for Board of Health Meeting - Entry #4547

First and Last Name

Deborah Wilson

City of Residence

Kila

Public Comment

Please consider a person who understands the values of the local people and understands that everyone is responsible for their own health care when you choose a replacement for Joe Russell. We do not need someone who will just push the narrative required to qualify for state or federal funds. You cannot push the narrative long enough or loud enough to make people believe it. We can tell what facts and figures are correct and what has been controlled to push the narrative. Thank you for your service.

FLATHEAD CITY/COUNTY BOARD OF HEALTH
MINUTES OF REGULAR MEETING
MARCH 17th, 2022
ZOOM/PHONE
EARL BENNETT BUILDING
1035 1ST AVENUE WEST
KALISPELL, MONTANA
VIDEO:

Members Present	Other Attendees	
Roger Noble, P.G.	Joe Russell	Maziee Kirby
Pamela Homlquist	Jenelle Grau	Shawn Padina
Don Barnhart	Audrey Despain-Price	Gina Gosnell
Pete Heyboer, MD	Diana Southard	Dan Manson
Rod Kuntz	Chrysta Bourne	Thomas Millett
Jessica Malberg-Fiftal,DVM.MSPH,DACVR- Zoom	Brent Foley	Kilani Klette
Annie Bukacek, MD-Zoom	Derek Jones	Cliff Bennett
Ardis Larsen	Sue	Malia Freeman
	Dennis Gomez	Kirk Zander
	Jake Kirby	Trish Pandina

1. Call to Order

Chairperson Roger Noble called the meeting to order at (1:00pm)
Started at (0:00:11)

2. Attendance

Roll Call. Pete Heyboer arrives at 1:02pm
Started at (0:00:34)

3. Approval of Agenda

Don Barnhart moves to approve the agenda; Pete Pamela Holmquist seconds the motion.
All Ayes. Started at (0:01:04)
Motion passes

4. Citizen Comment

Written Citizen Comment:

- Written Citizen Comment was uploaded to the agenda.

Verbal Citizen Comment:

- Chrysta Bourne gave comment about taskforce, stray animals, and monthly clinics. Started at (0:02:33)
- Thomas Millett gave comment about Health Officers position and board member comment. Started at (0:07:17)
- Gina Gosnell gave comment about the board member comments and the mosquito program. Started at (0:10:12)
- Dennis Gomez gave comment about COVID. Started at (0:13:13)
- Diana Southard gave comment about board members comment and COVID. Started at (0:15:54)
- Shaun Pandina gave comment about COVID and adverse reactions. Started at (0:19:07)

- Jake Kirby gave comment about COVID, elected officials. Started at (0:22:42)
- Jessica Kirkendall gave comment about Health Officers position and Flu vaccine. Started at (0:25:27)
- Sue gave comment about freedom and protection. Started at (0:26:59)
- Joe gave comment about COVID. Started at (0:28:29)
- Debbie Wilson gave comment about Health Officers position. Started at (0:30:05)
- Cherilyn Devries gave comment hostile comments and informed consent. Started at (0:31:32)

5. Approval of Meeting Minutes for February 17th, 2022

Jessica Malberg moves to approve the minutes; Rod Kuntz seconds the motion.
All Ayes. Started at (0:33:53)
Motion passes

6. Notice of Rule Making

Sewage Treatment Regulations and Construction Standards

- Joseph Russell discussed commissioners, residential, administrative rule and DEQ 4. Started at (0:34:52)
- Roger Noble mentions set of flows, DEQ, modifications. Started at (0:37:49)

Don Barnhart makes motion to move the Sewage Treatment Regulations and Construction Standards; Ardis Larsen seconds the motion. Started at (0:39:08)
Roll call. All Ayes
Motion Passes

7. Appeal of Health Officers Decisions Regarding Applegren-Jones

Applegren-Jones Appeal to the Board of Health

- Roger Noble discussed Environmental Health Committee reviewed. Started at (0:41:42)
- Joseph Russell discussed permit application, review, deny appeal, variance. Started at (0:42:22)
- Brent Foley discussed exempt lot, residential lot, ground water monitoring, and variance. Started at (0:45:45)
- Roger Noble mentions variance request. Started at (0:50:38)
- Brent Foley discussed contaminating water, solid clay layer, surface contamination and requirements. Started at (0:51:19)
- Joseph Russell discussed sanitation act. Started at (0:54:03)
- Don Barnhart mentions sand mound, failure, clay layer. Started at (0:56:29)
- Jessica Malberg asks about the 2 times it was denied and why it's different this time. Started at (0:58:03)
- Rod Kuntz asks if the staff goes back out. Started at (0:59:57)
- Roger Noble mentions on site plan, test once installed. Started at (1:00:22)

Ardis Larsen moves to make a motion to grant the appeal; Pamela Holmquist seconds the motion. Started at (1:02:43)
Roll call.
Motion passes

- Joseph Russell discussed recommendation for variance, section 11.2. Started at (1:03:46)

- Roger Noble mentions situation, subdivision, level 1 to level 2 treatment, well logs. Started at (1:05:09)
- Ardis Larsen mentions mound, and level 2 system. Started at (1:06:24)

Ardis Larsen moves to make a motion for findings and facts; Rod Kuntz seconds the motion. Started at (1:07:09)
All Ayes.
Motion Passes
Don Barnhart moves to approve the variance request; Ardis Laresn seconds the motion. Started at (1:08:16)
Roll Call. All Ayes
Motion Passes

8. Departmental Reports

Animal Shelter

- Cliff Bennett discussed new X-Ray machine, house different dogs, staff, small multi-purpose building. Started at (1:09:38)
- Pamela Holmquist mentions donors, community stepped in, donations. Started at (1:13:19)
- Jessica Malberg mentions the trade in for the new machine. Started at (1:13:28)

Community Health

- Kilani Klette discussed WIC, formula recall, day cares, breastmilk storage, Home visiting, fully staffed, waitlist, caseloads. Started at (1:15:12)
- Pete Heyboer asks about staffing and caseloads. Started at (1:20:39)

Population Health

- Malia Freeman discussed Influenza cases, Tobacco and Cancer screening, steady numbers, PHAB accreditation update, gathering all information, review lots of documentation. Started at (1:22:16)
- Pete Heyboer asks about rules and policy, drug use. Started at (1:25:24)
- Jessica Malberg asks about Health Officers role. Started at (1:26:05)
- Joseph Russell discussed 12 domains, work development. Started at (1:27:10)

Finance

- Kirk Zander discussed February report, Finance committee meeting, Home Health, accounts receivable. Started at (1:30:06)

Environmental Health

- Joseph Russell discussed septic system, Food Service, Site evaluations, Food score system. Started at (1:31:50)
- Jessica Malberg asks about Gold Star award. Started at (1:35:15)
- Rod Kuntz asks about school inspections. Started at (1:36:28)
- Joseph Russell mentions school inspections, chemicals, janitor storage. Started at (1:36:49)
- Don Barnhart asks about the water lines. Started at (1:38:33)

- Joseph Russell discussed lead in school water, PH, Specific for drinking water, MCL trigger, flushing systems. Started at (1:39:03)
- Roger Noble mentions Kalispell water. Started at (1:43:06)

Health Officers Report

- Joseph Russell discussed graphs, new cases, total testing, break through cases, vaccination rates, average daily census, community levels, states dashboard, vet services and bargaining unit. Started at (1:43:47)
- Pamela Holmquist discussed applicants for Health Officer Position, privacy, personnel committee, health board and commissioners. Started at (1:47:25)
- Don Barnhart asks about open meeting. Started at (1:49:44)
- Annie Bukacek discussed Health Officers interview, professional, 2021, committee of 3 people. Started at (1:50:42)
- Jessica Malberg discussed not qualified; people drop for different reasons. Started at (1:53:23)
- Roger Noble discussed personnel committee, 1st round. Started at (1:54:24)
- Annie Bukacek discussed not one resume, agreeing to decisions, Kyle Waterman. Started at (1:55:07)
- Joseph Russell mentions 2021, personnel committee, declined. Started at (1:55:56)

9. Board Member Discussion

- Annie Bukacek gave comment. Started at (1:57:47)
- Roger Noble gave comment. Started at (2:01:00)
- Rod Kuntz gave comment. Started at (2:01:36)
- Don Barnhart gave comment. Started at (2:05:51)
- Jessica Malberg gave comment. Started at (2:08:15)

10. Adjournment

Meeting ended at (2:09:24)

Roger A Noble

Approved by Roger A Nobel, P.G.

April 21, 2022

Date of Approval

FLATHEAD COUNTY BOARD OF COMMISSIONERS
Initiation of Rulemaking
Flathead County Sewage Treatment System Design and Construction Standards
Flathead County Construction Standards for Onsite Sewage Treatment Systems

(Agenda Item VI)

Agenda Item Summary. The Flathead City-County Board of Health (Board of Health) requests the Board of Commissioners (Commissioners) to initiate rulemaking to amend the Flathead County Sewage Regulations for Sewage Treatment Systems and the Flathead County Construction Standards for Onsite Sewage Treatment Systems. The Board of Health requests the Commissioners to assign the rulemaking process to the Board of Health.

Affected Parties Summary. The amendments proposed may affect persons in Flathead County that apply for a sewage treatment system**.**

Background. The Board of Health requests the Commissioners initiate rulemaking and adopt amendments to the Flathead County Regulations for Sewage Treatment Systems (Regulation) and the Flathead County Construction Standards for Onsite Sewage Treatment Systems (Construction Standards) to align the Regulation with the Montana Department of Environmental Quality (DEQ) rules and circulars.

The following is an overview of the changes contemplated to the Regulation:

- Changes to Section 3 – Definitions. Definitions for “Abandon”, “Absorption Trench”, “Accessory Building”, “Composting Toilet”, “Connection”, “Incinerator Toilet”, “Portable Toilet”, “Pre-existing Sewage Treatment System”, “Replacement System”, “Site Review”, “Variance”, and “Waste Segregation” have been added.
- Changes to Section 4 – Applications and Permits.
    - 4.2. An application for a sewage treatment system permit will expire after one (1) year.
    - 4.6. The minimum lot size requirements have been removed.
- Changes to Section 8 – Certified Designers of Sewage Treatment Systems. Propose having only one level of sewage treatment system designer.
- Changes to Section 10 – Minimum Requirements for Class 1 -3 Sewage Treatment Systems. Residential wastewater flows have been modified as follows:

    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

- There are other changes throughout the Regulation generally regarding minor adjustments to timeframes and editorial changes that would not be considered significant.

The following is an overview of the changes contemplated to the Construction Standards:

Changes to Section 3.1.2 – Residential Wastewater Design Flows.

- Residential wastewater flows have been modified as follows:

  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

The Montana Codes Annotated, Section 50-2-116 -Powers and duties of Local Boards – allows Boards of Health to "(j) subject to the provisions of 50-2-130, propose for adoption by the local governing body necessary regulations that are not less stringent than state standards for the control and disposal of sewage from private and public buildings and facilities that are not regulated by Title 75, chapter 6, or Title 76, chapter 4. The regulations must describe standards for granting variances from the minimum requirements that are identical to standards promulgated by the board of environmental review and must provide for appeal of variance decisions to the department as required by 75-5-305. If the local board of health regulates or permits water well drilling, the regulations must prohibit the drilling of a well if the well isolation zone, as defined in 76-4-102, encroaches onto adjacent private property without the authorization of the private property owner.

Board Options. The Board of Commissioners may:

1. Initiate rulemaking with the amendments suggested herein and appoint the Board of Health as the entity to conduct the public hearing;
2. Initiate rulemaking with modifications suggested by the Board of Commissioners and appoint the Board of Health as the entity to conduct the public hearing; or
3. Not initiate rulemaking at this time.

Department Recommendation. The Board of Health recommends initiating rulemaking to amend the Regulations and the Design and Construction Standards as proposed in the draft documents.

Enclosures.

1. Draft of the proposed changes to the Flathead County Regulations for Sewage Treatment Systems
2. Draft of proposed amendment to the Flathead County and Construction Standards for Onsite Sewage Treatment Systems.

FLATHEAD COUNTY REGULATIONS FOR ONSITE SEWAGE TREATMENT SYSTEMS

TABLE OF CONTENTS

FLATHEAD COUNTY

REGULATIONS FOR ONSITE SEWAGE TREATMENT SYSTEMS

PURPOSE OF REGULATIONS

The Flathead City-County Board of Health understands the importance of proper treatment and disposal of sewage. Diseases such as dysentery, infectious hepatitis, typhoid, paratyphoid, and various types of diarrheal infections are transmitted from one person to another through fecal contamination of food, water and other vectors. This can occur by the improper treatment and disposal of sewage. Every effort must be made to prevent such hazards. Important to this is the proper treatment of sewage and not just the disposal of sewage.

Safe treatment and disposal of all sewage is necessary to protect the health of the individual family and the community and to prevent the occurrence of public health nuisances. To accomplish satisfactory results such waste must be treated and disposed of so that:

1. It will not contaminate any existing or future drinking water supply,
2. It will not be accessible to insects, rodents, or other possible carriers which may come into contact with food or drinking water,
3. It does not pose a health hazard by being accessible to children,
4. It will not pollute or present the potential to contaminate any surface or ground water,
5. It will not give rise to a nuisance due to odor, insect or animal attraction.
6. It will not violate laws or regulations concerning water quality protection or sewage treatment/disposal.

The Flathead City-County Board of Health has developed the following regulations and construction standards to insure the proper design, installation and operation of sewage treatment systems and to alleviate possible public health hazards associated with improper treatment and disposal of sewage.

SECTION 1 - Authority and Scope of Regulations

1.1 These regulations have been written pursuant to Title 50-2-116 - Powers and duties of Local Boards - (j) "adopt necessary regulations and fees for the control and disposal of sewage from private and public buildings not currently connected to any municipal system (fees shall be deposited with the County Treasurer)".

1.2 These regulations cover ALL sewage treatment systems in Flathead County except "Municipal and Publicly owned Sewage Treatment Systems" as defined herein.

1.3 The permit system established through these regulations governs the design, installation and operation of sewage treatment systems. Operation shall mean the system is functioning properly in compliance with the regulations. ~~at the time the permit is given final approval issued~~

The permit is not to be construed as being a building permit or any other permit that may

be required by other agencies to erect a structure in Flathead County.

1.4 The permit itself establishes the minimum criteria for the standards adopted in Flathead County. The Department does not design the systems and the recommendations set forth in the permit do not bind or obligate the county to guarantee the satisfactory operation of any system.

1.5 At any time throughout this permit system process, the Flathead City-County Health Department may require the applicant to provide verification of compliance, or the ability to comply with other agencies', districts', or governmental entities' bylaws, ordinances, zoning laws, rules or regulations when deemed pertinent and appropriate by the Department.

SECTION 2 - Effective Date and Review Procedures

2.1 All provisions established under this regulation shall become effective as of DATE. ~~January 1, 2005 July date adopted.2014..~~

2.2 At any time, the Board may propose additions or revisions to these regulations. Changes proposed to the regulation by the Board shall be processed for adoption, as prescribed by existing County Administrative Regulations.

SECTION 3 – Definitions

3.1 **Abandon** - living unit removal or destruction of a living unit (dwelling) which is no longer habitable.

3.2 **Absorption Trench** - means a~~n absorption system that consists of a excavations~~trench excavated between 18 to 36 inches in width ~~where the distribution system is laid~~ for the purpose of distributing pretreated ~~waste~~septic system effluent into the ground.

3.3 **Accessory Building** - ~~see construction standards definition. Add bunkhouse and sleeping quarters, no cooking/kitchen facilities~~ ~~**Accessory building**~~ means a subordinate building or structure on the same lot as the main building, which is under the same ownership as the main building, and which is devoted exclusively to an accessory use such as a garage, workshop, art studio, bunkhouse, guest house, or church rectory.

3.4 ~~"~~**Abatement Order**~~"~~ - shall mean a written order to (1) cease an act(s) which is in violation or causes a violation of these regulations or (2) to do an act(s) so as to comply with these regulations; it shall specify which section of these regulations is being violated or must be complied with and it shall be delivered in the manner prescribed in Section 13.2.

3.5 **Adequate Facilities** – shall mean a subsurface sewage treatment system or other facilities approved by the Department.

3.6 ~~"~~**Alteration**~~"~~ - shall mean physically changing a sewage treatment system by lengthening, shortening, widening, building structures over or changing the flow into a system by changing use of a living unit. Changing the use of a living unit or commercial ~~use~~ unit may include, but is not ~~be~~ limited to, adding living quarters, adding structures or changing the use in such a manner as to alter the wastewater characteristics for which the system was permitted. This shall not be construed to mean changing dwellings in a campground or a trailer court currently licensed by the State Department of Public Health and ~~Environmental~~Human Services~~Sciences~~. Conversion of a campground to a mobile home park shall be considered an alteration requiring

Department approval. Alteration shall also mean the conversion of an existing living unit into multiple units.

3.7 **Applicant** - shall mean legal property owner, institution, public or private corporation, partnership or other entity that submits an application for a permit to install, alter, or construct a sewage treatment system.

3.8 **Bedrock** - shall mean material that cannot be readily excavated by hand tools, material that does not allow water to pass through or material that does not provide for the adequate treatment and disposal of wastewater.

3.9 **Bedroom** - any room that is or may be used for sleeping. An unfinished basement is considered as one (1) additional bedroom for initial system sizing. A separate building without plumbing or running water may be considered as one or more additional bedrooms to a structure with plumbing or running water. The Department has the sole discretion to determine if a room may be considered a bedroom.

3.10 **Board** - shall mean the Flathead City-County Board of Health.

3.11 **Class 1 System** - shall mean wastewater system that serves one living unit or one commercial unit. A house and shop bathroom are considered a Class 1 System.

3.12 "**Class 2 System**" - shall mean a shared, multi-user or public sewage treatment system with design flow of less than 1000 gallons per day.

3.13 "**Class 3 System**" - shall mean a shared, multi-user or public sewage treatment system with design flow of 1000 or more gallons per day.

3.14 "**Composting Toilet**" - means a system consisting of a watertight compartment or a vault that contains or will receive composting materials sufficient to reduce human waste by aerobic decomposition. ~~shall mean a unit that consists of a toilet seat and cover over a riser which connects to a watertight~~

3.15 ~~compartment or vault that contains or will receive composting materials sufficient to reduce waste by aerobic decompos~~ **Connection** - means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "service connection."

3.16 ~~.~~"**Conventional System**" - shall mean a sewage treatment system composed of a septic tank and standard soil absorption trenches.

3.17 "**Department**" - shall mean the Flathead City-County Health Department.

~~**Deviation** - granted by Health Officer for replacement only.~~

3.18 "**Dosing**" - shall mean storage and periodic, high rate discharge of sewage or effluent from one sewage treatment unit to the next.

3.19 "**Failing Sewage Treatment System**" - shall mean any sewage treatment system not properly functioning and shall include but not be limited to:

(1) Sewage treatment systems whose sewage or effluent flows or enters surface waters or ground waters without adequate treatment or removal of bacteria, virus, and other contaminants of danger to public health or the environment.

(2) Systems that have sewage or effluent overflow from any of their component parts that ponds or flows on the ground surface.

(3) Systems that back sewage or effluent into any portion of the building or plumbing system.

3.20 "**Fill**" - shall mean artificially placed soil.

3.21 "**Final Eeffluent Ttreatment**" - shall mean the natural treatment derived through the process of effluent release to the environment.

3.22 "**Floodplain**" - shall mean the area adjoining the watercourse or drainway which would be covered by the floodwater of a flood of 100-year frequency (1% chance of occurring in any given year) as delineated by Zones “A” and “AE” on a Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency (FEMA).

3.23 "**Gray Water**" - shall mean any wastewater other than toilet or industrial wastes and includes, but is not limited to, shower and bath wastes, kitchen wastewater, usual household chemicals and laundry wastes. Industrial wastes containing industrial chemicals are not considered as Gray Water.

3.24 "**Groundwater Table**" - shall mean the upper surface of groundwater in the zone of saturation of a geologic formation. The upper surface of a perched water table is included in this definition.

3.25 "**Health Officer**" - shall mean the legally established authority as designated by the Flathead City-County Board of Health.

3.26 ~~"High Seasonal Groundwater Level" shall mean the minimum depth, during any period of the year to the groundwater table as measured from the natural ground su~~"**Holding Tank**" - shall mean a watertight receptacle that receives wastewater for retention and does not, as part of its normal operation, dispose of or treat the wastewater.

3.27 "**Impervious or Restrictive Layer**" - shall mean a layer of material that has a percolation rate slower than two hundred forty (240) minutes per inch.

3.28 **Incinerating Ttoilet** - means a self-contained unit consisting of a holding tank and an adequate heating system to incinerate waste products deposited in the holding tank. The incineration by-products are primarily water vapor and a fine ash. ~~copy from Construction Standards~~

3.29 **Individual Sewage Treatment System**" - shall mean a system designed to serve one living unit or a structure used for a single commercial use which employs and/or serves less than 25 people per day or a single commercial unit which employs and/or serves 25 or more people per day less than 60 days per year.

3.30 "**Infiltrative Ssurface**" - means ~~the undisturbed~~ soil interface beneath the drain rock or leaching chamber.

3.31 "**Level 2 tTreatment**" - means a subsurface wastewater treatment system that:

(a) removes at least 60% of total nitrogen as measured from the raw sewage load to the system; or

(b) discharges a total nitrogen effluent concentration of 24 mg/L or less.

The term does not include treatment systems for industrial waste.

3.32 "**Living Unit**" - means the area under one roof that can be used for one residential unit and has facilities for sleeping, cooking, and sanitation. A duplex is considered two living units.

3.33 "**Mobile Home Park**" - shall mean a tract of land providing space and water and/or sewer service to two (2) or more mobile home lots for lease or rent to the general public.

3.34 "**Multiple-User Sewage Treatment System**" - shall mean a non-public wastewater system that serves, or is intended to serve, more than two living or commercial units, but which is not a public sewage system as defined in 75-6-102, MCA. The total number of people served may not exceed 24. In estimating the population that will be served by a proposed residential system, the Department shall multiply the number of living units times 2.5 people per living unit.

3.35 "**Municipal Sewage Treatment System**" - shall mean a system that is the sole responsibility of an incorporated city or town government.

3.36 "**Non-degradation Analysis**" – **The analysis of** all new or increased sources of pollution after April 29, 1993, require compliance with Montana's non-degradation laws and rules in MCA 75-5. For discharges to groundwater, the project must pass a nitrate sensitivity analysis and phosphorus breakthrough analysis.

3.37 "**Owner**" - shall mean the person who is the legal titleholder of land onto which a sewage treatment system has been or is to be placed.

3.38 "**Permit**" - shall mean a written authorization issued by the Department allowing construction, alteration, installation or repair and operation of a sewage treatment system under the provisions of this regulation.

3.39 "**Pit Privy**" – shall mean a non-vaulted outdoor toilet which receives undiluted sanitary sewage.

3.40 **Portable Toilets** - shall mean an enclosed receptacle designed to receive non-water carried toilet wastes into a watertight vault.

3.41 **Pre-existing sewage treatment system**- a wastewater treatment system installed before 1969 when permitting was established by the Board.

3.42 "**Premises**" - shall mean a definite portion of real property with its appurtenances, also to include a building or part of a building. This shall include, but not be limited to, residential dwellings, mobile homes, recreational vehicles, commercial or industrial structures, apartment, condominiums, and townhouses.

3.43 "**Primary Treatment**" - shall mean a treatment system, such as a septic tank, that provides retention time to settle the solids in raw wastewater and that retains scum within the system.

3.44 "**Publicly Owned Sewage Treatment System**" - shall mean a public sewage system that is the sole responsibility of a Special Improvement Sewer District created in accordance with Montana Law.

3.45 "**Public Sewage System**" - means a system for collection, transportation, treatment, or

disposal of wastewater that serves 15 or more families or 25 or more persons daily for any 60 days or more in a calendar year. In estimating the population that will be served by a proposed residential system, the Department shall multiply the number of living units times 2.5 people per living unit, so that 10 or more proposed residential connections will be considered a public system.

3.46 **Replacement System** - a ~~wastewater~~sewage treatment and disposal system that is installed to ~~replace an~~ upgrade an existing system ~~for upgrade and existing~~ or replace a failed system.

3.47 ~~"~~**Sealed component**~~"~~ - shall mean a receptacle which is watertight on the sides, bottom and possibly the top in which wastewater is held for primary treatment or effluent is held for intermittent conveyance to an additional treatment component.

3.48 **Seasonally high ground water -** means the depth from the natural ground surface to the upper surface of the zone of saturation, as measured in an unlined hole or perforated observation well during the time of the year when the water table is the highest.

3.49 ~~"~~**Secondary Treatment**~~"~~ - shall normally mean any process or facility to further reduce the suspended or dissolved organic and/or inorganic solids in the effluent from a "Primary Treatment" facility or process. This can take many forms, one of which is a subsurface drain field.

3.50 ~~"~~**Septage**~~"~~ - shall mean material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

3.51 ~~"~~**Septic Tank**~~"~~ - shall mean a watertight accessible covered receptacle designed and constructed to receive sewage from a structure or structures, settle solids from the liquid, to anaerobically digest organic matter and store digested solids through a period of retention and allow the clarified liquids to discharge to other treatment units for final disposal.

3.52 ~~"~~**Sewage**~~"~~ - shall mean a combination of liquid wastes that may include usual household chemicals, domestic wastes, human excreta, animal or vegetable matter in suspension or solution, and other solids in suspension or solution, which is discharged from a dwelling, building or other establishment.

3.53 ~~"~~**Sewage Treatment System**~~"~~ (STS) - shall mean a system for sanitary collection, transportation, treatment and disposal of sewage, operated in accordance with State and Local Board of Health Regulations. Referred to as septic or wastewater treatment systems.

3.54 ~~"~~**Shared Sewage Treatment System**~~"~~ - means a sewage treatment system which receives wastewater from 2 living or commercial units with a total service population of less 25 people per day, or more than 25 people per day for less than 60 days per year.

3.55 ~~"~~**Site Evaluation**~~"~~ - shall mean the physical inspection of each proposed drainfield site on the property to determine suitability for installation of a subsurface onsite wastewater sewage treatment systems.

3.56 ~~"~~**Site Review**~~"~~ - physical inspection of the property for previously approved drainfield and well sites ~~re-evaluated regardless of when they were approved. T~~to ensure the drainfield and water well are properly located.

3.57 ~~"~~**Soil Profile**~~"~~ - shall mean a detailed description of the soil strata to a specific depth. The

description can be expressed using the U.S. Department of Agriculture's Soil Classification System or the Unified Soil Classification System.

3.58 "Standard Soil Absorption Trench" or "Drainfield Trench" shall mean a ditch or trench with vertical sides and substantially flat bottom dug to a width of two (2) feet and to a maximum depth of three (3) feet.

"**Subdivision**" - shall mean a division of land as defined in the most current revision of the Sanitation in Subdivisions Act (76-4-101 thru 76-4-131, M.C.A. 1995) and/or its Regulations (Title 17, Chapter 36, Sub- Chapters 1, 3 and 6 ARM), now and as hereafter amended.

3.59 "**Subsoil Drain**" - shall mean foundation drains, French drains, vertical drains, or other drainage systems designed to lower a groundwater table.

3.60 "**Surface Water**" - shall mean any natural or man-made body of water or watercourse, including lakes, ponds, rivers, creeks, streams and swamps.

3.61 "**Temporary Permit**" - shall mean a permit authorizing installation of an interim sewage treatment system.

3.62 "**Test Hole or Test Pit**" - shall mean an open pit dug to sufficient size and depth to permit thorough examination of the soil to determine a soil profile.

3.63 Variance Defined?the grant, pursuant to Section 14 – look at 17.36.912 #34**Variance** – shall mean the the granting of an exception to the minimum requirements set out in these regulations, pursuant to Section 14 of these regulations, by the Flathead City-County Board of Health, of an exception to the minimum requirements set out in these regulations.

3.64 "**Vaulted Pit Privy**" - is a structure and an underground watertight vault for the temporary storage of non-water-carried wastewater.

3.65 -**Waste Ssegregation -** shall mean a system for the dry disposal of toilet waste by a method such as composting, chemical, dehydrating, or incinerator treatment with a separate disposal method for gray water.

SECTION 4 - Application and Permits

4.1 A permit issued by the department is required for any person to construct, alter, repair and/or operate any sewage treatment system within Flathead County unless the system is either a municipal or publicly or a Sewer District owned sewage -treatment system. If any part of a septic system is found to be installed or constructed without a permit, a fee will be determined by the Department to bring the system into compliance.

4.2.– All applications for permits shall be made to the Department. The applicant will furnish The Department will be furnished a copy of all plans to the Department. Individual sewage treatment plans will be processed at the County level. Certain multiMulti-user and all Public Sewage system plans will be reviewed by the Department and forwarded to the Montana Department of Environmental Quality, if required, for their review, approval and returned to the Department. An application will expire in one year if no activity has occurred.

Permits shall be issued upon compliance by the applicant with all provisions of these

regulations. Upon completion of the review process, approval and payment of the appropriate fee, one copy of the permit will be provided to the applicant. An application will expire in one year if no activity by the owner has occurred.

4.3 All sewage treatment systems in Flathead County shall utilize uniform pressure distribution. Plans and specifications shall be prepared by a professional engineer or a sewage treatment system designer certified by the Department.

4.4 Non-degradation - All new septic systems within Flathead County, except those previously reviewed under the Sanitation in Subdivisions Act, shall comply with those standards as required under the Administration Rules of Montana (ARM) Title 17, Chapter 30, Sub-chapter 5, Mixing Zones in Surface and Groundwater and Sub-chapter 7, Non-degradation of Water Quality. A fee for this activity will be assessed as established in the schedule of fees adopted by the governing body.~~per Flathead County septic system Ffee Sschedule will be applied.~~

4.5 Application for a sewage treatment system permit, site review, ~~-~~or site evaluation shall be made only by the owner or lessee of the property for which the system is proposed or his/her ~~duly~~ legally authorized agent or assigns and shall be in writing bearing the applicant's signature. Applications shall be made on forms provided by the Department and shall include the following:

(1) Legal description of property for which construction, alteration, or repair is proposed. [Lot and Block numbers in a platted subdivision, or if applicable the Tract Number(s)~~os~~ and an ~~quarter-quarter breakdown of a~~ assessor number, ~~Section~~ plus the Section, Township and Range]. The applicant MUST ALSO PROVIDE a visual representation of the property. This may be a copy of a Certificate of Survey that created the property, a copy of the Plat, Deed Exhibit, or a copy of the Section map. This material may be obtained at the Plat Room of the County Clerk and Recorder's Office at the owner's expense.

(2) Parcel Size

(3) Names, current addresses, ~~and~~ telephone numbers and e-mail address of the applicant, and those legally responsible for the operation and maintenance of the system.

(4) Address of the property on which the system is to be installed.

(5) A site plan indicating whether public and/or private sewer and water systems will be used. Include the design and location of proposed sewer and water systems showing their relation to site elevations, water wells or surface water bodies, including those located on adjacent properties within 100 feet of the property line, proposed and existing buildings, driveways, parking areas, other utility lines, and lot boundaries. Show the site available for a replacement system, or include a plan to correct possible system failure.

(6) Proof that the proposed structure will be in compliance with current zoning regulations in that specific area is required.

(7) The Department ~~shall~~ may require submission of a floor plan to verify number of bedrooms and other factors in the proposed structure that may affect wastewater flows rates.

(8) Payment of site evaluation fee.

~~4.6 Minimum lot size requirement - A proposal to use both an individual onsite wastewater treatment system and water supply for each Living Unit or 700 gpd of design wastewater flow for commercial and other non-residential uses on a lot which is smaller than 1 acre may be~~

~~approved only if all regulatory requirements including separations and setbacks can be met.~~

~~Parcels for which additional development is proposed must provide:~~

~~1) at least 1 additional acre for each Living Unit or 700 gpd of design wastewater flow for commercial and other non-residential uses if served by an individual water supply and sewer service or,~~

~~2) at least an additional 20,000 ft² for each Living Unit or 700 gpd of design wastewater flow for commercial and other non-residential uses if either the water or sewer is provided by a shared, multi-user or public system.~~

4.6 ~~–~~Procedural -If the property proposed for the sewage treatment system installation, alteration, replacement or repair and operation has not been reviewed and does not have a Certificate of Subdivision Plat approval, a site evaluation ~~may~~ must ~~-~~be conducted by the Department to determine the suitability of the property and the area designated for the sewage treatment system installation, alteration or repair before issuing a permit under these regulations. The applicant shall grant the Department access to the property for the purpose of determining site suitability.

NOTE: The presence of a Certificate of Subdivision Plat Approval or previously approved site evaluation on a specific property does not obligate the Department to issue a sewage treatment system permit without a site review /site evaluation if the information provided is found to be inaccurate or additional information from the immediate area regarding soil, groundwater, etc., indicates the physical conditions are different than represented by the Certificate of Subdivision Approval.

(1) On any existing tract of land in Flathead County, whether it be an individual tract or a lot in a platted subdivision where new construction is proposed requiring a sewage treatment system, area must be made available for a 100% replacement of the original system in the event that failure occurs or the applicant must provide the Department with a plan or procedure to correct the system failure should it ever occur. The plan or procedure must be approved by the Department prior to issuing the permit for the original or primary system.

NOTE: New construction on any tract of land or subdivision lot, regardless of when it was created, where the new construction proposed is for multiple family structures, multiple dwelling connections or for commercial or industrial structures shall be required to have area available for a 100% replacement of the original system.

The Department may require that the applicant have a test hole dug in the area of the proposed sewage treatment system installation, alteration or repair. The depth of the test hole will be dependent upon the type of information the Department feels is necessary for that specific situation. The Department may require that the applicant provide more than one (1) test hole depending upon the variability of the soils, the type of information necessary, and/or the anticipated size of the drainfield area.

(2) After or during the inspection of the property, the Department may require that the applicant provide additional information. The reasons for this request shall be provided to the applicant. This additional information may include, but is not limited to, percolation tests, more detailed soil analyses, groundwater monitoring or a system designed by a professional engineer.

(4) If groundwater monitoring is deemed necessary based on information received during the

site evaluation, derived from Soil Conservation Service (SCS) material or from experience with that specific area, groundwater monitoring shall be carried out to determine the depth to high seasonal groundwater during its period of occurrence, in order to determine compliance with these regulations (see Section 9.5). If information received during a site evaluation, or if any information received indicates that a conventional system cannot be installed so as to fully comply with these regulations, the Department will ~~may~~ require that the applicant seek the assistance of a professional engineer to design a system complying with these regulations.

(5) Permits for multiple-user systems which are designed to serve multiple lots or parcels shall not be issued until an ownership, maintenance and operation agreement acceptable to the Department has been submitted. Furthermore, final approval of the installation shall not be given until the agreement has been filed with the County Clerk and Recorder.

(6) If any portion of a sewage treatment system must encroach within 10 feet of a property line, a written permission from the neighboring property owner must be obtained prior to issuance of a sewage treatment system permit.

(7) If any portion of a sewage treatment system will be located on another parcel of land, an easement filed with the County Clerk and Recorder will be required prior to issuance of a sewage treatment system permit.

(8) The Department may require the material discussed in this section be provided by persons trained in the related field(s).

4.7 ~~–~~The Department shall not issue a permit until all pertinent site data and required design plans have been received, reviewed and determined to be in full compliance with all provisions contained in these regulations and applicable State Regulations. If the Department does not have qualified personnel or facilities to perform adequate review of a particular plan, it shall secure review and evaluation by an independent engineer to the extent deemed necessary. ~~Cost of such review will be borne by the Department.~~ One set of plans approved by the Department, will be retained. At the time the Department determines the proposal outlined in the application complies with the regulation, a permit will be prepared and signed by the Department. A permit is not considered as issued until the applicant has paid the appropriate permit fee.

4.8 Any system requiring advanced wastewater treatment ~~specialized design~~, maintenance or performance requirement, shall require a Deed Restriction to be filed on the property as determined by the Department. Any permit requiring a Deed Restriction, Easement, Shared User or Maintenance Agreement will be issued only AFTER the signed document(s) have been recorded and copies have been received by the Department.

4.9 Permit, ~~-~~Site Review and Site Evaluation, ~~-~~Fees

(1) A site evaluation or site review fee may be required and must be submitted with each~~the initial~~ application~~s~~.

(2) Applicants shall be required to pay the permit fee prior to issuance of the permit.

(3) Fees shall be in accordance with a Schedule of Fees adopted by the Flathead City-County Board of Health, a copy of which shall be available at the Health Department.

4.10 After-the-Fact Permit - If any part of a septic system is found to be installed or constructed without a legal permit issued by the Department, an after-the-fact permit may be issued for installing an unpermitted sy fee will be determined by the Department to bring the system into complianand the appropriate per curfee charged. schedule.

4.11 Temporary Permit - A permit to install and operate a temporary sewage treatment system may be issued by the Department:

a) When municipal or public sewer is proposed to be made available to the subject property within six twelve (612) months, or
b) In an emergency situation, such as (example a failed drainfield,) providing all setbacks are made and a new permit is being proposed for the existing structures.

The Department shall require some form of financial assurance that the connection will be made to a municipal sewer or on-site sewage treatment system fully compliant with the Regulations.
Additional time must be granted through a variance with the Board of Health. Financial hardship shall not be considered as the basis for issuance of a temporary permit. Issuance of a temporary permit shall be subject to any or all of the following conditions as deemed appropriate by the Department through written agreement: per current fee schedule.

(1) Annexation to the municipality or district.

(2) The Department may require a form of security to assure compliance with 4.7(1).this Section. The form of security may be:

a) Cash or other collateral readily convertible to cash at face value deposited in an escrow account or with the Department.

b) Certificate of deposit payable to the Department.

c) The owner shall provide the Department with a letter of credit from a bank or other reputable institution or individual certifying the following:

That the creditor guarantees funds in an amount of 125% of the projected cost of completing all required improvements;
That if the owner fails to complete the specified improvements within the required period, the creditor will immediately pay the Department upon presentation of a sight draft without further action, an amount of cash necessary to finance the completion of those improvements, up to the limit of credit stated in the letter;
That the letter of credit may not be withdrawn or reduced in amount until released by the Department.
further action, an amount of cash necessary to finance the completion of those improvements, up to the limit of credit stated in the letter;

d) A commercial bond, or

e) Other security acceptable to the Board.

The amount of the security shall be 125% of the total estimated project cost and the estimated cost shall be determined by a licensed professional engineer or licensed contractor, whichever is deemed appropriate by the Department. If the Department determines that the holder of a temporary permit has not complied with the terms of the permit or agreement, it may withdraw the security and use these funds to construct the improvements or correct any

deficiencies necessary to bring the permit holder's system into compliance with the permit or agreement.

4.~~13~~ 12 Continuation of Pre-Existing Systems

1) a pre-existing wastewater treatment system is a system installed before July 1, 1969 when permitting requirements were first established by the Board. The definition does not include existing systems that were installed without the required permit such that the system was/is in violation of regulations adopted by the Board and was/is not authorized for use.

2) Subject to the provisions of these regulations, including Section 5.2, the use or maintenance of a properly functioning pre-existing wastewater treatment system may be continued. This shall not be construed to permit a use when the pre-existing system violates Section 2.1 of these regulations.

3) If a structure served by pre-existing wastewater treatment system undergoes significant alteration, the pre-existing system shall be replaced under these regulations. For purposes of these regulations, significant alteration is when a structure has suffered fifty (50) percent or greater destruction and is being replaced or restored. The destruction can be intentional or unintentional, resulting from things like fire, flood, or remodeling. Replacement of a mobile home with a permanent structure is considered significant alteration. Replacement of a single wide mobile home with another single wide mobile home or replacement of a double wide mobile home with another double wide mobile home with the same number of bedrooms is not a significant alteration.

4.~~14~~ 13 Repair or Alteration of Pre-Existing Systems

1) It shall be unlawful to repair or alter a pre-existing wastewater treatment system. All pre-existing systems for which alterations or repairs are required or proposed shall be either permanently abandoned or replaced under these regulations.

2) When application is made for a new or replacement wastewater treatment system on a parcel with a pre-existing or unapproved system(s), the pre-existing or unapproved systems(s) shall be replaced under these regulations before or at the same time the new or replacement system is installed unless otherwise approved by the Department.

4.~~15~~14 Re-use of Existing Permitted Sewage Treatment Systems - Sewage treatment systems no longer in use due to the removal or destruction of a structure may be permitted for re-use provided the following criteria are met: Such a system may not be enlarged, repaired, subject to increased use, or altered in any manner unless the alteration(s) bring the system into compliance with current regulations.

1) There is a permit for the existing system in the FCCHD files.

2) The system is in compliance with all current separation and setback requirements.

3) The system is in compliance with current construction standards.

4) The system appears to have adequate capacity for the proposed use as related to current minimum standards, and

5) Application is made and a new permit is issued.

Sewage treatment systems within the 100 year floodplain may be replaced provided all other setback and separation requirements are met. However, if any portion of the applicant's property is located out of the floodplain, the applicant may be required to locate all or a portion of the replacement system in this area.

4.~~16~~ 15 A sewage treatment system which the Department determines must be abandoned shall have:

1) The sewer line disconnected between the building and the septic tank~~.~~

2) The septic tank shall be pumped and destroyed by filling with an inert solid, removed from the premises or re-used if the tank is in suitable condition.

3) Written certification by the owner to the Department that the system has been abandoned in accordance with the conditions referenced above~~.~~

SECTION 5 – Expiration and Revocation of Permits

5.1 If a sewage treatment system for which a permit has been issued and the system has not been installed, inspected and approved by the Department within 12 months, said permit shall expire ~~and be void~~. Should a permit expire, the applicant may reapply. The new permit shall be subject to all requirements that exist at the time the new application is made.

The permit for a sewage treatment system which has been inspected and approved will be revoked if the system has not been put into operation within two (2) years. ~~it shall be re-inspected for compliance with current regulations and construction standards. at the permitted or lesser level of use.~~ Prior to use of the system, a ~~A~~ new application must be made with the appropriate fees assessed to renew the permit. The application for renewal will be reviewed prior to permitting to ensure compliance of the existing system with the regulation in effect at the time of application and that the connection to a structure can be made in compliance with those regulations. ~~A fee for renewal of the permit will be required.~~ An inspection of the connection to a structure may also be required.

5.2 NOTE: The Department is not obligated to issue a new permit to an applicant who has allowed a previously issued permit to expire or be revoked even though the new permit application utilized the same specifications and information as on the previously issued and expired permit. A new permit will not be issued if information becomes available indicating that a previously approved system or permit cannot now be approved or re-issued and be in full compliance with the regulations that exist at the time of reapplication.

5.3 The installation, alteration, repair or operation of a sewage treatment system after the initial permit has ~~been voided~~ expired shall constitute a violation of these regulations.

5.4 Any changes in plans, details or specifications of construction not approved by the Department after the permit has been issued, shall invalidate the permit.

5.5 There will be no reimbursement to any applicant of fees received for the issuance of the permit.

5.6 The Department may void a permit before its normal expiration date when any of the facts or conditions upon which the permit specifications were based are found ~~be~~ to constitute

a violation of these regulations.

SECTION 6 - Denial of Permit

6.1 The Department shall not issue a permit if the sewage treatment system, as proposed, will not comply with these regulations and construction standards, the applicant failed to supply all data necessary to make a determination or, required fees were not received.

~~or there is departure from any criteria set forth in the approved plans and specifications of said subdivision.s~~

~~(1) That the applicant has failed to supply all data necessary to make a determination as to whether or not the proposed sewage treatment system complies with the requirements or specifications of these regulations and had failed to provide such information within ninety (90) days after a written notice for such additional information has been made by the Department, or,~~

~~(2) That the applicant has failed to pay the required fees and has failed to make such payment within ninety (90) days after notice to the applicant by the Department that the permit has been prepared and can be issued upon payment of the appropriate fee.~~

6.2 If a tract of land is presently being reviewed under the Sanitation in Subdivisions Act, a permit ~~cannot~~ will not be issued ~~for~~ to serve any structure on that tract of land until the review of said subdivision has been completed and the subdivision approved.

6.3 A permit may be denied if it is found that any provision of a Certificate of Subdivision Approval has been violated. ~~or there is departure from any criteria set forth in the approved plans and specifications of said subdivision.~~

6.4 A permit may be denied if it is found that such installation is in conflict with the requirements of the Sanitation in Subdivisions Act or its regulations, or if such installation is intended as a means of avoiding the requirements of the Sanitation in Subdivisions Act or its regulations.

6.5 A permit to construct a sewage treatment system for a structure on any tract of land, regardless of size, where there already exists another structure or structures, serviced by a separate sewage system(s), shall be denied if the applicant cannot provide substantiating evidence that there is available area for the construction of said system and there is sufficient area to construct a 100% replacement system for that system and for any other sewage treatment system on that tract of land.

6.6 If an approved ~~municipal or other~~ public municipality or sewer district ~~ly owned sewage collection and treatment system~~ sewer line is readily available within a distance of 200 feet of the property line ~~for connection to a new source of wastewater, or as a replacement for a failed treatment system,~~ and the owner (~~management~~ publicly owned entity) ~~of the sewer district publicly owned collection and treatment system~~ approves the connection, the applicant must connect. A connection is considered as not readily available if:

1) The cost of constructing the ~~to~~ connection~~,~~ to the public sewer ~~as determined by the Department,~~ is greater than three times the cost (3:1 cost analysis) of ~~the~~ installingation of an onsite wastewater treatment system that could be approved for the site. (Construction costs only: Costs related to annexation, such as road improvements~~, late-comer fees, impact fees~~ and sidewalks, are not relevant to the determination), ~~),~~ or

2) Connection to the public system is physically impractical, or

3) Necessary easements cannot be obtained.

4) The ~~municipality or special~~ publicly owned entity ~~sewer district~~ is notified of the Department's decision and concurs with the septic system installation or repair approval.

6.7 If ~~it is determined by~~ the Department determines that the primary purpose of a proposed septic system is to avoid annexation to a public sewer, ~~municipality,~~ the permit shall be denied.

6.8 Any denial of a permit shall be made with reasons for such denial and shall be given to the applicant ~~within fifty (50) days of the receipt of a completed application~~.

SECTION 7 ~~–~~ Contractor - Installer Licensure

7.1 It shall be unlawful for any person, except as delineated in this section, to construct, alter or repair an individual or multiple-user sewage treatment system within Flathead County unless that person holds a valid Flathead County Sewage Treatment System Installer's ~~Contractor~~'s License.

A homeowner may construct~~ing~~, alter~~ing~~ or repair~~ing~~ an individual sewage treatment system for his/her own residence ~~up~~on his/her own property ~~their system~~ after passing a self-installer test administered by the Department and pay the associated fee. ~~is exempt from this requirement~~. However, ~~it must be understood by~~ the owner must understand that the system must be constructed in full compliance with these regulations and design and construction standards. Detailed plans showing the proposed layout, construction method and materials to be used must be provided to the Department. A builder who owns several parcels of land and who builds structures on these parcels for sale, rent or lease and not for the purpose of their residing in said structures shall not be considered a "homeowner".

7.2 All first time applications for contractor licenses shall be made to the Department who may grant the license upon completion of the following:

(1) Name, address and telephone numbers of the applicant.

(2) Passing the required examination.

(3) Receipt of the license fee payment.

**All applications for license renewal shall contain all the elements of a first time application except that the examination requirement may be waived if the applicant has demonstrated knowledge of good sewage system design and/or installation in the year immediately preceding the application.

7.3 Contractor licenses shall be valid from January 1 through December 31 for the year stated on the license and shall be renewable by March 1 of the following year. Licenses are not transferable.

7.4 Contractor licenses may be denied for any of the following reasons:

(1) Constructing or altering a sewage treatment system without a valid permit, and/or,

(2) Having a license revoked within twelve (12) months preceding the application, and/or,

(3) Failure to meet the terms of License Applications.

~~(3)~~(4) A contractor that has not installed a septic system in the previous two years will be required to take an examination to renew their license.

7.5 Contractor licenses are the property of the Department and may be revoked by the Department at any time for the following reasons:

(1) Installation of a sewage treatment system prior to the issuance of a septic system permit, and/or,

(2) Failure to gain approval for a sewage treatment system installation, and/or,

(3) Providing false evidence or information to obtain a septic permit or gain approval of a septic installation.~~.~~

~~No sewage treatment systems have been installed in the last two years from the renewal date.~~

7.6 In the event that any portion of Section 7.5 has been violated and revocation of the license is deemed appropriate, the Department shall notify the licensee in writing that the license has been revoked. Reasons for the revocation shall be specified in the letter.

7.7 Appeal to the Board. A contractor whose license has been revoked by the Department may appeal that decision to the Board of Health. After receiving the appeal, the Board shall allow the appellant to present his/her appeal before the Board at its next regularly scheduled meeting, provided that such request is received at least ~~ten~~ thirty (3~~1~~0) days prior to the scheduled meeting date. At this meeting, the appellant may appear in person, be represented by another person, or may appeal to the Board in writing. The Board shall, within fifteen (15) days after hearing and/or reviewing the appeal, respond to the applicant in writing stating its decision and ~~the~~ reasons ~~therefore~~. The Board's decision shall be determined as final.

7.8 The term of revocation will be for one calendar year from the date of violation. Re-licensure shall be permitted only after completion of the requirements set forth in Section 7.2.

SECTION 8– Certified Designers of Sewage Treatment Systems

8.1 Sewage treatment systems shall be designed by certified designers. Certified Designers shall demonstrate competency by participating in class instruction, passing the required examination, possessing the appropriate requisite skills, paying a fee and submitting designs that comply with the Regulation and Construction Standards. ~~There shall be two levels of certification as specified below.~~

(1) ~~General Designer. A General~~ A Certified Designer has demonstrated the skills to design the following sewage treatment systems with the following soil absorption systems:
a) Standard Absorption Trenches
b) Shallow-capped Absorption Trenches
c) Gravel-less Trenches and Other Absorption Methods
d) At-grade Absorption Trenches on Level Sites (0-2%)
e) Deep Absorption Trenches
~~c)~~f) Sand-lined Absorption Trenches ~~There shall be two levels of certification as specified below.~~

(2) PE Designer. Professional engineers ~~General Designer. A General~~ may design any sewage treatment system identified in the Construction Standards. Sewage treatment systems not specifically identified above shall be designed only by a professional engineer. Any system with design flows over 2500 gallons per day must be designed by a Professional Engineer.

NOTE: The Department may require any sewage treatment system to be designed by a Professional Engineer based upon site limitations.

8.2 Certification shall be valid from January 1 through December 31 for the year stated on the Certification and shall be renewable by March 1 of the following year.

8.3 Certifications may be revoked by the Department for the following reasons:

(1) Participating in the installation of a sewage treatment system prior to the issuance of a septic system permit, and/or

(2) Providing false evidence or information to obtain a septic permit.

(3) Inability to provide compliant designs.

8.4 In the event the revocation of Certification is deemed appropriate, the Department shall notify the licensee in writing that the license has been revoked. Reasons for the revocation shall be specified in the letter.

8.5 Appeals to the Board. A designer whose certification has been revoked by the Department may appeal that decision to the Board of Health. After receiving the appeal, the Board shall allow the appellant to present his/her appeal before the Board at its next regularly scheduled meeting, provided that such request is received ~~ten~~ thirty (3~~1~~0) days prior to the scheduled meeting date. At this meeting, the appellant may appear in person, be represented by another person, or may appeal to the Board in writing. The Board shall, within fifteen (15) days after hearing and/or reviewing the appeal, respond to the applicant in writing stating its decision and ~~the~~ reasons ~~therefore.~~ The Board's decision shall be determined as final.

SECTION 9 - Inspection & Operation of Sewage Treatment Systems

9.1 Once a permit for a sewage treatment system has been issued by the Department, ~~for sewage treatment system, the applicant may begin~~ construction of the system may begin. All systems SHALL be inspected by the Department PRIOR to backfilling any portion of said system, unless specific permission has been granted by the Department to backfill a portion of the system. For engineer-designed systems, presence of the design engineer or ~~his~~ representative is mandatory at this inspection. It shall be the responsibility of the applicant, or the applicant's contractor, to notify the Department forty eight (48) hours in advance of the anticipated completion time of the construction of the system for the purpose of arranging a time for inspection. Requests for inspections must be made during normal Department work hours.

9.2 By the issuance of a permit, the owner of the property consents to the re-inspection by the Department of the sewage treatment system during its operational life. This consent shall be binding upon the owner's successors, heirs and assigns in interest. Re-inspections shall be conducted during regular business hours. The purpose of the re-inspection is to determine that the sewage treatment system is operating in compliance with these regulations.

9.3 During the Department's inspection of the sewage treatment system the inspector shall diagram

the distance, dimensions and capacities of all component parts of the system on the Department's copy of the permit ~~application~~ and evaluate the conformity of the construction and operation of the system relative to all provisions of these regulations and the plans and specifications approved for that permit.

9.4 Should the inspector find that any aspect of the construction or operation of a sewage treatment system is not in full compliance with these regulations and/or the plans and specifications filed with the permit, he/she shall describe these deficiencies in detail in writing on the Department's copy of the inspection record. The Department shall then notify the applicant or owner immediately of all deficiencies and require that corrective action be taken. A re-inspection shall be made upon notification by the applicant or the applicant's contractor, as specified in this Section, to ensure that the deficiencies have been corrected and that the system has been brought into compliance with these regulations and/or the specifications of the permit. A re-inspection fee shall be paid prior to final approval. ~~the re-inspection.~~

9.5 The deficiencies as described by the Department must be corrected within fifteen (15) days, unless a longer compliance schedule is approved by the Department. Noncompliance with the above schedule or use of the system shall constitute a violation of these regulations. (See Section 15~~2~~ - Violations, Penalties and Enforcement)

9.6 Final approval for engineer~~-~~designed systems shall not be granted until the design engineer furnishes a complete set of as-built drawings and written certification to the Department that the project was completed as shown~~therein. Information required for the certification shall include that obtained by the engineer during an inspection conducted after final completion of the project~~. The certification and as-built drawings shall be provided to the Department within ~~10~~ 30 days following the final inspection.

9.7 The property owner shall be responsible for proper operation, maintenance and cleaning of the system and/or abatement of any nuisance arising from its failure, unless jurisdiction for responsibility has been transferred to a public, ~~quasi-public~~ or private entity or political subdivision. The issuance of a permit does not constitute assumption by the Department or its employees of liability for the failure of any sewage treatment system nor does it imply any guarantee by the Department that the system will function properly.

9.8 The Board of Health or Department may require the owner of an individual or multi-user sewage treatment system to maintain and submit to the Department records of inspection, maintenance, cleaning and testing performed on the system as deemed necessary by the Board or Department for any system requiring maintenance beyond normal pumping and filter cleaning frequency, for any system designed to treat wastewater that exceeds residential strength, any system that utilizes Level 2 or greater treatment technology, or any system that may not be functioning or being operated properly.

9.9 Sewage treatment systems are designed to accept domestic wastes, not to include toxic chemical wastes, e.g., developing solutions from photographic activity, industrial wastes, wash-down of chemical containers, etc. Water from roof drains, groundwater, surface runoff, gutters, sump pumps, etc., shall not be discharged into a sewage treatment system and should be purposely directed to discharge to locations that will not in any way affect a sewage treatment system or pollute State waters.

NOTE: Gray Water must be treated as sewage and disposed of through an approved sewage treatment system.

SECTION 10 - Minimum Requirements for Class 1 - 3 Sewage Treatment Systems

10.1 General

1) The sewage treatment system shall consist of a sewage conveyance line immediately outside the foundation wall to the septic tank or other approved primary treatment device, possibly an intermediate treatment device and a final effluent treatment system usually consisting of a subsurface absorption field.

2) All effluent treatment systems ~~utilizing~~ using a subsurface absorption field shall employ uniform pressure distribution.

3) Wastewater flows:

a) Residential wastewater flows - ~~Minimum design wastewater flow from a single family living unit in Flathead County is 350 gallons per day and is based on the requirement of a minimum of three (3) bedrooms per living unit. For living units which have more than 3 bedrooms, the design wastewater flow shall be increased by 75 gallons per day per additional bedroom.An unfinished basement will be considered an additi~~Residential wastewater design flow rates must be estimated as follows:

When the number of individual living units on a single or common absorption system is 9 or less, the following table must be used. Sizing is based on individual independent living units, not collective number of bedrooms. Living units will be considered to have three bedrooms unless otherwise notedapproved.

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

An unfinished basement will be considered an additional bedroom.
~~A Guest House or family hardship dwelling unit as defined by the Flathead County Zoning Regulation may be permitted for less than three bedroom wastewater flows. Under certain circumstances the Health Officer may grant a deviation for fewer than three bedrooms.~~

b) Nonresidential wastewater flow

Typical daily flows for a variety of commercial, institutional, and recreational establishments are presented in the Construction Standards. For design purposes, the typical flows must be used as minimum design flows. Greater design flows may be required where larger flows are likely to occur, such as resort areas. Design flow must be computed using the total number of units in the proposed facility times the typical daily flow in the tables~~, with no reduction allowed for occupancy rates~~. Where the system includes several different types of uses from the tables, each use must be computed separately, and the design flow must be based on the sum of all of the uses. A means of flow measurement (such as flow meters or pump run-time meters) may be required.

As an alternative to the flows listed in the tables, design flow may be based on actual water use

data from similar facilities. Because this water use data will typically be monthly averages, the peak design flow must be a minimum of 1.5 times the average flow. System components may be added (or enlarged) to address peak flows to allow drainfields to be sized based on average flow.

4) Upon failure of any portion of a sewage treatment system, the Department may require upgrading of any other portion of the system in addition to the failed component.

5) Installation of an unsealed pit privy is prohibited in Flathead County.

6) Installation and use of a vault toilet (sealed pit privy) shall be limited to serving a structure that does not have water piped into the building.

10.2 Location

1) The location and installation of a sewage treatment system and each part thereof shall be such that, with reasonable maintenance, it will function in a sanitary manner and will not create a nuisance nor constitute a hazard to public health nor endanger the safety of any actual or potential domestic water supply, nor directly enter the waters of the State of Montana. In determining a suitable location of the system, consideration shall be given to the size and shape of the lot, soil conditions, slope of the land, depth to groundwater, proximity to existing and proposed water supplies, existing sewage treatment systems, State waters, depth to bedrock and/or impervious materials and to areas for expansion or replacement of the treatment system.

2) Minimum distances/separations have been established for location of the various component parts of the sewage treatment system and these distances/separations are shown in Table 1.

TABLE 1 - MINIMUM SETBACK AND SEPARATION DISTANCES

FROM:	TO: Septic Tank pump Chamber other Sealed Components (feet	To: Absorption System (feet)
Well (a)	50	100
Public Well/Multi-user well	100	100
100-year Floodplain	5(b)	100
Surface Water (c)	50	100(a)
Foundation Wall	10	10
Water Lines (main)	10	10
Water lines crossing **over** sewer lines	18 inches	Prohibited
Property Lines (d)	10	10
Absorption System	10	---
Slopes in excess of 2535% (h)	10	25
Groundwater Table (e)	(e)	4 (a)(g)
Bedrock (e)	(e)	4 (a)(g)
Impermeable or Impervious Layer (e)	(e)	4 (a)(g)
Subsoil Drains	10	10
Cisterns (a)	25	50

a) Variances to these setbacks will not be considered for new construction.

b) Forcemains for sewage and sewage effluent are excluded with the following conditions:

(i) The fForcemain originates from a septic tank or other approved treatment device and terminates to a drainfield or other approved subsurface soil distribution system in compliance with the minimum setbacks provided in Table 1.

(ii) The forcemain is to be constructed of High-Density Polyethylene (HDPE) Sewer Pipe and must have a pressure rating of at least 200 PSI.

(iii) It is preferable ~~that~~ the pipe not be joined together in the floodplain. If necessary, pipes shall be joined to one another and to HDPE fittings by thermal butt-fusion. Thermal butt-fusion of pipes and fittings shall be performed in strict accordance with procedures recommended by the pipe manufacturer.

(iv) Hydrostatic and leakage testing shall be completed on all constructed forcemains for a minimum period

of 2 hours tested at one and one half times the operating pressure or 60 psi whichever is the greater value. No loss of pressure (less than five psi will be allowed).~~.~~

(c) Surface Water - This distance shall be measured horizontally from the high water mark.

(d) For proposed installations where any portion of the sewage treatment system will be located less than 10 feet from the property line, a written permission must be obtained from the adjoining owners.

(e) Groundwater Table - Depth to groundwater table shall be measured during its highest period of occurrence (high seasonal groundwater level).

(f) The Department may require that special design criteria and construction techniques be utilized when septic tanks, pumping chambers and sealed lines are proposed to be located within two (2) feet of the groundwater table, bedrock, impermeable soils, or extremely coarse soils (gravels).

(g) 4 feet - The separation to groundwater, bedrock and/or impermeable or impervious layer shall be measured from the infiltrative surface.

(h) Allow ~~an engineered level 2~~ trenched drip systems up to a 35% slope.

3) No component of any sewage treatment system shall be located under driveways, parking areas or areas subject to heavy loading and no vehicles shall be driven over the system after installation, except those portions properly installed to accept traffic loads. No component part of any sewage treatment system shall be installed in an area that might later be used for building additions, garages, sheds or other structures that will restrict immediate access to any portion of the system for necessary maintenance and repair. NOTE: No absorption system shall be placed under driveways, roadways, parking areas or areas that may be subject to continued/periodic vehicular traffic, regardless of design and installation. Soil absorption fields shall be adequately protected (e.g., fenced) to prevent trampling by livestock or damage from vehicular traffic.

4) Floodplain: No soil absorption system shall be located within 100 feet of a 100 year floodplain of any river, lake, stream, pond, or watercourse and from any swamp or seep as delineated by the most current Federal Emergency Management Agency (FEMA) floodplain maps available and accepted for use in Flathead County or other method of delineation described in subsection (b).

(a) Where FEMA floodplain maps are available the shaded zones as shown on the map shall generally be considered as a guideline in determining the area within the 100-year floodplain. In those areas where there are questions due to either the scale of mapping or variation in topography, the 100-year floodplain boundary shall be further delineated by obtaining a Letter of Map Amendment through FEMA. Elevations as determined by a licensed surveyor or licensed engineer may be required to verify that the proposed sewage treatment system site meets the location requirements set forth in Table 1.

(b) If any portion of a proposed system is within two thousand (2000) horizontal feet and twenty (20) vertical feet of a live stream draining an area of twenty-five (25) square miles or more and no official FEMA floodplain delineation or floodplain studies of the stream have been made, the applicant shall be requested to furnish a report delineating the base flood elevation of the 100-year floodplain to the Water Resources Division of the Montana Department of Natural Resources and Conservation. After the Water Resources Division has reviewed and approved the report delineating the floodplain, the applicant shall submit it to the Department.

(c) The horizontal setback to the 100-year floodplain may be waived in the event that the sewage treatment system drainfield is a minimum of 100 feet from the river, stream or other water body's average yearly high-water mark and the bottom of the drainfield will be at least two feet above the 100 year base flood elevation as determined by methods described above.

(d) Sewage treatment systems within the 100 year floodplain may be replaced provided all other setback and separation requirements are met. However, if any portion of the applicant's property is located out of the floodplain, the applicant may be required to locate all or a portion of the replacement system in this area.

(e) Replacements of sewage treatment systems within the 100 year floodplain shall be for only what the system has been serving or the use for which the system was permitted. No increase in use shall be allowed.

(f) The unpermitted filling of wetlands (e.g., ponds, watercourses, swamps) or the 100 year floodplain for the purpose of attaining the setback requirements set forth in Table 1 is prohibited.

5) The sewage treatment system shall not be located in any swales or depressions where surface runoff may flow or accumulate. Careful consideration must be made to prevent any accumulation of water over the sewage treatment system by properly landscaping to direct drainage away from the system.

6) The Department may require that special design criteria and construction techniques be utilized when septic tanks, pumping chambers and sealed lines are proposed to be located within two (2) feet of the groundwater table, bedrock, impermeable soils, or extremely coarse soils (gravels).

10.3 Groundwater: If groundwater is within seven (7) feet of the natural ground surface or if there is any reason to believe groundwater will be within seven (7) feet of the ground surface at any time of the year, groundwater monitoring holes shall be provided to a depth of at least eight (8) feet in the area of the absorption field to determine the high seasonal groundwater level (see Section 6 - Denial of Permits).

10.4 Bedrock/Impervious Material - If there is reason to believe that bedrock or other impervious material is within seven (7) feet of the natural ground surface, test holes shall be provided to accurately determine the depth to bedrock or other impervious material.

NOTE: If information is obtained indicating that a four (4) foot separation between the infiltrative surface and high seasonal groundwater, bedrock or other impervious materials cannot be provided in the area of the proposed sewage treatment system, a permit to install a conventional sewage treatment system shall be denied (see Section 6 - Denial of Permits).

10.5 Slope Restrictions - Natural slopes greater than 15% but less than 25 % shall preclude the use of sub-surface sewage treatment systems unless evidence is submitted substantiating that soil and groundwater conditions are such that there will be no visible outflow of liquid downslope from the installation of the sewage treatment system. Such material shall be submitted by an engineer, soils scientist, or geologist.
Natural slopes greater than 32 25% will not be considered for sewage treatment system installation.

10.6 Holding Tanks: As defined in 3.2322, holding tanks will not be considered where new construction is proposed. Their only use will be for replacement of existing systems where current regulations cannot be met and variances cannot be granted due to the potential adverse impact that a sewage treatment system might have on ground or surface waters and/or the health of any person. The only exception to the above rule shall be where connection of the structure shall be made to a public or municipal system within one year of issuance of a temporary permit (see Section 4.8121).

10.7 If it is the finding of the Department that further installation of sewage treatment systems in an area may adversely affect or injure any property, the health or safety of any person, surface or groundwaters, or will conflict with the purposes of these regulations, the Board of Health may restrict, prohibit or impose additional conditions upon the installation of new sewage treatment systems within the affected area.

SECTION 11– Non-discharging ToiletsWaste Segregation and Portable Chemical Toilets

11.1 Non-dischargingWaste segregation toilets such as composting toilets, incinerator toilets and non-portable chemical toilets are acceptable provided design and construction details are supplied to the Department and are found to be acceptable. Gray water shall be treated the same as black water, Section 9.9 of these regulations.

(1)NOTE: Except as provided for in Sections 11.2 and 11.3 below, non-discharging toilets shall be used as part of a waste segregation system.

11.2 Portable chemical toilets are not subject to permitting requirements of these regulations. Portable toilets may be used for temporary events, constructions sites and other locations where permanent wastewater systems are not required. Portable chemical toilets are subject to the same setbacks tos sealed components found in 10.2(2) Table 1. Chemical toilets may not be used to serve as a permanent wastewater system for structures.

11.3 The Department may require the submittal of a permitted septic systemwaste disposal plan meeting the requirements of these regulations when a tent, RV, camper or other temporary living unit is placed in one area for 14 or more days outside of a licensed campground or RV park.

SECTION 12 - Special Districts

Within the limits of its authority, the Board of Health may enter into agreements with County Water and Sewer Districts for the purpose of mitigating public health hazards, improving, protecting and preserving water quality.

SECTION 13 -- Deviations

13.1 The Health Officer may grant deviations from the requirements of the Regulations and Construction Standards in certain circumstances. Deviations from the Regulation and Construction Standard will only be considered for replacement systems.

13.2 A person desiring a deviation shall make a request in writing to the Department along with the application and fee. The request must identify the specific section of the Regulations or Construction Standards to be considered. Adequate justification for the deviation must be provided. "Engineering judgment" or "professional opinion" without supporting data is considered inadequate justification. The justification must address the following issues:

A. The system that would be allowed by the deviation would be no more ~~less~~ likely to cause pollution of state waters than a fully-compliant sewage treatment system meeting all the standards.(75-5-605, MCA); and
B. The granting of the deviation would protect the quality and potability of water for public water supplies and domestic uses and would protect the quality of water for other beneficial uses, including those uses specified in (76-4-101, MCA); and
C. The granting of the deviation would not adversely affect public health, safety, and welfare.
D. Setbacks from groundwater and surface water in Table 1 of Section 10~~9~~.2 must be maintained for all absorption systems (non-sealed components). In no circumstance will waivers to setbacks from absorption systems be considered.

13.3 Department staff will review the request for the deviation and forward the request to the Health Officer for final ~~Department~~ action. The Health Officer may deny the request, or approve the request with or without conditions. The decision of the Health Officer may be appealed to the Board of Health as a variance request.

13.4 The Department shall maintain a file of all deviations.

SECTION 14- Variances and Appeals

14.1 Appeal to the Board of Health: Should a sewage treatment system permit be denied or should any affected person wish to appeal the permit or operation of any part of these regulations, the applicant or appellant may appeal such denial or the affected person may appeal the application or operation of the regulations within thirty (30) days in writing to the Health Officer. The burden of proof shall be placed upon the applicant or appellant to show that the denial of the permit or application or operation of these regulations was contrary to these regulations or based upon incorrect information or incorrect interpretation of information.

(1) The Health Officer shall decide within thirty (30) days whether the denial will be upheld or the appeal granted. Reasons for any decision will be provided to the applicant or appellant in writing.

14.2 Appeal to the Board of Health. Should an appeal to the Health Officer result in a denial of the appeal, the appellant may make an appeal to the Flathead City-County Board of Health. After receiving the appeal, the Board shall allow the appellant to present his/her appeal before the Board at its next regularly scheduled meeting, provided that such request is received thirty(~~10~~30) days prior to the scheduled meeting date. At this meeting, the appellant may appear in person, be represented by another person, or may appeal to the Board in writing.

The Board shall, within thirty~~fifteen~~ (30~~15~~) days after hearing and/or reviewing the appeal, respond to the applicant in writing stating its decision and the reasons ~~therefore~~. The Board's decision shall be determined as final.

14.3 Application for Variance. An application for a variance to these regulations may be made to the Board within sixty (60) days of a denial of an application for a permit. The Health Officer shall receive all applications for variances.

Any person wishing to apply for a variance shall complete an application on forms provided by the Department and shall supply such information to the Flathead County Board of Health or its authorized agent to properly evaluate the proposal. The appropriate fee shall accompany the application.

14.4 The Health Officer shall maintain and be custodian of all records of the Minutes of the Board and findings and decisions of the Board. All records shall be open to the public. ~~An application for a variance shall be in writing.~~

14.5 At least 30~~10~~ days prior to the date of the hearing on the application for a variance, the Health Officer shall transmit a copy of said application to the members of the Board. The Department shall submit its advisory opinion to the members of the Board prior to the date of hearing.

14.6 Conditions Governing Variances: The Board shall have the authority to grant a variance from a requirement of these regulations unless it clearly conflicts with state or federal law.

1) Before any variance can be granted, the Board shall make written findings of fact based upon evidence produced at the public hearing setting forth and showing that the following exist:

(a) granting the variance will not:

(i) contaminate any actual or potential drinking water supply;

(ii) cause a public health hazard as a result of access to insects, rodents, or other possible carriers of disease to humans;

(iii) cause a public health hazard by being accessible to persons or animals;

(iv) violate any law or regulation governing water pollution or wastewater treatment and disposal, including the rules contained in this subchapter except for the rule that the variance is requested from;

(v) Pollute or contaminate state waters, in violation of 75-5-605, MCA;

(vi) degrade state waters unless authorized pursuant to 75-5-303, MCA; or

(vii) cause a nuisance due to odor, unsightly appearance, or other aesthetic consideration;

(b) compliance with the requirement from which the variance is requested would result in undue hardship to the applicant;

(c) the variance is necessary to address extraordinary conditions that the applicant could not reasonably have prevented;

(d) no alternatives that comply with the requirement are reasonably feasible; and

(e) the variance requested is not more than the minimum needed to address the extraordinary conditions.

2) The fact that the property may be used more profitably will not be an element of consideration before the Board.

14.7 In granting any variance, the Board may prescribe conditions and safeguards that insure that the purpose and intent of these regulations shall not be violated. Violation of such conditions and safeguards when made part of the terms under which the variance is granted shall be deemed a violation of these regulations and punishable under Section ~~12~~ 15 "Violations, Penalties and Enforcement". The Health Officer shall notify the applicant in writing that the variance was denied or that the specific variance was granted and any conditions and safeguards that were made part of the terms under which the variance was granted. If a sewage treatment system for which a variance permit has been issued has not been installed, inspected and approved by the Department within 12 months, said variance permit shall expire and be void. The applicant may be required to reapply for a variance.

14.8 Decisions of the Flathead City Board of Health may be appealed to the Montana Department of environmental Quality (75-5-305 MCA, ARM 17.36.924).

SECTION 15- Violations, Penalties and Enforcement

15.1 General Prohibitions - It shall be a violation of these regulations to:

1) Own or operate a malfunctioning sewage treatment system;

2) Install or alter a sewage treatment system without a valid permit or written Departmental approval;

2) Construct or maintain any dwelling or other occupied structure which is not equipped with adequate facilities for the sanitary disposal of sewage;

3) Removed sewage or effluent from a system and disposed of it onto any site which has no prior approval for septage disposal;

4) Violate any provision of these regulations.

15.2 Notice of Violation - If the Department discovers there has been a violation of any provision of these regulations or if the requirements of a sewage treatment system have been willfully violated, the Department shall give notice of such violation to the responsible person(s) ~~or persons~~. Such notice shall be in writing and shall specify any violations. The notice shall spell out the required corrective action and provide a reasonable time for correction, considering the severity of the violation and its public health significance. Service of such notice shall be by ~~means of~~ regular mail and shall be considered complete upon personal service or mailing by the Department. If after the notice has been served, the deficiencies have not been fully corrected to the satisfaction of the Department in the specified time period, the Department shall provide all such information to the County Attorney for appropriate legal action including, but not limited to, action to enjoin the violation.

15.3 Misrepresentation - Any permit or approval granted under these regulations which was based upon misrepresentation, failure to make a material fact or circumstances known or should have been known by the applicant or his agent, shall be void. Any construction, alteration,

repair or use of a sewage treatment system after the permit for said system has been voided shall constitute a violation (see Section 15~~2~~.2).

15.4 Any person who violates any provision of these regulations or any provision of any regulation adopted by the Flathead City-County Board of Health pursuant to the authority granted by this regulation, shall upon conviction be punished by a fine of not less than fifty dollars ($50) or more than five hundred dollars ($500) per day of violation. Each day of violation constitutes a separate offense. The first day of violation shall be the date of the notice of violation.

SECTION 16 - Severability and Conflicts

16.1 Conflict of Ordinances, Effect of Partial Invalidity: In any case where a provision of this regulation is found to be in conflict with a provision of any zoning, building, fire, safety or health regulation or code of the State of Montana, Flathead County, or any municipality within Flathead County, existing on the effective date of this regulation, the provision which, in the judgment of the Board, establishes the higher standard for the protection of the health and safety of the people, shall prevail.

16.2 If any section, paragraph, sentence, clause or phrase of this regulation should be declared invalid for any reason whatsoever, such invalidity shall not affect the remaining portions of this regulation, which shall remain in full force and effect, and to this end, the provisions of this regulation are hereby declared to be severable.

Flathead County

CONSTRUCTION STANDARDS

FOR ~~SUBSURFACE WASTEWATER~~ONSITE SEWAGE

TREATMENT SYSTEMS

Flathead City-County Board of Health

~~Adopted March 15, 2018~~

FOREWORD

These standards, based on demonstrated technology, set forth requirements for the design and preparation of plans and specifications for subsurface wastewater treatment systems.

Users of these standards need to be aware that subsurface wastewater treatment systems are considered by the Environmental Protection Agency to be Class V injection wells and may require associated permits.

These standards are based upon revisions of Department of Environmental Quality (DEQ) Circulars WQB-4, WQB-5, and WQB-6, 1992 Editions, and Circular DEQ-4, 2000, 2002, 2004, and 2009 Editions.

Construction Standards

CHAPTER

1. INTRODUCTION

1.1. APPLICABILITY

1.1.1. General

These minimum standards apply to all subsurface wastewater treatment systems in Flathead County and are to be used in conjunction with the Flathead County Sewage Treatment System Regulation (Regulation).

1.1.1.2 The terms **shall, must,** and **may not** are used where practice is sufficiently standardized to permit specific delineation of requirements or where safeguarding of the public health justifies such definite action. These mandatory items serve as a checklist for the Department. Other terms, such as **should, may, recommended,** and **preferred** indicate desirable procedures or methods. These non-mandatory items serve as guidelines for designers and will not require either deviation by Department or variance by the Flathead City-County Board of Health.

1.1.2. Types of Systems

These Construction Standards describe different types of wastewater treatment and disposal systems for use in subsurface effluent discharge. These systems typically consist of a collection system, septic tank, distribution box, or manifold and a series of subsurface laterals for effluent allocation. All wastewater applied to the subsurface treatment system must meet residential strength parameters. The method and pattern of effluent discharge in a subsurface absorption system are important design elements; distribution of effluent requires uniform pressure distribution or dosing in Flathead County

Uniform pressure distribution accumulates wastewater effluent in a dose tank from which it is periodically discharged under pressure to the subsurface treatment system by a pump. The pretreated wastewater is allowed to accumulate in the dose tank and is discharged "in doses" when a predetermined water level, water volume, or elapsed time is reached. The dose volumes and discharge rates are usually such that much of the subsurface network is filled, resulting in more uniform distribution over the absorption system area. Periods between doses provide opportunities for the subsoil to drain and re-aerate before the next dose. As a result, dosed-flow systems reduce the rate of soil clogging, more effectively maintain unsaturated conditions in the subsoil, and provide a means to manage wastewater effluent applications to the absorption system. Dosing outperforms gravity-flow systems because distribution is more uniform, controlled, and can be used in any application.

The wastewater treatment and disposal systems described by this document include standard absorption trenches, shallow-capped absorption trenches, at-grade absorption trenches, deep absorption trenches, sand-lined absorption trenches, gravelless trenches and other absorption systems, elevated sand mounds, intermittent sand filters, recirculating sand filters, recirculating trickling filters, evapotranspiration absorption systems,

evapotranspiration systems, aerobic wastewater treatment units, chemical nutrient reduction systems, waste segregation systems, subsurface drip systems, gray water systems, and experimental systems. Below is a partial list of system applications intended to assist in problem solving for a particular set of site conditions.

1.1.3. System Uses

1.1.3.1. Deep absorption trenches are used to break through an impervious soil layer and allow effluent to infiltrate a deeper and more permeable soil. The bottom of the trench must not be more than 5 feet below natural ground surface.

1.1.3.2. Shallow-capped absorption trenches and elevated sand mounds are used to achieve the minimum separation distance between the treatment system and a limiting layer.

1.1.3.3. Sand-lined absorption trenches are used for rapid permeability situations.

1.1.3.4. Gravelless trenches and other absorption systems are used in lieu of standard absorption trenches within the limitations provided in these Construction Standards.

1.1.3.5. Subsurface drip systems are used for irrigation and in cases where the standard absorption system shape must be altered due to topography or natural barriers.

1.1.3.6. Gray water irrigation systems are used for irrigation.

1.1.3.7. Intermittent sand filters are used to provide advanced treatment of septic tank effluent prior to application of effluent to the infiltrative surface and are typically used on small wastewater systems.

1.1.3.8. Recirculating sand filters are used to provide advanced treatment of septic tank effluent prior to application of effluent to the infiltrative surface and are typically used on large wastewater systems.

1.1.3.9. Recirculating media trickling filters, aerobic wastewater treatment units, and chemical nutrient reduction systems are used to provide advanced treatment of septic tank effluent prior to final disposal. They also may be used to provide treatment of high strength wastewater.

1.1.3.10. Absorption beds, holding tanks, sealed pit privies, may only be used as specified in the Department's regulations. These systems are not allowed as new systems in subdivisions unless authorized by the regulations. Typically, these systems are used for limited areas, replacement systems, or where other systems cannot be installed.

1.1.3.11. Waste segregation systems are used in areas of limited water availability or as a way to implement water saving measures.

1.1.4 Illustrations and Examples

The images, pictures, examples, and calculations found in this Circular are presented for illustration purposes only and may not include all design requirements. Please refer to the specific rules in this Circular pertaining to each element for details.

1.2 DEFINITIONS

1.2.1. **Absorption area** means that area determined by multiplying the length and width of the bottom area of the disposal trench or bed.

1.2.2. **Absorption bed** means an absorption system that consists of excavations greater than 3 feet in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.

1.2.3. **Absorption system** means any secondary treatment system, including absorption trenches, elevated sand mounds, gray water irrigation, and subsurface drip systems, used for subsurface disposal of pretreated waste effluent.

1.2.4. **Absorption trench** means an absorption system that consists of excavations 18 to 36 inches in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.

1.2.5. **Accessory building** means a subordinate building or structure on the same lot as the main building, which is under the same ownership as the main building, and which is devoted exclusively to an accessory use such as a garage, workshop, art studio, guest house, or church rectory.

1.2.6. **Advanced treatment** means a treatment process that provides effluent quality in excess of primary treatment.

1.2.7. **Aerobic wastewater treatment unit** means a wastewater treatment plant that incorporates a means of introducing air and oxygen into the wastewater so as to provide aerobic biochemical stabilization during detention period. Aerobic wastewater treatment facilities may include anaerobic processes as part of the treatment system.

1.2.8. **Bedrock** means material that cannot be readily excavated by hand tools, material that does not allow water to pass through or material that does not provide for the adequate treatment and disposal of wastewater.

1.2.9. **Bedroom** means any room that is or may be used for sleeping. An unfinished basement is considered an additional bedroom.

1.2.10. **Blackwater** means any wastewater that includes waste from toilets**.**

1.2.11. **BOD_5 (5-day biochemical oxygen demand)** means the quantity of oxygen used in the biochemical oxidation of organic matter in 5 days at 20 degrees centigrade under specified conditions and reported as milligrams per liter (mg/L).

1.2.12. **Building drain** means the pipe extending from the interior plumbing to a point 2 feet outside the foundation wall.

1.2.13. **Building sewer** means the pipe connecting the house or building drain to the public sewer or private sewer.

1.2.14. **Cleanout** means access to a sewer line, extending from the sewer line to the ground surface or inside the foundation, used for access to clean a sewer line.

1.2.15. **Commercial unit** means the area under one roof occupied by a business. For example, a building housing two businesses under one roof is considered two commercial units.

1.2.16. **Composting toilet** means a system consisting of a compartment or a vault that contains or will receive composting materials sufficient to reduce human waste by aerobic decomposition.

1.2.17. **Connection** means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "service connection."

1.2.18. **Design flow** means the flow used for sizing hydraulic facilities, such as pumps, piping, storage, and absorption systems.

1.2.19. **Distribution pipe** means a perforated pipe used in the dispersion of septic tank or other treatment facility effluent into a subsurface wastewater treatment system.

1.2.20. **Dosed system** means any system that utilizes a pump, siphon, or actuated valves to deliver treated effluent to a subsurface absorption area.

1.2.21. **Dosing frequency** means the number of times per day that effluent is applied to an absorption system or sand filter.

1.2.22. **Dosing tank** means a watertight receptacle receiving effluent from the septic tank or another treatment device, equipped with a siphon or a pump designed to discharge effluent.

1.2.23. **Dosing volume** means the volume of effluent, in gallons applied to an absorption system or sand filter each time a pump is activated or each time a siphon functions.

1.2.24. **Drain rock** means the rock or coarse aggregate used in an absorption system, sand filter, or seepage pit. Drain rock must be washed, be a maximum of 2.5 inches in diameter and larger than the orifice size unless shielding is provided to protect the orifice, and contain no more than 2 percent passing the No. 8 sieve. The material must be of sufficient competency to resist slaking or dissolution. Gravels of shale, sandstone, or limestone may

degrade and may not be used.

1.2.25. **Effective size** means the sieve size in millimeters (mm) allowing only 10 percent of the material to pass as determined by wet-test sieve analysis method ASTM C 117-95.

1.2.26. **Effluent** means partially treated wastewater from a primary, advanced, or other treatment facility.

1.2.27. **Effluent filter** means an effluent treatment device installed on the outlet of a septic tank designed to prevent the passage of suspended matter larger than 1/8 inch in size.

1.2.28. **Effluent pump** means a pump used to convey wastewater that has been partially treated from a septic tank or other treatment facility. This wastewater has had settleable or floatable solids removed.

1.2.29. **Ejector pump** means a pump that transports raw sewage.

1.2.30. **Emitter** means orifices that discharge effluent at controlled rates, usually specified in gallons-per-hour (gph). Emitters are typically found in subsurface drip irrigation systems.

1.2.31. **Fats, oils, grease (FOG)** means a component of wastewater typically originating from food stuffs (animal fats or vegetable oils) or consisting of compounds of alcohol or glycerol with fatty acids (soaps and lotions).

1.2.32. **Fill** means artificially placed soil.

1.2.33. **Gray water** means wastewater that is collected separately from a sewage flow and that does not contain industrial chemicals, hazardous wastes, or wastewater from toilets.

1.2.34. **Grease trap** means a device designed to separate fats, grease, and oils from the effluent.

1.2.35. **Grinder pump** means a pump that shreds solids and conveys wastewater through a sewer to primary or advanced treatment.

1.2.36. **High-strength waste** means effluent from a septic tank or other treatment device that has BOD_5 greater than 300 mg/L, TSS greater than 150 mg/L, or fats, oils, and grease greater than 25 mg/L.

1.2.37. **Holding tank** means a watertight receptacle that receives wastewater for retention and does not, as part of its normal operation, dispose of or treat the wastewater.

1.2.38. **Horizon** means a layer in a soil profile that can be distinguished from each of the layers directly above and beneath it by having distinctly different physical, chemical, and/or biological characteristics.

1.2.39. **Impervious layer** means any layer of material that has a percolation rate slower than 240 minutes per inch (mpi).

1.2.40. **Incinerating toilet** means a self-contained unit consisting of a holding tank and an adequate heating system to incinerate waste products deposited in the holding tank. The incineration by-products are primarily water and a fine ash.

1.2.41. **Individual wastewater system** means a wastewater system that serves one living unit or commercial unit. The term does not include a public sewage system as defined in 75-6-102, MCA.

1.2.42. **Industrial wastewater** means any waste from industry or from the development of any natural resource, together with any sewage that may be present.

1.2.43. **Infiltrative surface** means the soil interface that receives the effluent wastewater below the drain rock or sand.

1.2.44. **Influent** means the wastewater flow stream prior to any treatment.

1.2.45. **Irrigation** means those systems that provide subsurface application of wastewater to any planted material by means of a piping system.

1.2.46. **Key** means to hollow out in the form of a groove.

1.2.47. **Limiting layer** means bedrock, an impervious layer, or seasonally high ground water.

1.2.48. **Living unit** means the area under one roof that can be used for one residential unit and which has facilities for sleeping, cooking, and sanitation. A duplex is considered two living units.

1.2.49. **Main** means any line providing water or sewer to multiple service connections, any line serving a water hydrant that is designed for firefighting purposes, or any line that is designed to water or sewer main specifications.

1.2.50. **Manhole** means an access to a sewer line for cleaning or repair.

1.2.51. **Manifold** means a solid (non-perforated) wastewater line that distributes effluent to individual distribution pipes.

1.2.52. **Mottling** or **redoximorphic features** means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.

1.2.53. **Multiple-user wastewater system** means a non-public wastewater system that serves, or is intended to serve, more than two living or commercial units, but which is not a public sewage system as defined in 75-6-102, MCA. The total number of people served may not exceed 24. In estimating the population that will be served by a proposed residential system, the Department shall multiply the number of living units times 2.5 people per living unit.

1.2.54. **Natural soil** means soil that has developed in place through natural processes and to which no fill material has been added.

1.2.55. **Orifice** means an opening or hole through which wastewater can exit the distribution pipe**.**

1.2.56. **Percolation test** means a standardized test used to assess the infiltration rate of soils performed in accordance with Appendix A.

1.2.57. **Plasticity** means the ability of a soil sample to be rolled into a wire shape with a diameter of 3 mm without crumbling.

1.2.58. **Pressure distribution** means an effluent distribution system where all pipes are pressurized and the effluent is pumped, or delivered by siphon, to the next portion of the treatment system in a specific time interval or volume.

1.2.59. **Pretreatment** means the wastewater treatment that takes place prior to discharging to any component of a wastewater treatment and disposal system including, but not limited to, pH adjustment, oil and grease removal, BOD_5, and TSS reduction, screening, and detoxification.

1.2.60. **Primary treatment** means a treatment system, such as a septic tank, that provides retention time to settle the solids in raw wastewater and that retains scum within the system.

1.2.61. **Private sewer** means a sewer receiving the discharge from one building sewer and conveying it to the public sewer system or a wastewater treatment system.

1.2.62. **Professional engineer** means an engineer licensed or otherwise authorized to practice engineering in Montana pursuant to Title 37, Chapter 67, MCA.

1.2.63. **Proprietary system** means a wastewater treatment method holding a patent or trademark.

1.2.64. **Public wastewater system** means a system for collection, transportation, treatment, or disposal of wastewater that serves 15 or more families or 25 or more persons daily for any 60 days or more in a calendar year. In estimating the population that will be served by a proposed residential system, the Department shall multiply the number of living units times 2.5 people per living unit, so that 10 or more proposed residential connections will be considered a public system.

1.2.65. **Qualified site evaluator** means a soils scientist, professional engineer, registered sanitarian, hydro geologist, or geologist, either employed by the Department or not, who has experience and knowledge of soil morphology. Individuals not employed by the Department will be considered qualified after providing evidence of experience describing soils or experience conducting necessary test procedures. The Department shall make the final determination regarding qualification.

1.2.66. **Raw wastewater** means wastewater that has not had settleable solids removed through primary treatment or other approved methods.

1.2.67. **Recreational camping vehicle (RV)** means a vehicular unit designed primarily as temporary living quarters for recreation, camping, travel, or seasonal use, and that either has its own power or is mounted on, or towed by, another vehicle. The basic types of RVs are camping trailer, fifth-wheel trailer, motor home, park trailer, travel trailer, and truck camper.

1.2.68. **Redoximorphic or mottling features** means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.

1.2.69. **Residential strength wastewater** means effluent from a septic tank or other treatment device with a BOD_5 less than or equal to 300 mg/L, TSS less than or equal to 150 mg/L, and fats, oils, and grease less than or equal to 25 mg/L.

1.2.70. **Reviewing authority** means the Flathead City-County Health Department (Department), a local unit of government governed by the Flathead City-County Board of Health that has adopted these standards pursuant to 50-2-116, MCA.

1.2.71. **Scarify** means to make shallow cuts in order to break the surface.

1.2.72. **Seasonally high ground water** means the depth from the natural ground surface to the upper surface of the zone of saturation, as measured in an unlined hole or perforated observation well during the time of the year when the water table is the highest. The term also means the upper surface of a perched water table.

1.2.73. **Septic tank** means a wastewater settling tank in which settled sludge is in immediate contact with the wastewater flowing through the tank while the organic solids are decomposed by anaerobic action.

1.2.74. **Service connection** means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "connection."

1.2.75. **Sewage** is synonymous with "wastewater" for purposes of these Construction Standards.

1.2.76. **Sewer invert** means the inside bottom, or flow line, of a sewer pipe.

1.2.77. **Shared wastewater system** means a wastewater system that serves, or is intended to serve, two living units, two commercial units, or a combination of one living unit and one commercial unit. The term does not include a public sewage system as defined in 75-6-102, MCA.

1.2.78. **Siphon** means a pipe fashioned in an inverted U shape and filled until atmospheric pressure is sufficient to force a liquid from a reservoir in one end of the pipe over a barrier and out the other end.

1.2.79. **Slope** means the rate that a ground surface declines in feet per 100 feet. It is expressed as percent of grade.

1.2.80. **Soil consistence** means attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation or rupture. For the purposes of these Construction Standards consistence includes resistance of soil material to rupture, resistance to penetration, plasticity, toughness, and stickiness of puddled soil material, and the manner in which the soil material behaves when subject to compression. Although several tests are described, only those should be applied which may be useful.

1.2.81 **Soil profile** means a description of the soil strata to a depth of eight feet using the United States Department of Agriculture (USDA) soil classification system method in Appendix B.

1.2.82. **Soil texture** means the amount of sand, silt, or clay measured separately in a soil mixture.

1.2. 83. **Surge tank** means a watertight structure or container that is used to buffer flows.

1.2.84. **Synthetic drainage fabric** means a nonwoven drainage fabric with a minimum weight per square yard of 4 ounces, a water flow rate of 100 to 200 gallons per minute per square foot, and an apparent opening size equivalent to a No. 50 to No. 110 sieve.

1.2.85. **Total Suspended Solids (TSS)** means solids in wastewater that can be removed by standard filtering procedures in a laboratory and is reported as milligrams per liter (mg/L).

1.2.86. **Transport pipe** means the pipe leading from the septic tank or dose tank to the distribution box or manifold.

1.2.87. **Uniformity coefficient (UC)** means the sieve size in millimeters (mm) that allows 60 percent of the material to pass (D60), divided by the sieve size in mm allowing 10 percent of the material to pass (D10), as determined by ASTM C 117-95 (UC=D60/D10).

1.2.88. **Uniform distribution** is a means to distribute effluent into a pressure dosed absorption system or sand filter such that the difference in flow, measured in gallons per day per square foot, throughout the treatment system is less than 10 percent.

1.2.89. **Waste segregation** means a method by which human toilet waste is disposed of through composting, chemical, dehydrating, or incinerator treatment, with a separate disposal method for gray water.

1.2.90. **Wastewater** means water-carried waste including, but not limited to, household, commercial, or industrial wastes, chemicals, human excreta, or animal and vegetable matter in suspension or solution.

1.2.91. **Wastewater treatment system or wastewater disposal system** means a system that receives wastewater for purposes of treatment, storage, or disposal. The term includes all

disposal methods described in these Construction Standards.

1.2.92. **Wet well** means a chamber in a pumping station, including a submersible pump station, where wastewater collects.

2. SITE CONDITIONS

2.1. SITE EVALUATION

2.1.1. General

Information concerning soil and site conditions is needed for the design of subsurface wastewater treatment systems. Elements that must be included in the evaluation are:

A. soil profile descriptions as described in Section 2.1.4;
B. soil permeability determined from soil texture or percolation tests described in Section 2.1.5, if required;
C. depth to ground water, bedrock, or other limiting layer;
D. land slope and topographic position;
E. flooding potential;
F. amount of suitable area available; and
G. setback distances required in ARM Title 17, Chapter 36, subchapters 3 or 9, as applicable.

2.1.2. System Evaluation

A qualified site evaluator as defined in 1.2.65 shall conduct a site evaluation in the location of each proposed system. If the site evaluation is not conducted by individuals directed by the Department, a review of the site evaluation shall be conducted by the Department. The Department is not obligated to accept information from a qualified site evaluator that is not an employee of the Department unless prior authorization is granted.

2.1.3 Existing Soil Information

Soil surveys are usually found at the local USDA Natural Resources Conservation Service (NRCS) office or through the USDA WebSoil Survey website. Soil surveys offer good preliminary information about an area and can be used to identify potential problems, however, they cannot substitute for a field investigation.

2.1.4 Soil Profile Description

Soils must be described in accordance with Appendix B.

Soil profiles within 25 feet of the boundaries of the proposed absorption system and its replacement area are required. Soil pits should be located outside the boundaries of the proposed absorption system so that they do not act as a conduit for effluent between soil horizons. The number and depth of soil pit descriptions for a subsurface wastewater treatment system must comply with the requirements of ARM Title 17, Chapter 36, subchapter 3 or 9, as applicable.

For proposed primary and replacement absorption systems that are not located in the same

immediate area, a soil profile may be required for each proposed absorption system area. The minimum depth of soil profile descriptions must be 8 feet unless a limiting layer is encountered at a shallower depth. If a limiting layer is encountered at less than 8 feet in the soil profile or if the site is in an area where bedrock outcroppings exist, the Department may require one soil profile at each end of both the absorption system and the replacement area to ensure adequate depth of soil. The soil profile may need to be completed to a greater depth to demonstrate compliance with other applicable rules.

2.1.4.1. Soil Properties

The following soil properties must be evaluated and reported by a qualified site evaluator in accordance with these Construction Standards to the full depth of the hole:

A. thickness of each layer or horizon needs to be described;
B. texture, structure, and consistence of soil horizons;
C. color (preferably described by using the notation of the Munsell color scheme) and color variation (redoximorphic features);
D. depth of water, if observed;
E. estimated depth to seasonally high ground water and basis for the estimate;
F. depth to and type of bedrock or other limiting layer, if observed;
G. stoniness reported on a volume basis (i.e., the percentage of the soil volume occupied by particles greater than 2 mm in diameter);
H. plasticity; and
I. other prominent features such as roots, etc.

2.1.5. Percolation Tests or Infiltrometer Tests

The Department may require percolation tests when the soils are variable or other conditions create the need to verify system sizing.

Percolation tests, if required, must be conducted at the approximate depth of proposed construction. For elevated sand mounds and at-grade systems, the depth of the percolation test hole must be 12 inches. Additional percolation tests may be required to determine the existence of a limiting layer. The percolation tests must be performed in accordance with the procedures contained in Appendix A.

When more than one percolation test is conducted within the boundaries of a proposed absorption system, the percolation rate will be determined based on the arithmetic mean of percolation test values within the boundaries of the proposed absorption system.

2.1.6. Suitable Area Evaluation

The size of the site and the amount of suitable area must be evaluated in conjunction with the size of the proposed subsurface wastewater system and locations of other features requiring a minimum separation distance.

2.1.7. Application Rates

Table 2.1-1 and the soil descriptions outlined in Appendix B must be used to determine application rates for subsurface wastewater treatment systems.

TABLE 2.1-1
Soil Texture Descriptions are found in Appendix B

Texture	Percolation Rate (minutes per inch)	Application rate (gpd/ft^2) (a)
Gravel, gravelly sand, or very coarse sand (b)	<3	0.8
Loamy sand, coarse sand	3-<6	0.8
Medium sand, sandy loam	6- <10	0.6
Fine sandy loam, loam	10- <16	0.5
Very fine sand, sandy clay loam, silt loam	16-<31	0.4
Clay loam, silty clay loam	31-<51	0.3
Sandy clay	51-<121	0.2
Clays, silts, silty clays (c)	121- <240	0.15
Clays, silts, silty clays (d)	>240	Additional Soil Information Required

(a) Comparison of the soil profile report, percolation rate, and USDA-NRCS soils report should be reviewed. If the information shows a variable application rate, additional site specific information may be required by the Department.

(b) Systems installed in gravel or coarser textured soils with percolation rates faster than 3 mpi must be sand lined.

(c) Percolation tests must be conducted in accordance with Appendix A.

(d) Soils with initial percolation rates greater than 240 mpi must be reevaluated using the double-ring infiltrometer procedure outlined in ASTM D 5093-02. Systems may be proposed for these soils only if the double-ring infiltrometer procedure shows a percolation rate of 240 mpi or less. All calculations and results must be reported to the Department.

2.1.8. Site Factors

The land slope, potential for flooding, and amount of suitable area must be evaluated.

2.1.8.1. Type and Percent of Land Slope

The type (concave, convex, or plane), percent, and direction of land slope must be reported along with the method of determination. The Department may require a 2-foot contour map of the area for sites having slopes exceeding 15 percent within 25 feet of the absorption system or replacement area.

2.1.8.2. Flooding and Surface Water

The potential for flooding or accumulation of surface water from storm events must be evaluated. Floodplain maps, when available, must be included as part of the evaluation.

2.1.8.3. Ground Water and Surface Water Quality Impact

Compliance with the nondegradation requirements of the Montana Water Quality Act (75-5-101, et seq., MCA) must be demonstrated.

2.1.8.4. Ground Water Observation

When required, ground water observation must be conducted in accordance with Appendix C.

2.1.9. Site Evaluation Reporting

Any person performing a site evaluation on a parcel shall submit to the Department all data and locations of all test holes and percolation tests performed on the parcel.

2.2. SITE MODIFICATIONS

2.2.1. General

Site modifications, as described in Sections 2.2.2, 2.2.3, and 2.2.4 of this Subchapter, may be used only for replacement of failing systems. Site preparation for cut and fill modifications must be completed prior to final approval. Minor leveling, as described in Section 2.2.5 of this Subchapter, will be allowed for both new systems and replacement systems. All new and replacement subsurface wastewater treatment systems must meet the requirements of these Construction Standards unless a deviation or variance is granted.

2.2.2. Artificially Drained Site

Artificially drained site modifications may be used only for the replacement of failing systems and may not be used for new systems.

Prior to construction of any site drainage system such as a field drain, under drain, or vertical drain, an evaluation of the site must be performed including soil profile descriptions, slope, depth to bedrock or other impervious layer, estimation of depth to seasonally high ground water, topography, distance to wells, seeps, streams, ponds, or other open water, and any other pertinent considerations.

2.2.2.1. Design of Drain System

The drainage method chosen (curtain drain, vertical drain, or under drain) and the reason for this choice must be detailed. Drawings showing dimensions of the drain system and materials to be utilized must be provided.

The drainage system must be constructed according to the specific design approved by the Department.

2.2.2.2. Depth to Ground Water

The type of wastewater treatment system to be approved must depend upon the depth to seasonally high ground water. A minimum of 4 feet of natural soil from the bottom of the infiltrative surface to the seasonally high ground water must be achieved by the site drainage system. An adequate horizontal separation distance must be maintained between the drain and the absorption system to reduce the potential for effluent to enter the drain.

2.2.2.3. Depth to Ground Water Observation

The Department may require observation of the depth to seasonally high ground water after installation of the drainage system.

2.2.2.4. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required, prior to approval by the Department. The operation and maintenance plan must meet the requirements in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

2.2.3. Cut Systems

Cut systems may be used only for the replacement of failing systems and may not be used for new subsurface wastewater treatment systems. Site modification for replacement subsurface wastewater treatment systems must be completed prior to approval by the Department.

2.2.3.1. Limiting Layer

A minimum of 4 feet of natural soil from the bottom of the infiltrative surface to a limiting layer must be maintained.

2.2.3.2. Design

A. Cut areas for the replacement absorption system must be physically completed prior to approval. Two soil test holes must be excavated and detailed soil profile descriptions of the final receiving soils must be provided prior to excavation. Percolation tests may be required after the cut has been completed. All soil information must be submitted to the Department.
B. A complete lot layout must be submitted showing the cut areas, the uphill and downhill slope, and slope across the cut area. Slope across the absorption system site must be a uniform slope.
C. Cut systems will only be considered on slopes that do not exceed 25 percent and where downhill slope below the cut area is not greater than 25 percent.

2.2.3.3. Certification and As-builts

The designer shall submit a letter of verification indicating that the site meets minimum requirements of this Construction Standard after the cut has been completed. Certification and as-builts are required in accordance with Appendix D.

2.2.4. Fill System

Fill systems may be used only for replacement of existing failed systems and may not be used for new subsurface wastewater treatment systems. The Department must initially approve the fill location with the site modification completed prior to final system approval. Fill areas for replacement absorption systems must be physically completed prior to approval by the Department.

2.2.4.1. Location

A. The entire area necessary for the replacement absorption system must be filled prior to final approval of the system.
B. Fill systems may not be installed on soils with a percolation rate slower than 60 mpi. Side slopes on the fill may not exceed 25 percent (4:1).

2.2.4.2. Fill Restrictions

A minimum of 4 feet of natural soil from the bottom of the infiltrative surface of the subsurface absorption system to a limiting layer must be maintained. Fill cannot be used to overcome minimum vertical or horizontal separation distances.

2.2.4.3. Fill Material

Soils used for fill may not be finer than sandy loam with a maximum of 20 percent passing the No. 100 sieve.

2.2.4.4. Design

A. System configuration dimensions and orientation must be submitted in a design report. The design report and drawings must be approved by the Department prior to the placement of fill material.
B. Three percolation tests evenly spaced across the completed fill must be performed at the depth of the proposed infiltrative surface as a basis for design application rate.
C. The absorption system must be sized on the basis of the percolation rate for either the soil beneath the fill material or the percolation rate of the fill material, whichever is slower.

2.2.4.5. Construction

A. All vegetative cover must be removed from the area to be filled.
B. Fill material must not be put in place when the fill or the original soil surface is frozen.
C. Fill material must be placed in lifts and compacted as specified in the design report so that stable soil structure conditions are achieved.
D. Absorption systems must be set back at least 25 feet from the lower edge of the filled area on slopes of 6 percent or greater. For slopes less than 6 percent, absorption systems must be set back at least 10 feet on all sides prior to starting the side slope.
E. The fill area must be seeded with a suitable grass to aid in stabilization.

2.2.4.6. Certification and As-builts

Certification and as-builts are required in accordance with Appendix D.

2.2.5. Minor Leveling

Minor leveling is limited to sites with a natural ground slope of 15 percent or less. A parcel may undergo minor leveling by cutting and/or filling of the natural ground surface up to and no more than a 12-inch depth.

Soil that has undergone minor leveling will not be considered natural soil and all vertical depth requirements must be met.

A minimum of 4 feet of natural soil from the bottom of the infiltrative surface to a limiting layer must be maintained.

The Department may require a detailed site plan of the area proposed for minor leveling showing the contours and other pertinent land features, both before and after minor leveling.

3. WASTEWATER

3.1. WASTEWATER FLOW

3.1.1. General

The purpose of this chapter is to provide a method for estimating wastewater flows. Subsurface wastewater treatment system flow rates, in gallons per day (gpd), are based on type of use, size of the home, including number of bedrooms, or number of people. The agreements and easements for shared, multi-user, or public subsurface wastewater treatment systems, as required in ARM 17.36.326 must be met.

3.1.2. Residential wastewater design flow rates must be estimated as follows:

A. When the number of individual living units on a single or common absorption system is 9 or less, the following table must be used. Sizing is based on individual independent living units, not collective number of bedrooms. Living units will be considered to have three bedrooms unless otherwise approved.

1 bedroom	~~200~~ 150 gpd
2 bedrooms	~~275~~ 225 gpd
3 bedrooms	~~350~~ 300 gpd
4 bedrooms	~~425~~ 350 gpd
5 bedrooms	~~500~~ 400 gpd
Each additional bedroom	add ~~75~~ 50 gpd

B. When the number of living units on a single or common absorption system is 10 or more, the design flow rate per living unit may be reduced to 100 gpd per person. An average of 2.5 persons per living unit must be used to calculate total design flow unless the Department determines that a larger per-living-unit average is appropriate for a given project.

Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

3.1.3. Nonresidential Wastewater Flow

Typical daily flows for a variety of commercial, institutional, and recreational establishments are presented in this section.

The Department may require that nonresidential establishments demonstrate that the

wastewater meets residential strength standards or complies with the requirements of Subchapter 3.2.

For design purposes, the typical flows must be used as minimum design flows. Greater design flows may be required where larger flows are likely to occur, such as resort areas. Design flow must be computed using the total number of units in the proposed facility times the typical daily flow in the tables, with no reduction allowed for occupancy rates. Where the system includes several different types of uses from the tables, each use must be computed separately and the design flow must be based on the sum of all of the uses. A means of flow measurement, such as flow meters or pump run-time meters, may be required.

As an alternative to the flows listed in the tables, design flows may be based on actual water use data from similar facilities. If daily flows are used, the design flow must be 1.1 times the highest daily flow. If monthly averages are used, the peak design flow must be a minimum of 1.5 times the average flow of the highest month. The water use data must be representative of the facility proposed and for a time period adequate to evaluate annual use of the system. System components may be added or enlarged to address peak flows to allow absorption systems to be sized based on average flow.

For expansions of existing systems, the Department may approve the use of actual water use data to determine appropriate flows.

TABLE 3.1-1
TYPICAL WASTEWATER FLOWS FROM
COMMERCIAL, INDUSTRIAL, AND OTHER NONRESIDENTIAL SOURCES

Source	Unit	Wastewater Flow, gpd/unit Range	Typical
Airport	Passenger	2-4	3
Automobile Service Station	Vehicle Served	7-13	10
	Employee	9-15	12
Bar	Customer	5	3
	Employee	10-16	13
Church	Seat		3
(Not including a kitchen, food service facility, daycare, or camp)			
Church	Seat		5
(Including kitchen, but not including a food service facility, day care, or camp)			
Daycare	Child	10-30	25
	Employee	10-20	15
Department Store	Toilet Room	400-600	500
	Employee	8-12	10
Hospital, medical	Bed	125-240	165
	Employee	5-15	10
Hospital, mental	Bed	75-140	100
	Employee	5-15	10
Hotel/Motel	Guest	40-56	48
	Employee	7-13	10
Industrial Building	Employee	10-16	13
(Sanitary waste only)			
Laundry	Machine	450-650	580
(Self-serve)	Wash	45-55	50
Office	Employee	7-16	13
Prison	Inmate	75-150	115
	Employee	5-15	10
Rest home	Resident	50-120	85
Restaurant	Meal	2-4	3
School, day:			
With cafeteria, gym, showers	Student	15-30	25
With cafeteria only	Student	10-20	15
Without cafeteria, gym, showers	Student	5-17	11
School, boarding	Student	50-100	75
Shopping Center	Parking Space	1-2	2
	Employee	7-13	10
Store	Customer	1-4	3
	Employee	8-12	10

TABLE 3.1-2
TYPICAL WASTEWATER FLOWS FROM RECREATIONAL FACILITIES

Source	Unit	Wastewater Flow, gpd/unit Range	Typical
Apartment, resort	Person	50-70	60
Bed and Breakfast	Person	20-40	40
Cabin, resort	Person	8-50	40
Cafeteria	Customer	1-3	2
	Employee	8-12	10
Campground (developed)	Person	20-40	30
Cocktail lounge	Seat	12-25	20
Coffee shop	Customer	4-8	6
	Employee	8-12	10
Country club	Member (present)	60-130	100
	Employee	10-15	13
Day camp (no meals)	Person	10-15	13
Dining hall	Meal served	4-10	7
Dormitory, bunkhouse	Person	20-50	40
Hotel/Motel, resort	Person	40-60	50
Store, resort	Customer	1-4	3
	Employee	8-12	10
Swimming pool	Customer	5-12	10
	Employee	8-12	10
Theater	Seat	2-4	3
Visitor center	Visitor	4-8	5
Recreational Vehicles without individual hookups for water or sewer	Space		50
Recreational Vehicles with individual hookups for water and/or sewer	Space		100

3.2. HIGH STRENGTH WASTEWATER

3.2.1. General

Nonresidential establishments may have the potential to produce wastewater considered high-strength. Elevated levels of BOD_5, TSS, and FOG will reduce the effectiveness of onsite wastewater treatment systems by increasing the biological demand on downstream components in the system, by containing inorganic compounds that are not easily broken down, and by accelerating mechanical clogging of the infiltrative surface. These establishments often produce effluent with variations of flow including intermittent, seasonal, or sporadic peak events.

The Department may require that nonresidential establishments demonstrate that the wastewater meets residential strength standards or complies with the requirements of this subchapter.

Nonresidential establishments are listed in Section 3.1.3, Table 3.1-1, 3.1-2 and may also include, but are not limited to:

Athletic facilities	Manufacturing facilities
Bakeries	Nursing homes
Beauty shops/nail salon	Rest areas
Breweries	Restaurants
Car washes	RV dump stations
Food service/processing facilities	Schools
Funeral homes and crematoriums	Tanneries
Facilities with separate gray water plumbing	Veterinarian clinics
Hobby woodworking shops or art studios	

Nonresidential structures or establishments that produce or contain any industrial or chemical components may be required to obtain a Montana ground water pollution control system permit regardless of system size.

3.2.2. Wastewater strength

Systems, accepting wastewater not treated to the following levels, must comply with this section prior to final disposal in a subsurface absorption system. Other conditions of system approval may be required by the Department.

A. BOD_5 less than or equal to 300 mg/L;
B. TSS less than or equal to 150 mg/L; and
C. FOG less than or equal to 25 mg/L

3.2.2.1. BOD_5 or TSS

All wastewater must meet residential waste standards for BOD_5 and TSS. The Department may impose additional requirements on systems with low BOD_5 levels

where compliance with the Water Quality Act and nondegradation of state waters is a concern.

3.2.2.2. Fats, Oils, and Grease (FOG)

Restaurants, nonresidential kitchens, or other facilities that have FOGs greater than 25 mg/L must include a grease tank or other treatment system approved by the Department in their design. This treatment must occur prior to wastewater entering the septic tank.

A. Grease Tanks

1. Grease tanks must be sized based upon the daily design flow estimates in this chapter, with the minimum acceptable tank size being 1,000 gallons. Grease tanks must provide a minimum of 24 hours of holding time to allow FOGs to cool and separate out of emulsion. Establishments that experience surge loading must provide larger grease tanks designed for longer holding periods.
2. Grease tanks must be constructed in accordance with Section 5.1.7.
3. Grease tanks must have sanitary Ts on the inlet and sanitary Ts or baffles on the outlet. The baffles must extend down from the top of the tank with the openings near the bottom. The chamber between the baffles must be sized to contain the expected FOG volume between pumping periods.
4. Wastewater from all food preparation and clean-up areas must be plumbed separately into the grease tank. Cross connections with blackwater sewers is not allowed.
5. Effluent from the grease tank must be plumbed into the septic tank.

B. Other treatment systems designed to treat FOGs will be reviewed on a case-by-case basis.

3.2.3. A design report must be submitted along with plans and specifications including:

3.2.3.1. A statement describing the type of business or industry and the end products and byproducts that will be disposed of in the wastewater system; and

3.2.3.2. Description, plans, and specifications that detail the treatment of the high strength wastewater.

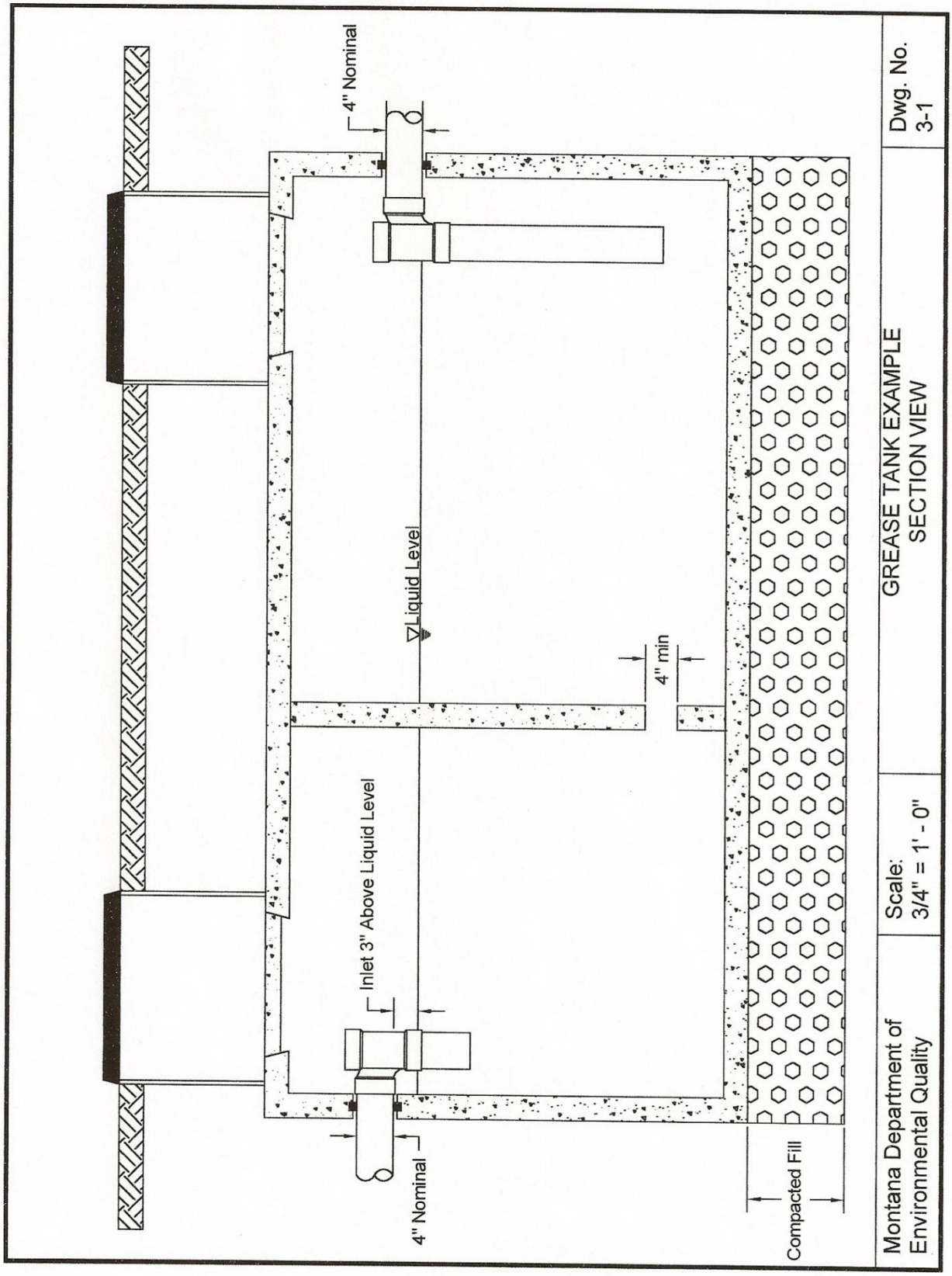
3.2.4. Operation and Maintenance, Certification, and As-builts

All high strength wastewater treatment systems must submit an operation and maintenance plan in accordance with Appendix D and this chapter. Certification and as-built plans are required in accordance with Appendix D.

3.2.4.1. The operation and maintenance plan must include procedures for each component

of the wastewater treatment system. Material Safety Data Sheets (MSDS) for chemicals used, as well as a perpetual contract for operation and maintenance of the system must be included.

3.2.4.2. Sampling records, when required, must be kept on site and made available to the Department upon request.


4" Nominal
Liquid Level
4" min
Inlet 3" Above Liquid Level
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
GREASE TANK EXAMPLE
SECTION VIEW
Dwg. No. 3-1

3.3. WATER TREATMENT WASTE RESIDUALS

3.3.1. General

Wastewater from ion exchange water treatment systems, water softening treatment systems, demineralization water treatment systems, or other water treatment systems that produce a discharge may be disposed using an onsite wastewater treatment absorption system. A Montana Ground Water Pollution Control System permit and nondegradation analysis may be required.

3.3.2. Water Softener Discharges

The wastewater (backwash) from water softeners may be discharged to a wastewater treatment system only if the installed water softener:

A. regenerates using a demand-initiated regeneration control device; and
B. is connected only to interior plumbing for potable water usage and not to exterior irrigation water lines.

3.3.3. Discharges to Experimental and Proprietary Systems

Wastewater from ion exchange water treatment systems, water softening treatment systems, demineralization water treatment systems, or other water treatment systems that produce a discharge may not be discharged into an experimental, or proprietary on-site wastewater treatment system, unless the quality and quantity of discharge meets the recommended usage, operation, and maintenance specifications of the designer or manufacturer of the system. If such specifications are not available, then approval for the discharge must be obtained from the Department.

3.3.4. Discharges to Approved Systems

Wastewater from ion exchange water treatment systems, water softening treatment systems, demineralization water treatment systems, or other water treatment systems that produce a discharge may be discharged to a separate drainfield, other approved absorption system, or into the ground, if not prohibited by other rules or regulations.

3.3.5. Operation and Maintenance Plan

An operation and maintenance plan for all components of the water treatment and subsurface wastewater treatment systems must be submitted in accordance with Appendix D.

3.3.6. Other Requirements

The Department may require that water treatment residuals be disposed in a separate subsurface wastewater treatment system unconnected to the system for the disposal of sanitary wastewater.

4. COLLECTION, PUMPING, AND EFFLUENT DISTRIBUTION SYSTEMS

4.1 COLLECTION SYSTEMS

4.1.1. General

4.1.1.1. Sewer collection systems, as described in this subchapter, are the system of pipes and other appurtenances that receive and convey wastewater or effluent either by gravity or through force mains to a treatment system. This subchapter discusses sewer service connections, gravity mains, force mains, alternative collection systems, and necessary setbacks.

4.1.1.2. Sewer collection systems, including sewer service lines and sewer mains, must maintain the setback distances required in the Regulation.

4.1.1.3. Sewer collection systems that include inverted siphons or those to be constructed near stream crossings, at water main crossings, or with aerial crossings must be designed in accordance with Department of Environmental Quality Circular DEQ-2.

4.1.1.4. Sewer collection systems must be designed for wastewater only. Rain water from roofs, streets, and other areas; cooling water, surface water drainage, ground water from foundation drains, etc., are not permitted in wastewater sewers.

4.1.1.5. In general, flow used for designing sewers must consider the ultimate population to be served, maximum hourly wastewater flow, and possible infiltration. Sewer extensions should be designed for projected flows even when the diameter of the receiving sewer is less than the diameter of the proposed extension. A schedule for future downstream sewer relief may be required by the Department.

4.1.1.6. Sewer collection systems must be designed to prevent freezing. The minimum depth of bury must not be less than 4 feet to the top of the pipe without justification by the designer. Insulation must be provided for sewers that cannot be placed at a depth sufficient to prevent freezing. Insulation used for this purpose must be specifically designed to withstand compaction and for use in subsurface locations. It must retain the insulating value for the design life of the sewer.

4.1.1.7. Schedule 40 PVC sewer pipe must be used leading into the septic tank, and in the area of backfill around the tank for a minimum length of at least 10 feet. Other sewer collection pipes must be made of PVC or High Density Polyethylene (HDPE).

A. PVC sewer pipes must meet the requirements of ASTM D 3034-08, Schedule 40, or Schedule 80 and meet ASTM D 1785-12. Sewer collection pipes must be joined by an integral bell-and-spigot joint with rubber

elastomeric gasket or solvent cement joints. When using ASTM D 3034-08, rock-free bedding is required.

B. HDPE sewer pipe must meet the requirements of ASTM D 3350-12, must meet the minimum cell classification of 435400C as defined and described in ASTM D 3350-12, and must be joined by an integral bell-and-spigot joint with rubber elastomeric gasket or butt fusion weld.

4.1.1.8. Transition connections to other materials must be made by adapter fittings or one-piece molded rubber couplings with appropriate bushings for the respective materials. All fittings must be at least of equivalent durability and strength of the pipe itself.

4.1.1.9. Sewer collection pipes must be installed at a uniform slope.

4.1.1.10. Buoyancy of sewer collection systems including pipes, and manholes must be considered and flotation of the component must be prevented with appropriate construction where high ground water conditions are anticipated.

4.1.1.11. Installation specifications must contain appropriate requirements based on the criteria, standards, and requirements established by the industry in its technical publications. Requirements must be set forth in the specifications for the methods of bedding and backfilling the pipe. See ASTM D 2321-11 with respect to PVC pipe installation, when appropriate.

4.1.2. Sewer Service Connections

4.1.2.1. Sewer service connections from the structure to the septic tank must be at least 4 inches in diameter and must be placed at a minimum slope of 1/4 inch per foot toward the point of discharge unless pressurized.

Sewer service connections that are greater than 4 inches in diameter must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2.

4.1.2.2. Sewer service connections should be sufficiently deep to receive wastewater from basements.

4.1.2.3. Cleanouts are recommended within 3 feet of the building, at angles greater than 45 degrees, and for continuous pipe runs greater than 150 feet in length.

4.1.2.4. Sewer service connections to the sewer main must be watertight and may not protrude into the sewer. If a saddle-type connection is used, it must be a device intended to join with the types of pipe that are to be connected. All materials used to make service connections must be compatible with each other and with the pipe materials to be joined. All materials must be corrosion-proof.

4.1.3. Gravity Sewer Mains

4.1.3.1. Gravity sewer mains conveying raw wastewater must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2, except where modified by this section. They must be at least 8 inches (203 mm) in diameter, except gravity sewer mains used within private property, trailer courts, condominiums, apartments, etc., are allowed mains no smaller than 6 inches in diameter, provided that the 6-inch diameter main can be shown to be hydraulically feasible, that no future expansion is anticipated, and that maintenance will not be increased due to the smaller diameter.

Gravity sewer mains conveying effluent must be at least 4 inches in diameter and must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2.

4.1.3.2. Manholes must be installed at the end of each sewer line, at all grade, size, or alignment changes, at all intersections, and at distances not greater than 400 feet (122 m) for sewers 15 inches (381 mm) or less in diameter and 500 feet (152 m) for sewers 18 inches (457 mm) to 30 inches (762 mm) in diameter. Greater spacing may be permitted in larger sewers at the discretion of the Department.

Distances up to 600 feet (183 m) may be approved where cleaning equipment for the stated spacing is provided. Documentation must be provided that such cleaning equipment is readily available and has the cleaning capability stated.

Manholes must be constructed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2.

Cleanouts may be used only for special conditions and may not be substituted for manholes or installed at the end of laterals greater than 150 feet (46 m) in length.

Cleanouts may not be used in place of manholes on mains of public wastewater systems conveying raw wastewater, but may be used in place of manholes on lines conveying septic tank effluent. For systems conveying septic tank effluent, manholes or cleanouts must be located at major junctions of 3 or more pipes and should be limited to strategic locations for cleaning purposes.

4.1.4. Force Mains (Pressurized Sewers)

Force mains must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2

The forcemain from the pump to a minimum of five (5) feet beyond the pump chamber shall be schedule 80 PVC, or an approved equal. A quick disconnect device shall be provided in the forcemain for pump removal and must be accessible without the need for entering the chamber. From five (5) feet beyond the dosing chamber to the drainfield site, the forcemain shall consist of Class 160 or 200 PVC, Schedule 40 PVC or other pipe of equivalent strength and durability which is acceptable to the Department. Forcemains shall

be bedded (six (6) inches above and below the pipe) in pipe bedding sand or other fine grained soil free of gravel over one (1) inch in size. Debris, frozen material, large clods, stones (greater than 8 inches in diameter), organic material or other unsuitable materials shall not be used for backfill within 24 inches of the top of the pipe. Compaction under and around the pipe shall be sufficient to prevent movement of the pipe due to settlement.

Forcemains shall be designed so that damage from frost or vehicles will not occur.

4.1.5. Alternative Collection Systems, Certification, and As-builts

Alternative wastewater collection systems must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2. This would include grinder pump systems, septic tank effluent pump systems, and small diameter gravity systems. Certification and as-built plans are required in accordance with Appendix D.

4.2. PUMPING SYSTEMS

4.2.1 General

This subchapter describes pumping systems and appurtenances for both raw wastewater and effluent.

Buoyancy must be considered and flotation of pumping systems prevented with appropriate construction where high ground water conditions are anticipated.

Pumping systems must maintain the setback distances required in the Regulations.

4.2.2. Raw Wastewater Pumping Stations, Certification, and As-builts

4.2.2.1. Wastewater pumping stations receiving raw wastewater that has not had settleable solids removed and that have design flow rates of 5,000 gpd or greater must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2. Certification and as-built plans are required in accordance with Appendix D.

4.2.2.2. Wastewater pumping stations receiving raw wastewater that has not had settleable solids removed and that have design flow rates less than 5,000 gpd must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2, with the following exceptions:

A. Pumps must be capable of passing spheres of at least 2 inches in diameter, or grinder pumps capable of handling raw wastewater must be provided.
B. Submersible pumps and motors must be designed specifically for totally submerged operation and must be submerged at all times.
C. Multiple pumps are not required.
D. Pump suction and discharge piping may be less than 4 inches in diameter.

E. A 4-inch pump is not required.
F. The discharge line must be sized to provide a minimum velocity of 2 feet per second.

Certification and as-built plans are required in accordance with Appendix D.

4.2.3. Effluent Pumping Stations

Effluent pumping stations process partially treated wastewater from a primary, advanced, or other treatment facility. The intent of effluent pumping stations is the distribution of effluent to a receiving component.

4.2.3.1. Wastewater pumping stations must be provided with effluent pumps, controls, and wiring that are corrosion-resistant and listed by Underwriters Laboratories, Canadian Standards Association, or other approved testing and/or accrediting agency as meeting the requirements for National Electric Code (NEC) Class I, Division 2 locations. An audible or visible alarm must be provided to indicate high water levels.

In lieu of meeting the requirements for NEC Class 1, Division 2 locations, pumping stations receiving effluent from 5 or less living units, those stations vented in accordance with the requirements of Chapter 40 of Department of Environmental Quality Circular DEQ-2, or advanced treatment effluent pumping units that are preceded by a septic tank, may use submersible pumps and motors designed specifically for totally submerged operation with controls and wiring that are corrosion-resistant.

4.2.3.2. Effluent pumping stations must be designed in accordance with the requirements of Department of Environmental Quality Circular DEQ-2.

4.2.3.3. Pressure Distribution - Pumping Stations Used with Subsurface Absorption Systems

A. The intent of uniform distribution of effluent is the delivery of effluent to a manifold for pressure distribution to a subsurface wastewater treatment system.
B. The effective length of the absorption area is the actual length of the trench or bed, calculated prior to any applied reductions. The effective length cannot exceed the length of the pipe by more than one-half the orifice spacing.
C. Pressure distribution may be accomplished with either pumps or siphons, which must be sized for the distribution system. Justification for the pump or siphon model selected must be included for review.
D. The dose volume of a pressure distribution system must be equal to the drained volume of the transport pipe and manifold, plus a volume that should be 5 to 10 times the net volume of the distribution pipe. Where the system is designed to operate on a timer, more frequent, smaller doses may

be used. The minimum dose volume must be equal to the drained volume of the transport pipe and manifold, plus a volume equal to at least 2 times the distribution pipe volume. Where timers are used, additional controls are necessary to prevent pump operation at low-water level.

E. The pressure distribution pipe must be at least Class 200 or Schedule 40 PVC or high density polyethylene (HDPE) with a minimum pressure rating of 160 psi. All fittings must be pressure rated to the pipe. The pipe must have a single row of orifices 1/8-inch diameter or larger in a straight line. Design must include orifices to allow for drainage of the pipe and to allow air to be expelled from the pipe. Maximum orifice spacing must be 5 feet. The size of the dosing pumps and siphons must be selected to provide a minimum pressure of 1 psi (2.3 feet of head) at the end of each distribution line. For orifices smaller than 3/16-inch, the minimum pressure must be 2.16 psi (5 feet of head) at the end of each distribution pipe.

F. A hydraulic analysis demonstrating uniform distribution must be provided for all pressure distribution systems. The analysis must show no greater than 10 percent variation in distribution of dose across the entire distribution system. Pressure-dosed systems installed on a sloping site must include means for controlling pressure differences caused by varying distribution pipe elevations across the entire distribution area.

G. Cleanouts must be provided at the end of every lateral. The cleanouts must be within 6 inches of finished grade and should be made with a long-sweep elbow, two (2) 45-degree bends or one (1) 45-degree bend. A pressure distribution system designer may specify the use of capped ends that are replaced after flushing if, in the designer's opinion, this is a more feasible option than long sweep cleanouts. A metal location marker or plastic valve box and cover must be provided for each cleanout.

H. Dosing tanks

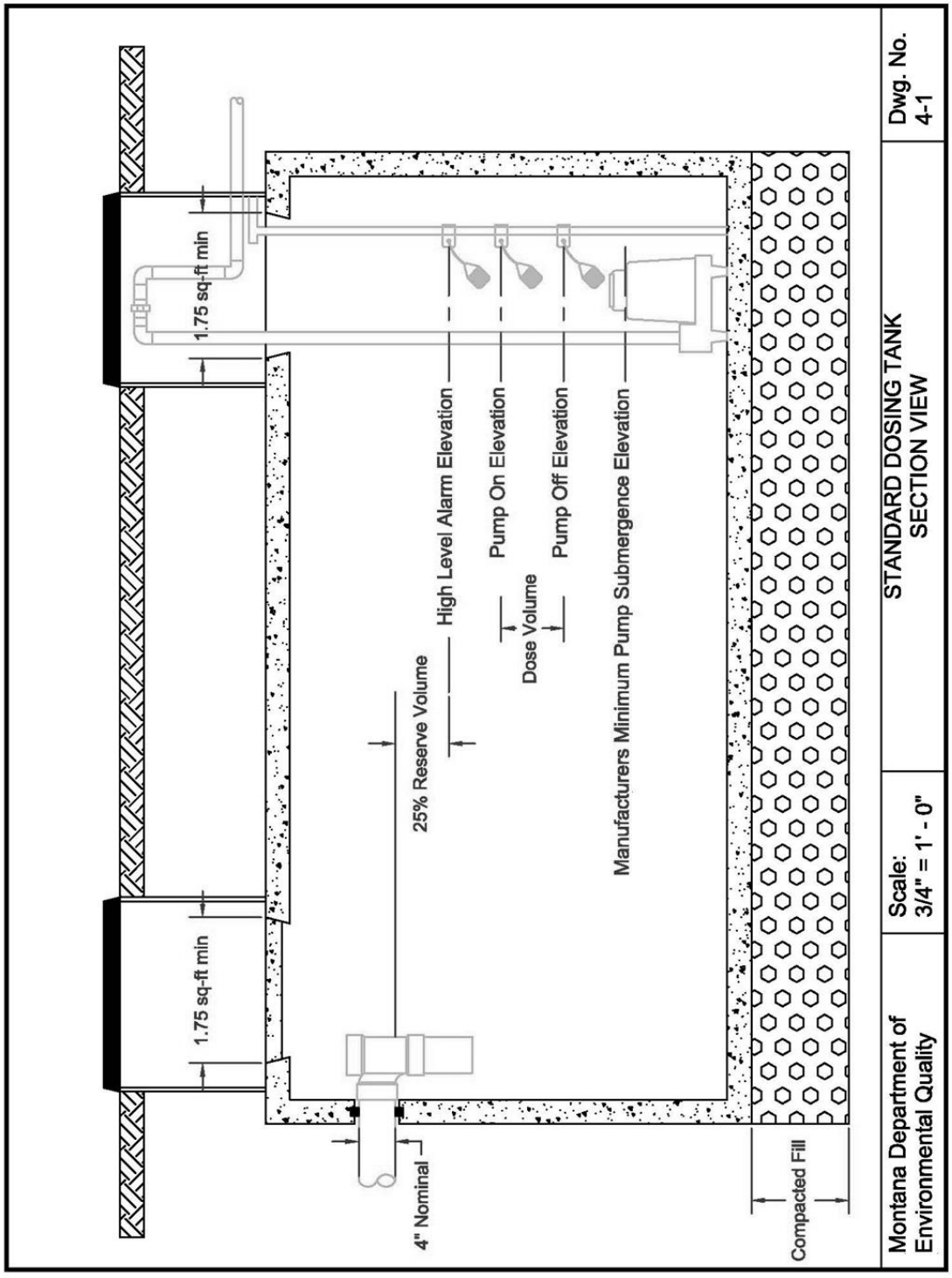
1. Dose tank volumes are not to be included in primary, advanced, or other required tank volumes.
2. The reserve storage volume of the dosing tank must be at least equivalent to 25 percent of the subsurface distribution system design flow. If a duplex pump station is used, where each pump doses the entire distribution system, then the reserve storage volume of the dosing tank may be reduced. The reserve storage volume is computed from the high-level alarm. If the specified pump requires submergence, the tank must also include adequate liquid capacity for pump submergence and the dose volume.
3. The dosing tank must be separated from the septic tank by an air gap to eliminate the possibility of siphoning from the septic tank. Dosing tanks must be provided with access ports sufficiently large enough to maintain the tank and pumps. Pumps, valves, and other apparatus requiring maintenance must be accessible from the surface without entering the tank or be located in a dry tank adjacent to the wet chamber. Adequate provision must be made to effectively protect maintenance personnel from hazards.

4. Dosing tanks must meet the construction requirements for septic tanks listed in Section 5.1.7.

   High-water alarms must be provided for all dosing chambers that utilize pumps.

   Dosed systems using a siphon should have a dose counter installed to check for continued function of the siphon.

I. Pressure distribution systems must be field-tested to verify that the pressure across the entire absorption field does not vary by greater than 10 percent.


1.75 sq-ft min
1.75 sq-ft min
High Level Alarm Elevation
Pump On Elevation
Pump Off Elevation
Dose Volume
25% Reserve Volume
Manufacturers Minimum Pump Submergence Elevation
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
STANDARD DOSING TANK SECTION VIEW
Dwg. No. 4-1

5. PRIMARY TREATMENT

5.1. SEPTIC TANKS

5.1.1 General

All wastewater must discharge into a septic tank unless otherwise specifically provided in these Construction Standards.

Roof, footing, garage, surface water drainage, and cooling water must be excluded from the septic tank.

The septic tank must be located where it is readily accessible for inspection and maintenance. The bottom of the septic tank should not be deeper than 12 feet from finished grade for ease of pumping and maintenance.

All septic tanks and access ports must have lids. The lids must be of durable construction and be secured with hex screws, lag bolts, locks, or other methods to prevent unauthorized access. Safety basket screens (child catchers) should be installed in all septic tanks.

5.1.2 Design

5.1.2.1. Liquid connection between compartments must consist of a single opening completely across the compartment wall or two or more openings equally spaced across the wall. The total area of openings must be at least three times the area of the inlet pipe.

5.1.2.2. A septic tank must provide an air space above the liquid level, which must be equal to, or greater than, 15 percent of its liquid capacity. Dose tanks do not need to meet the 15 percent air space requirement. Each compartment of the septic tank must be vented back to the inlet pipe.

5.1.2.3. Inspection ports measuring at least 8 inches in diameter must be provided above each inlet and outlet and marked with rebar. An access of at least 1.75 square feet in size must be provided for each compartment. Each access must be extended to within 12 inches of the finished ground surface. Access to the effluent filter must be large enough to maintain the filter and must be extended to the finished ground surface.

5.1.2.4. The nominal length of the septic tank must be at least twice the width (or diameter) of the tank. Dose tanks are excluded from these length, width, and depth requirements.

5.1.2.5. Septic tanks that have less than, or equal to, a 5,000-gallon liquid capacity must not use depths greater than 78 inches in computing tank capacity.

5.1.2.6. Septic tanks that have a greater than 5,000-gallon liquid capacity must calculate the maximum liquid depth by dividing the liquid length by a factor of 2.5.

5.1.3. Inlets

5.1.3.1. The inlet into the tank must be at least 4 inches in diameter and enter the tank 3 inches above the liquid level. The inlet connection must be watertight.

5.1.3.2. The inlet of the septic tank and each compartment must be submerged by means of a vented tee or baffle. Tees and baffles must extend below the liquid level to a depth where at least 10 percent of the tank's liquid volume is above the bottom of the tee or baffle.

5.1.3.3. Vented tees or baffles must extend above the liquid level a minimum of 7 inches.

5.1.3.4. Baffle tees must extend horizontally into the tank to the nearest edge of the riser access to facilitate baffle maintenance.

5.1.4. Outlets

5.1.4.1. Outlets must include an effluent filter complying with Section 5.1.5. A combination septic/dosing tank outlet is considered to be in the wall dividing the septic compartment(s) and the dosing compartment. Septic tanks aligned in series require an effluent filter only on the final outlet.

5.1.4.2. The outlet of the tank must be at least 4 inches in diameter. The outlet connection must be watertight.

5.1.4.3. Each compartment of the septic tank must be vented to the atmosphere.

5.1.5. Effluent Filters

5.1.5.1. Effluent filters must be used in all systems, unless the Department approves another filtering device such as a screened pump vault.

5.1.5.2. All septic tank effluent must pass through the effluent filter. No by-pass capability may be designed into the effluent filter. A high-water alarm should be installed to signal that the filter has clogged and needs maintenance.

5.1.5.3. Effluent filter inlets must be located below the liquid level at a depth where 30 to 40 percent of the tank's liquid volume is above the intake of the filter.

5.1.5.4. The effluent filter must be secured so that inadvertent movement does not take place during operation or maintenance. Filters must be readily accessible to the ground surface and the handle must extend to within 2 inches of the access riser lid to facilitate maintenance.

5.1.5.5. The effluent filter manufacturer must provide documentation that the filter meets the design standard for effluent filters in ANSI/NSF Standard 46.

5.1.5.6. The effluent filter manufacturer must provide installation and maintenance instructions with each filter. The installer must follow the manufacturer's instructions when installing the filter and must use the manufacturer's recommendations for sizing and application. The installer must provide the owner of the system with a copy of the maintenance instructions.

5.1.6. Sizing of Septic Tanks

5.1.6.1. Minimum Size Requirements

Multiple single compartment tanks may be connected in series to meet minimum capacity requirements. Dose tank or other tank volumes included in the design may not be included in the required septic tank minimum capacity. The Department may have additional maintenance requirements for tanks connected in series or those systems utilizing grinder pumps.

5.1.6.2. For Residential Flows

A. Residential septic tank capacity must be sized in accordance with the number of bedrooms as described below:

1. For 1 to 3 bedrooms, the minimum capacity is 1,000 gallons per living unit;
2. For 4 to 5 bedrooms, the minimum capacity is 1,500 gallons per living unit;
3. For 6 to 7 bedrooms, the minimum capacity is 2,000 gallons per living unit;
4. For 8 or more bedrooms, the minimum capacity is 2,000 gallons per living unit plus 250 gallons for each bedroom greater than 7 bedrooms (i.e., 8 bedrooms requires a 2,250 gallon tank, 9 bedrooms requires a 2,500 gallon tank).

B. When the number of living units on a single or common septic tank is between 2 and 9, the minimum capacity will be based on the number of living units and corresponding bedrooms as described in Subsection 5.1.6.2.A.

C. When the number of living units on a single or common septic tank is 10 or greater, the septic tank must have a capacity of at least 2.5 times the design flow.

5.1.6.3. For Nonresidential Flows

The minimum acceptable septic tank size is 1,000 gallons for any nonresidential system and must have a minimum tank capacity of 2.5 times the design flow.

5.1.7. Construction

5.1.7.1. Concrete Tanks (cast-in-place tanks and pre-cast tanks)

A. General Requirements

All concrete tanks must comply with Sections 1, 2, 3, 5, and 6 of ASTM C 1227-12 with the following additional requirements:

1. All concrete tanks must be manufactured with ASTM C 150-12 Type I, Type I-II or Type V cement and must be made with sulfate-resistant cement (tricalcium aluminates content of less than 8 percent).
2. All concrete tanks must be watertight. Tanks used for commercial facilities, multiple-user systems, public systems or those with a design flow of 700 gallons per day, or greater, must be tested in place for water tightness using a vacuum test or water pressure test. The Department may require tanks intended for other uses to be tested. Tanks must be tested using one of the following methods:

    a. Vacuum testing: Seal the empty tank and apply a vacuum to 4 inches (100 mm) mercury. The tank is approved if 90 percent of vacuum is held for 2 minutes; or
    b. Water pressure testing: Seal the tank, fill with water, and let stand for at least 24 hours. Refill the tank. The tank is approvable if it holds water.

3. Repairs of all concrete tanks, when required, must be performed by the manufacturer in a manner ensuring that the repaired structure will conform to the requirements of these Construction Standards.
4. All concrete tank sealants must be flexible, appropriate for use in septic tanks, and must conform to ASTM C 990-09.

B. Pre-cast Concrete Tank Requirements

A set of complete plans stamped by a professional engineer to certify compliance with these Construction Standards must be on file with the tank manufacturer and made available to the Department upon request. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations, and other such pertinent data for each tank model.

The pre-cast concrete tank manufacturer shall develop manufacturer's recommended installation instructions for each tank model. The manufacturer shall provide a copy of the stamped drawings along with the installation instructions to each tank purchaser.

All pre-cast concrete tanks must be clearly marked within 2 feet of the outlet with the name of the tank manufacturer, tank model, number of gallons, date of manufacture, and maximum depth of bury.

C. Cast-in-Place Concrete Tank Requirements, Certification, and As-builts

A complete set of plans stamped by a professional engineer to certify compliance with these Construction Standards and ACI 318-11 must be provided to the Department. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations, and other such pertinent data. The approved stamped plans must be given to the tank purchaser. As-built plans and a letter of certification, from a professional engineer, must be submitted to the Department within 90 days of construction of all cast-in-place concrete tanks.

5.1.7.2. Thermoplastic and Fiberglass Tanks

Thermoplastic and fiberglass septic tanks must be water tight and made of materials resistant to the corrosive environment found in septic tanks.

A set of complete plans stamped by a professional engineer to certify compliance with these Construction Standards and IAPMO/ANSI Z1000-07 must be on file with the tank manufacturer and made available to the reviewing authority upon request. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations, and other such pertinent data for each tank model.

The thermoplastic and fiberglass tank manufacturer shall develop manufacturer's recommended installation instructions for each tank model. The manufacturer shall provide a copy of the stamped drawings along with the installation instructions to each tank purchaser.

All thermoplastic and fiberglass tanks must be clearly marked near the outlet or on the top surface of the tank with the name of the tank manufacturer, tank model, number of gallons, date of manufacture, and maximum depth of bury.

Tanks used for commercial facilities, multiple-user systems, public systems, or those with a design flow of 700 gpd or greater must be tested in place for water tightness. The reviewing authority may require tanks intended for other uses to be tested. For pressure testing a fiberglass or thermoplastic tank, all inlets, outlets, and access ports must be sealed and adequately secured. The tank must be charged with 5 pound-force per square inch gauge (psig) for a tank less than 12 feet in diameter or 3 psig for a tank 12 feet or larger in diameter. The tank pressure must be allowed to stabilize and the air supply must be disconnected. If there is any noticeable pressure drop in 1 hour, the tank must be rejected or repaired. After repair, the test must be repeated. Air must be carefully released through an

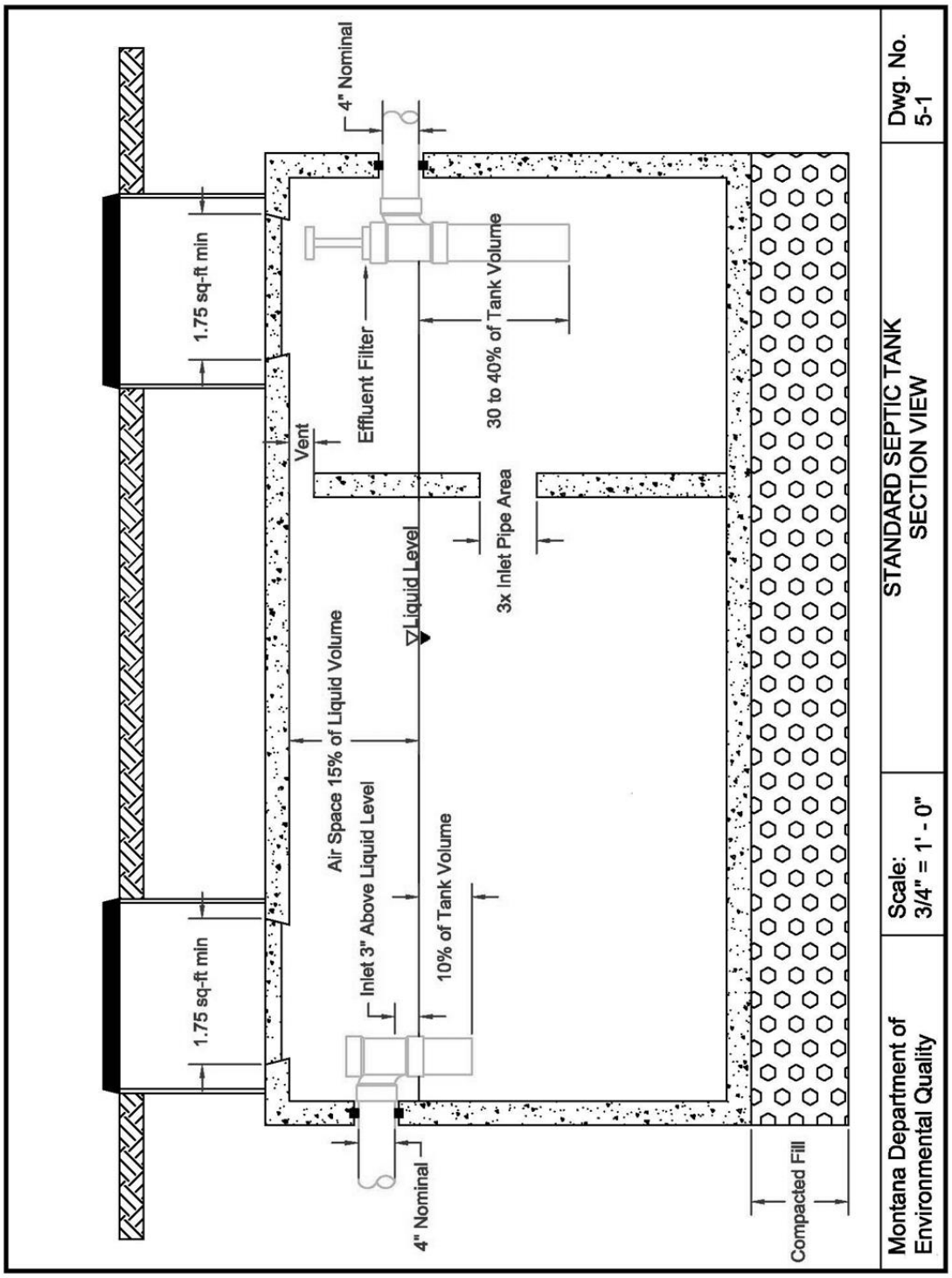
appropriate valve mechanism.

5.1.8. Installation

All septic tanks must be installed per the manufacturer's recommendations.

5.1.9. Maintenance

Owners of septic systems should follow the septic tank maintenance recommendations provided by the Department or published by Montana State University Extension Service, which are available through Montana County Extension Service offices located in each county. Two of these publications are *Septic Tank and Drainfield Operation* and *Maintenance and Septic System Inspection and Troubleshooting*. Those who own systems with siphons, pumps, or controls should carefully adhere to manufacturer's recommendations for operation and maintenance and seek guidance from the Department.


4" Nominal
1.75 sq-ft min
1.75 sq-ft min
Effluent Filter
Vent
30 to 40% of Tank Volume
Liquid Level
3x Inlet Pipe Area
Air Space 15% of Liquid Volume
Inlet 3" Above Liquid Level
10% of Tank Volume
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
STANDARD SEPTIC TANK SECTION VIEW
Dwg. No. 5-1

6. SOIL ABSORPTION SYSTEMS

6.1. STANDARD ABSORPTION TRENCHES

6.1.1. General

The satisfactory operation of the wastewater treatment system is largely dependent upon wastewater quality, proper site selection, and the design and construction of absorption trenches.

All new and replacement absorption systems must be designed to accept and treat residential strength waste. High strength wastewater or water treatment waste residuals must comply with Subchapters 3.2 and 3.3 of these Construction Standards.

6.1.2. Location

Absorption trenches must meet the location criteria in the Regulations.

All absorption trenches must meet the site requirements of Chapter 2.

6.1.3. Trench Design

6.1.3.1. 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 and percolation rate if percolation testing is required by the Department, whichever results in a larger absorption system, in accordance with Chapter 2, Section 6.1.4, and Appendix B. The Department may require a percolation test when the soils are variable or other conditions create the need to verify trench sizing.

6.1.3.2. An area that can be used as a replacement area for the original absorption trench system must be designated. Interim use of the area must be compatible with future absorption system use. The replacement area should be located separately from the primary area and must not be interlaced within the primary area.

6.1.3.3. Pressure dosed absorption trenches must be separated by at least 4 feet between trench walls. Absorption trenches, utilizing proprietary design configurations, with effluent meeting NSF 40 criteria for 30 mg/L BOD_5 and 30 mg/L TSS, may have trench separation distances that meet manufacturer recommendations.

6.1.3.4. Absorption trenches must be at least 18 inches wide but not greater than 36 inches wide.

6.1.3.5. The bottom of the absorption trenches must be at least 24 inches and no more than 36 inches below the natural ground surface. There must be a minimum of 12 inches of soil or fill material above the drain rock.

6.1.4. Sizing of the Absorption System

6.1.4.1. Application rates and absorption system length used for sizing onsite wastewater absorption systems can be determined using soil descriptions in accordance with Chapter 2, Appendix B, and the formula in Subsection 6.1.4.2. Comparison of the soil profile descriptions, at or near the depth of the infiltrative surface, percolation rate, if conducted, and USDA soils report must be submitted for review. If the submitted information shows a variable application rate, additional site-specific information may be required by the Department.

6.1.4.2. Absorption system sizing must be determined using the following formula:

The total square feet of the absorption system area is determined using the design wastewater flow rates from Chapter 3 (gpd) divided by the application rate in Section 2.1.7, Table 2.1-1 (gpd/ ft^2).

Total trench length is calculated by dividing the total square feet of the absorption system area by the trench width.

6.1.4.3. Systems that provide documentation or demonstrate, through a third independent party, that the unit is able to meet the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification, or meet the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD_5 and 30 mg/L TSS, only, may utilize a reduced absorption area in accordance with the following criteria:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi, as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

A full-sized separate subsurface absorption replacement area, sized without reduction, must be designated for each site.

Further reductions in subsurface absorption system sizing, beyond those listed in this subsection, are not permissible.

6.1.5. Construction

6.1.5.1. Pressure-dosed distribution pipes in an absorption system or sand filter must be level, unless a hydraulic analysis indicates uniform distribution of effluent will occur with a sloped line.

6.1.5.2. When the trenches have been excavated, the sides and bottom must be raked to

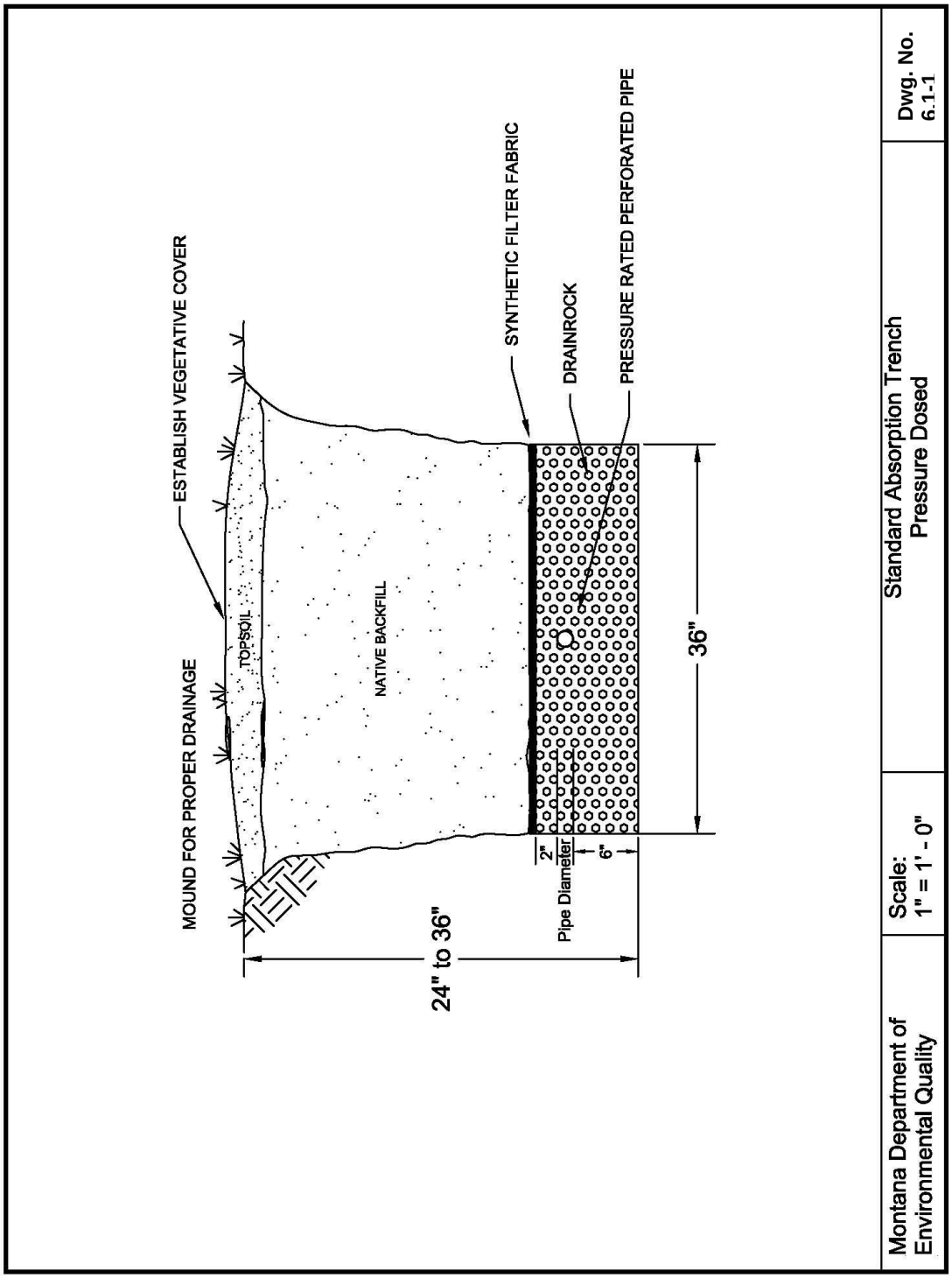
scarify any smeared soil surfaces. Construction equipment, unless needed to construct the system, should be kept off the area to be utilized for the absorption trench system to prevent undesirable compaction of the soils. Construction must not be initiated when the soil moisture content is high.

Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or ribbon, the soil moisture content is too high for construction purposes.

6.1.5.3. At least 6 inches of drain rock meeting the requirements of Section 1.2.25 must be placed in the bottom of the trench.

6.1.5.4. The distribution pipe must be covered with at least 2 inches of drain rock meeting the requirements of Section 1.2.25. An appropriate geotextile fabric, untreated building paper, or straw must be placed over the drain rock and covered with a minimum of 1 foot of soil or fill.

6.1.5.5. The ends of the distribution pipes must be capped or plugged.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
36"
24" to 36"
2"
Pipe Diameter
6"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Standard Absorption Trench Pressure Dosed
Dwg. No. 6.1-1

6.2. SHALLOW-CAPPED ABSORPTION TRENCHES

6.2.1. General

A shallow-capped absorption trench is used to maintain a 4-foot natural soil separation between the bottom of the infiltrative surface and a limiting layer and/or to increase vertical separation distances in porous soils. Shallow-capped absorption trenches must meet the same requirements as a standard absorption trench, Subchapter 6.1, and, if applicable, gravelless and other absorption system methods, Subchapter 6.5, except where specifically modified in this subchapter.

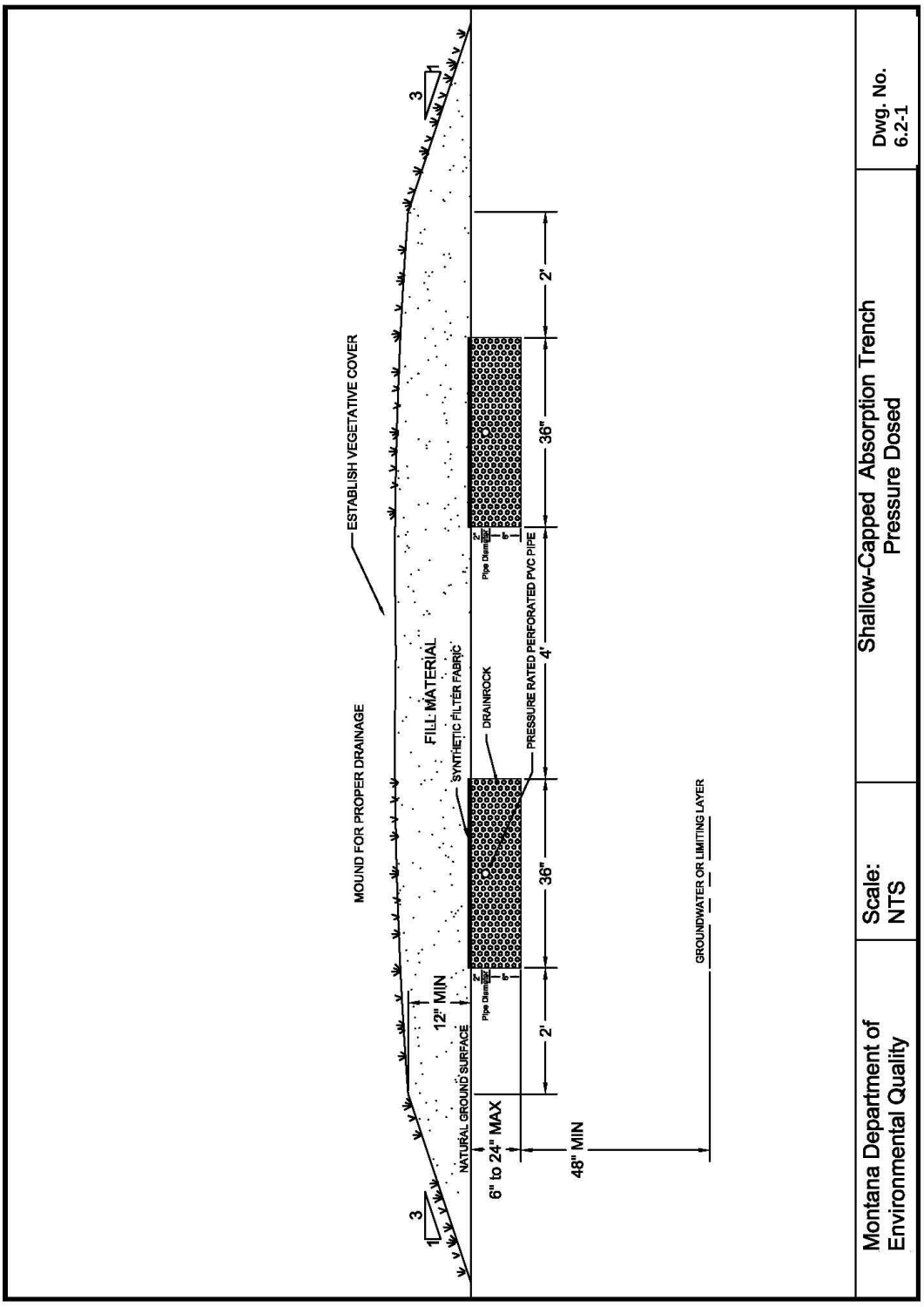
6.2.2. Design

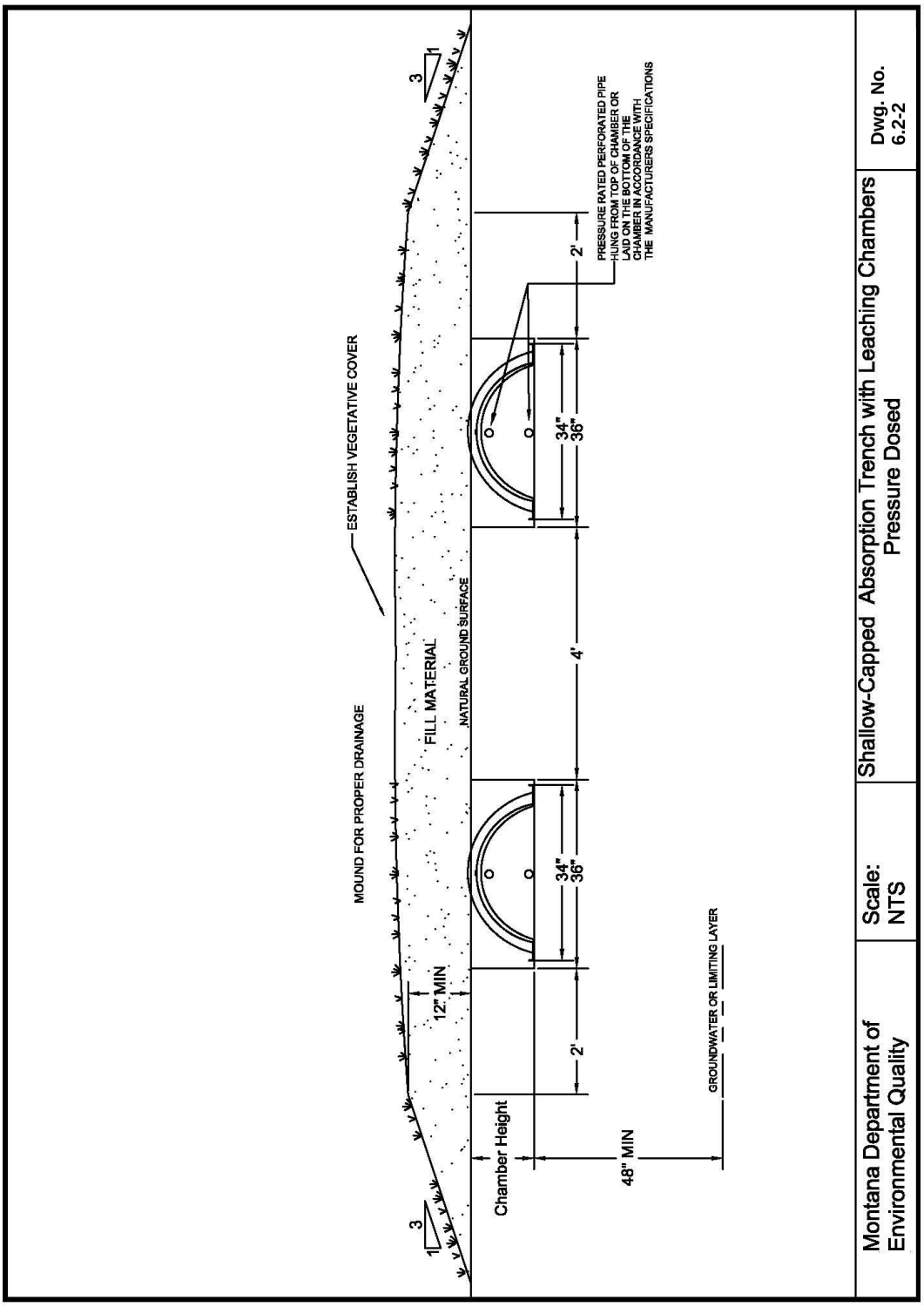
Shallow-capped absorption trenches must be 6 to 24 inches below the natural ground.

6.2.3. Construction

6.2.3.1. Shallow-capped absorption trench systems require a cap of topsoil material a minimum of 12 inches deep. This cap must be loamy sand or sandy loam and must extend 2 feet beyond the edges of the required absorption area before the sides are shaped to a 3 horizontal to 1 vertical or lesser slope. The cap must be sloped to provide positive drainage away from the center of the absorption system. The entire mound must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

6.2.3.2. If gravelless or other absorption systems are used, depth of bury must be in accordance with manufacturer's recommendations but the top of the chamber or other manufactured distribution device must be no higher than the level of the natural ground.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PVC PIPE
NATURAL GROUND SURFACE
12" MIN
6" to 24" MAX
48" MIN
2'
36"
4'
2'
36"
2'
GROUNDWATER OR LIMITING LAYER
3
1
Montana Department of Environmental Quality
Scale: NTS
Shallow-Capped Absorption Trench Pressure Dosed
Dwg. No. 6.2-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
NATURAL GROUND SURFACE
12" MIN
3
1
3
1
Chamber Height
48" MIN
2'
4'
2'
34"
36"
34"
36"
PRESSURE RATED PERFORATED PIPE HUNG FROM TOP OF CHAMBER OR LAID ON THE BOTTOM OF THE CHAMBER IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
GROUNDWATER OR LIMITING LAYER
Montana Department of Environmental Quality
Scale: NTS
Shallow-Capped Absorption Trench with Leaching Chambers Pressure Dosed
Dwg. No. 6.2-2

6.3. AT-GRADE ABSORPTION TRENCHES

6.3.1. General

At-grade systems may be used only for residential strength wastewater. At-grade systems must not be installed on land with a slope greater than 6 percent or where the percolation rate is slower than 40 mpi.

6.3.2. Effective Area

The effective area is that area which is available to accept effluent. Effective length of the absorption area is the actual length of the trench, which cannot exceed the length of the pipe by more than one-half the orifice spacing. The effective width is the actual width of the washed rock below the distribution pipe, not to exceed 3 feet for each pipe.

The effective area must be 1.5 times the area required for a standard absorption trench, as described in Section 6.1.4. Percolation tests must be conducted at a depth of not more than 12 inches below ground surface.

6.3.3. Construction

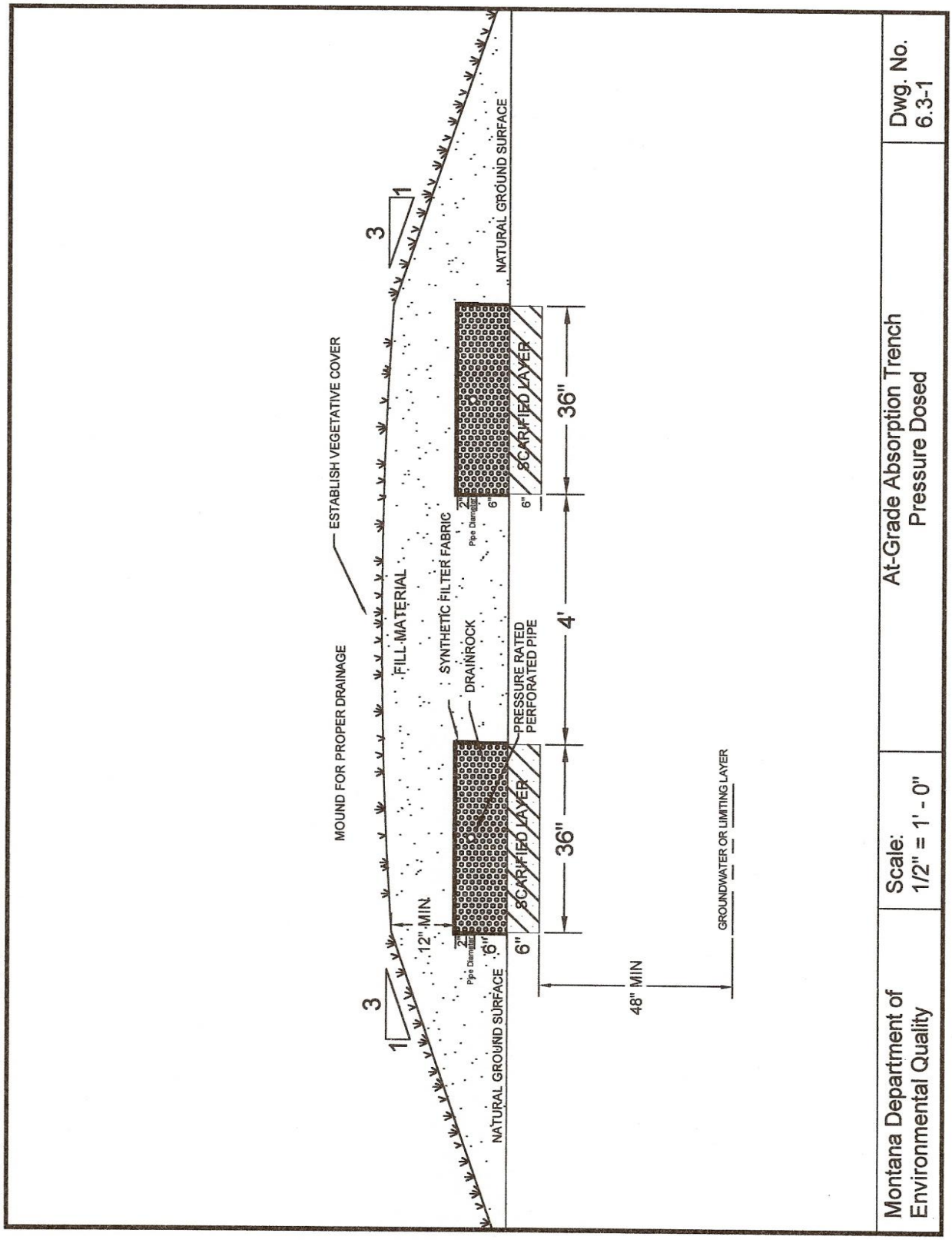
The ground surface where the system is to be placed must be plowed, scarified, or trenched less than 12 inches in depth. Trenching is preferred to plowing or scarifying to prevent horizontal migration of the effluent. There must be at least four feet of natural soil between the scarified layer and ground water or other limiting layer. The absorption trench is constructed by placing drain rock meeting the requirements of Section 1.2.25 on the scarified ground, with a minimum width of 24 inches at the bottom of the distribution pipe. A minimum of 6 inches of drain rock meeting the requirements of Section 1.2.25 must be placed under the distribution pipe and a minimum of 2 inches of drain rock meeting the requirements of Section 1.2.25 must be placed over the distribution pipe. If gravelless or other absorption systems are used, depth of bury must be in accordance with manufacturer's recommendations.

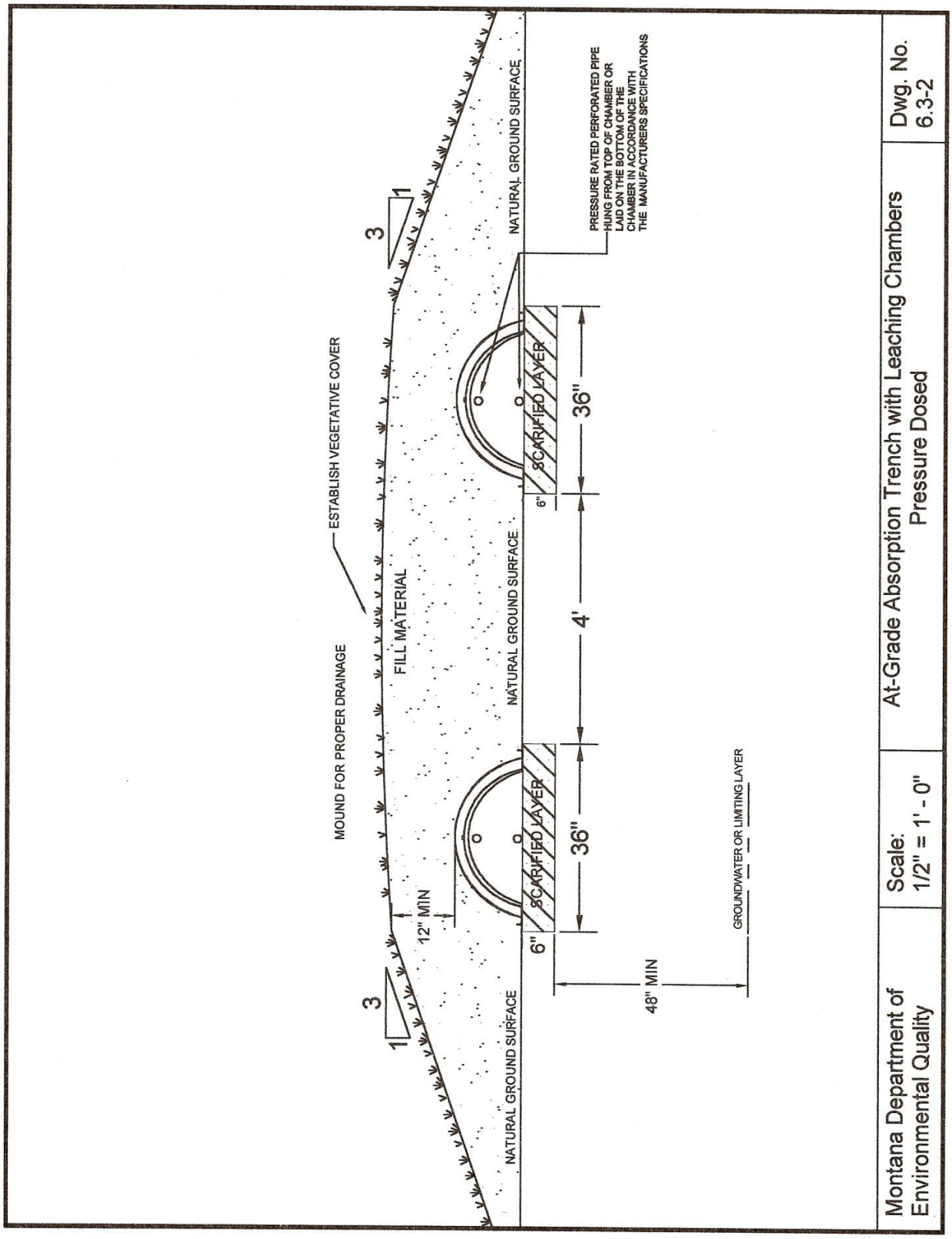
An appropriate geotextile fabric, untreated building paper, or straw must be placed over the drain rock and covered with approximately 1 foot of soil.

The fill over the distribution pipe must extend on all sides at least 5 feet beyond the edge of the aggregate below the distribution pipe.

Construction equipment which would cause undesirable compaction of the soils must not be moved across the plowed surface or the effluent disposal area. Construction and/or plowing must not be initiated when the soil moisture content is high.

Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or ribbon, the soil moisture content is too high for construction purposes.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
SYNTHETIC FILTER FABRIC
DRAIN ROCK
PRESSURE RATED PERFORATED PIPE
SCARIFIED LAYER
NATURAL GROUND SURFACE
12" MIN
6"
2" Pipe Diameter
36"
4'
48" MIN
GROUNDWATER OR LIMITING LAYER
3
1
Montana Department of Environmental Quality
Scale: 1/2" = 1' - 0"
At-Grade Absorption Trench Pressure Dosed
Dwg. No. 6.3-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
NATURAL GROUND SURFACE
NATURAL GROUND SURFACE
NATURAL GROUND SURFACE
3
1
3
1
12" MIN
6"
SCARIFIED LAYER
36"
4'
36"
6"
SCARIFIED LAYER
48" MIN
GROUNDWATER OR LIMITING LAYER
PRESSURE RATED PERFORATED PIPE HUNG FROM TOP OF CHAMBER OR LAID ON THE BOTTOM OF THE CHAMBER IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
Montana Department of Environmental Quality
Scale: 1/2" = 1' - 0"
At-Grade Absorption Trench with Leaching Chambers Pressure Dosed
Dwg. No. 6.3-2

6.4. DEEP ABSORPTION TRENCHES

6.4.1. General

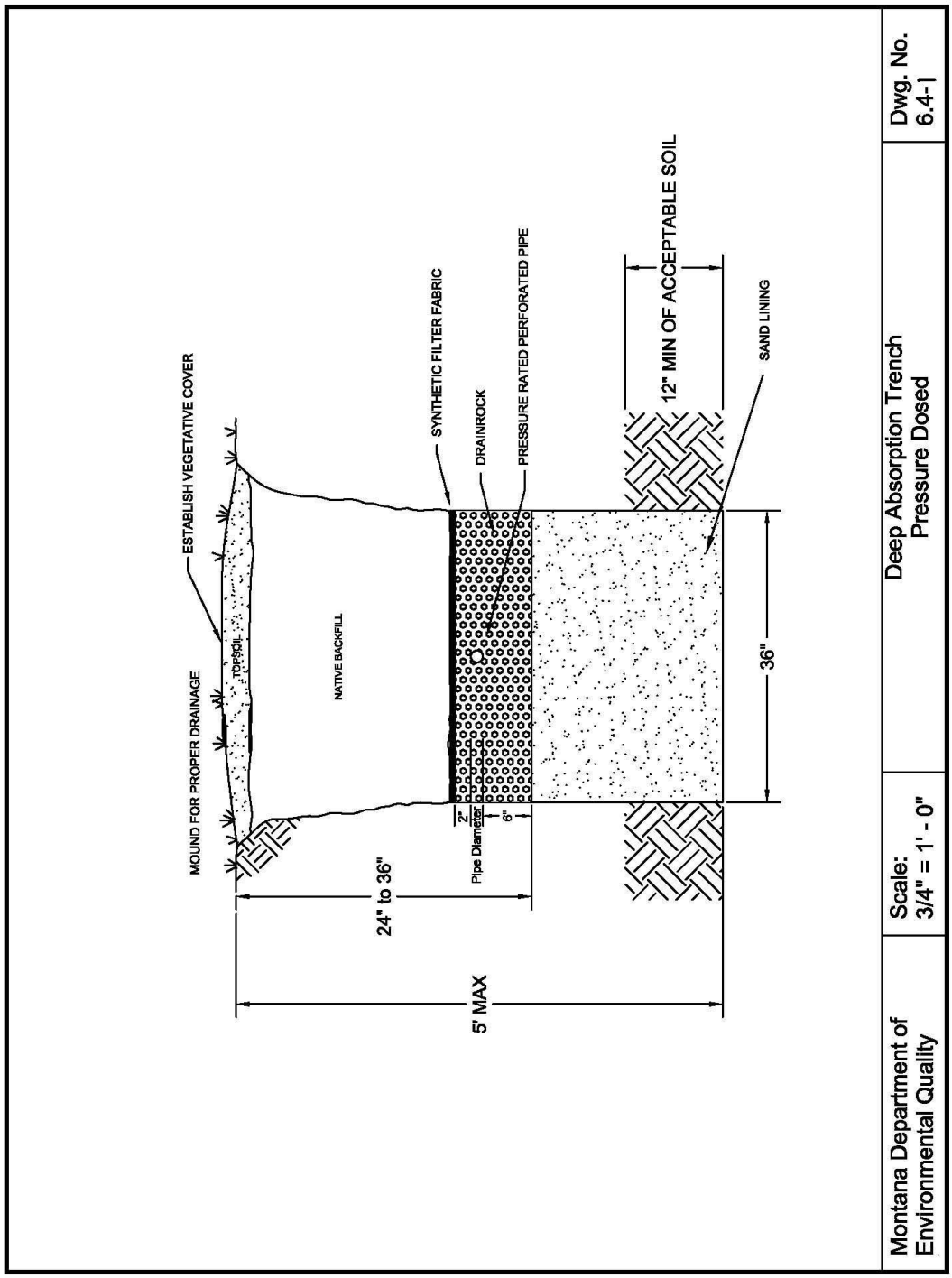
Deep absorption trenches are systems that have trenches excavated through a less permeable soil layer to allow effluent to infiltrate into a deeper and more permeable soil. The trench is then backfilled with a sandy soil to the depth of a standard absorption trench, 24 to 36 inches below natural ground surface. The bottom of the deep absorption trench must not be more than 5 feet below natural ground surface. Deep absorption trenches must meet the same requirements as a standard absorption trench as described in Subchapter 6.1, except where specifically modified in this chapter.

6.4.2. Site Evaluation

The site evaluation as outlined in Chapter 2 must also include soil profile descriptions of at least 2 soil observation pits excavated to a minimum depth of 4 feet below the proposed deep absorption trench bottom.

6.4.3. Construction

The deep trench must be excavated 1 foot into the acceptable soil and backfilled with medium sand, with no more than 3 percent finer than the No. 100 sieve, or other approved material to the level of a standard absorption trench. The system must be sized based on the most conservative application rate when comparing the deep trench infiltrative surface or the backfill sand.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
12" MIN OF ACCEPTABLE SOIL
SAND LINING
36"
2"
Pipe Diameter
6"
24" to 36"
5' MAX
Deep Absorption Trench
Pressure Dosed
Scale:
3/4" = 1' - 0"
Dwg. No.
6.4-I
Montana Department of
Environmental Quality

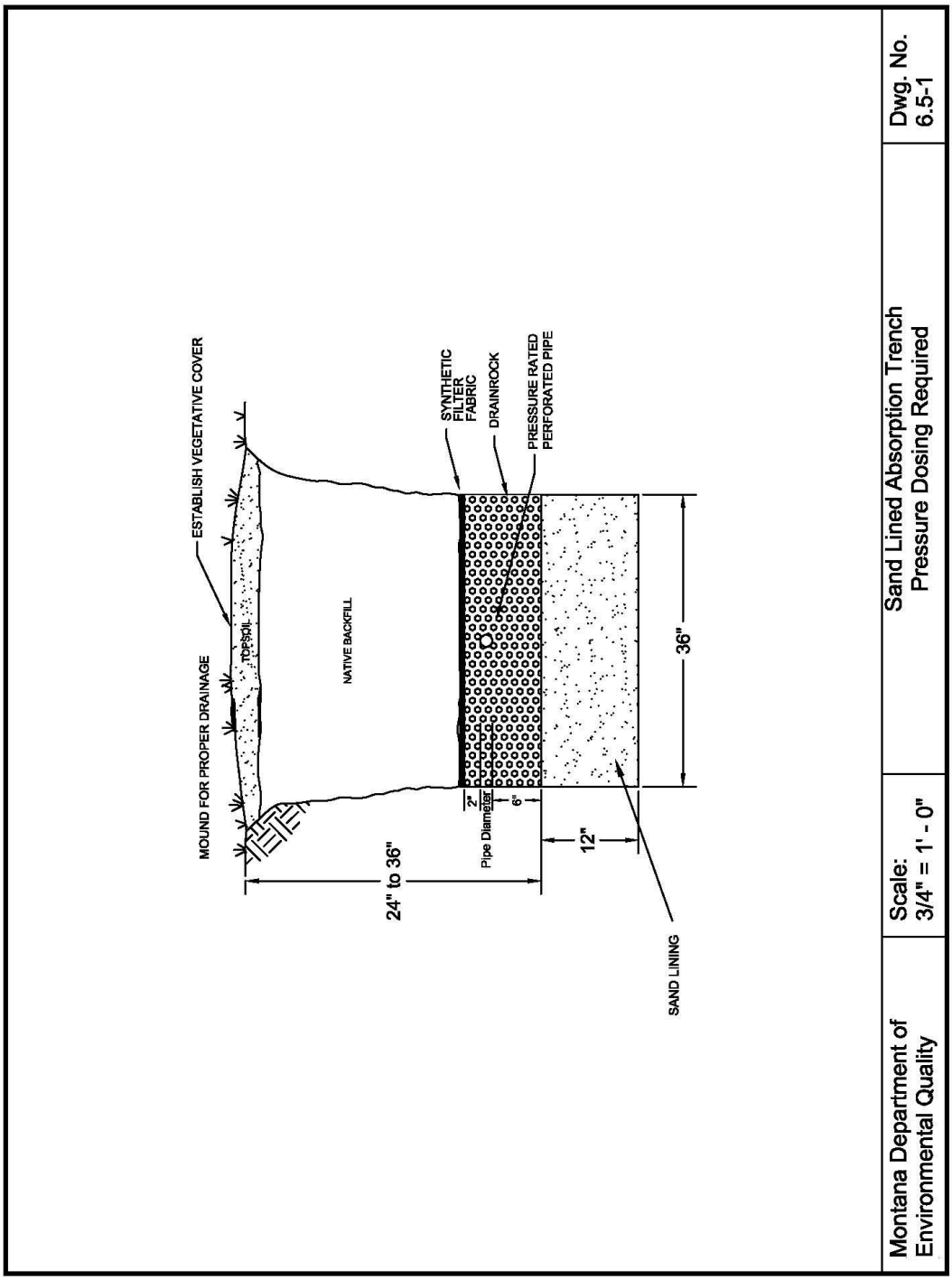
6.5. SAND-LINED ABSORPTION TRENCHES

6.5.1. General

Sand-lined absorption trenches are used for rapid permeability situations. The trench below the drain rock is lined with sand to provide additional treatment. Sand-lined absorption trenches must meet the same requirements as a standard absorption trench as described in Subchapter 6.1, except where specifically modified in this chapter.

6.5.2. Design

Trenches must be lined with a minimum of 12 inches of fine to medium sand or loamy sand below the constructed absorption system. The system is to be sized in accordance with Section 6.1.4 using the most conservative application rate when comparing the natural soils and the sand used for lining the trench.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
2"
Pipe Diameter
6"
12"
36"
24" to 36"
SAND LINING
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
Sand Lined Absorption Trench
Pressure Dosing Required
Dwg. No. 6.5-1

6.6. GRAVELLESS TRENCHES AND OTHER ABSORPTION METHODS

6.6.1. General

Gravelless trenches and other absorption systems include infiltration or leaching chambers and other wastewater distribution systems (single and multiple pipes, gravel substitutes, geo-composites, etc.). The purpose of these gravelless systems is to meet or exceed the characteristics, function, and performance of gravel in conventional gravel-filled absorption systems. Gravelless trenches and other absorption systems must meet the same requirements as a standard absorption trench as described in Subchapter 6.1, except where specifically modified in this chapter.

Gravelless trenches and other absorption systems may be used in lieu of drain rock for standard absorption trenches, deep absorption trenches, sand-lined absorption trenches, intermittent sand filters, recirculating sand filters, , , sand mounds, and absorption beds.

Pressure distribution pipe shall be hanged from the top of the chambers.

Gravelless or other absorption systems must be installed according to the manufacturer's requirements and specifications. Specific absorption bed siting and minimum sizing requirements of these Construction Standards override manufacturer's recommendations.

6.6.2. Leaching Chambers

6.6.2.1. Distribution Materials

A. Leaching chambers are chambers with an open bottom structurally designed to carry the earth loading.

B. Leaching chambers must be constructed of high-density polyolefin or other approved material and must comply with IAPMO PS 63-2005. Evidence that the chamber construction complies with these requirements must be made available to the Department upon request.

6.6.2.2. Design

The maximum trench width for leaching chambers is 36 inches. .

6.6.2.3. Construction

The total bottom area of the trench will be used to calculate the infiltration area. The absorption system size in square footage as described in Subchapter 6.1.4 may be reduced in size by 25 percent when using infiltration or leaching chambers. Chambers that are 15 inches in width will be equal to an 18-inch trench width, a 22-inch width chamber will be equal to a 24-inch trench width, and a 34-inch width chamber will be equal to a 36-inch trench width for calculating absorption sizing. The size of the replacement absorption system must be large enough to accommodate a standard absorption system.

.

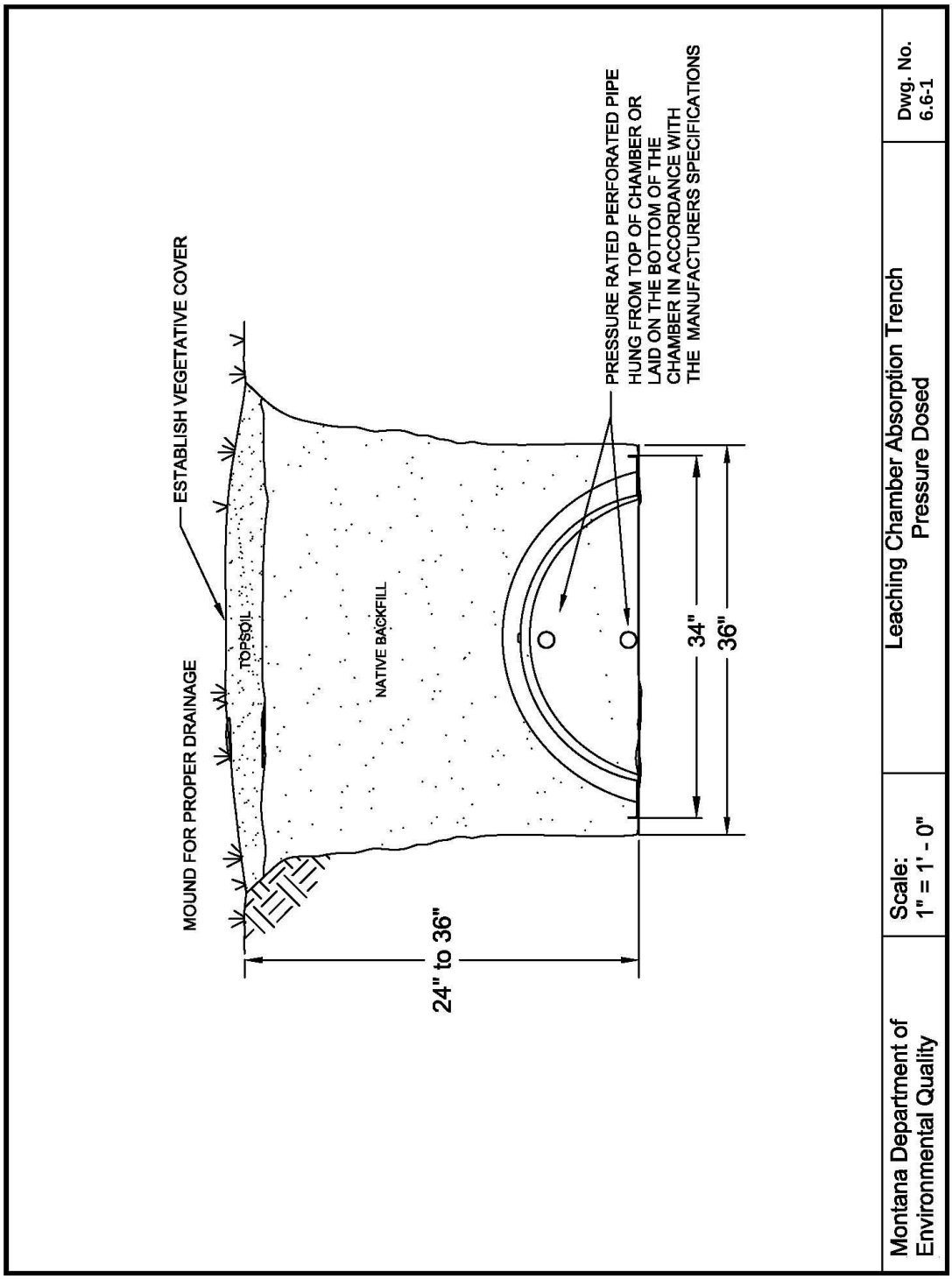
6.6.3. Other Absorption Systems

6.6.3.1. Other absorption systems must be able to meet or exceed the same system performance as conventional gravel-filled absorption systems with documentation presented by a third independent party.

6.6.3.2. Other absorption systems must be able to handle the pertinent depth of bury.

6.6.3.3. All other absorption systems must be installed in accordance with manufacturer's recommendations, although specific proprietary designs which conflict with requirements of these Construction Standards will require Department approval.

6.6.3.4. A reduction in absorption system sizing may be allowed on a case-by-case basis as supported by documentation and justification submitted by the manufacturer to the Department for approval.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
PRESSURE RATED PERFORATED PIPE HUNG FROM TOP OF CHAMBER OR LAID ON THE BOTTOM OF THE CHAMBER IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
34"
36"
24" to 36"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Leaching Chamber Absorption Trench
Pressure Dosed
Dwg. No. 6.6-1

6.7. ELEVATED SAND MOUNDS

6.7.1. General

Elevated sand mounds may be used to achieve separation distance between the treatment system and a limiting layer. Four feet of natural soil must be maintained between the modified site and the limiting layer.

If an advanced wastewater treatment system is used prior to distribution in an elevated sand mound, or the distribution system meets the requirements of NSF 40 Class 1, as described in Subsection 6.1.4.3, the final absorption area may be downsized in accordance with the most conservative native soils found within 12 inches of the natural ground surface.

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

Gravelless trenches and other absorption systems installed in accordance with Subchapter 6.6 may be used in lieu of pipes and gravel, but no reduction in sizing will be permitted for the use of this technology.

6.7.2. Location

6.7.2.1. Elevated sand mounds must meet all of the site requirements of Chapter 2.

6.7.2.2. Elevated sand mounds must meet all minimum separation distances as stated in ARM Title 17, Chapter 36, subchapter 3 or 9, as applicable. Separation distances must be measured from the outside of the mound where the topsoil fill meets the natural ground surface, or, if the design uses a lesser slope for landscaping purposes, where the toe of the mound would be if the 3:1 slope were used.

6.7.2.3. Elevated sand mounds must be constructed only upon undisturbed, naturally occurring soils.

6.7.2.4. Elevated sand mounds with a basal soil application rate of 0.4 to 0.8 gpd/ft^2, as described in Chapter 2 and Appendix B may not be installed on land with a slope greater than 12 percent.

Elevated sand mounds with a basal soil application rate of 0.3 to 0.2 gpd/ft^2, as described in Chapter 2 and Appendix B, may not be installed on land with a slope greater than 6 percent.

The land area 25 feet from the toe of the infiltrative surface on the down gradient

side of the elevated sand mound must not be disturbed.

6.7.2.5. A separate replacement area for the elevated sand mound may be required by the Department. Each replacement area must be sized in accordance with this chapter.

6.7.3. Design

6.7.3.1. *The Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual*, January 2000, is recommended as a procedural guideline in the design of elevated sand mounds. Where the requirements of the Manual differ from those of this Construction Standard, the requirements of this Construction Standard will govern.

6.7.3.2. The required basal area of the mound must be based upon the method described in Section 6.1.4 at a soil depth no greater than 12 inches.

6.7.3.3. The required bottom area of the bed must be based upon flows as determined in Chapter 3 with an application rate of 0.8 gpd/ft^2 before any reduction in bed size allowed in this Construction Standard.

6.7.3.4. There must be a minimum total depth of 21 inches of sand fill above the natural soil surface and 12 inches of sand fill between the bottom of the absorption area and the natural soil surface. Sand must be washed free of silts and clays. The in-place fill material must meet one of the following specifications:

A. ASTM C-33-13 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve; or
B. Fit within the following particle size distribution:

Sieve	Particle Size (mm)	Percent Passing
3/8 in	9.50	100
No. 4	4.75	95 to 100
No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	20 to 60
No. 50	0.30	10 to 30
No. 100	0.15	0 to 2

C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.

6.7.3.5. Drain rock meeting the requirements of Section 1.2.25 must be washed and range in size from 3/4 to 2.5 inches. It must be at least 9 inches deep and must be covered with an appropriate geotextile fabric, untreated building paper, or straw.

6.7.3.6. The distribution pipes must be installed parallel to the land contour and

perpendicular to the slope, with spacing between pipes of at least 3 feet and no more than 5 feet. The length of a sand bed should be at least 3 times the width of a sand bed. Leaching chambers must be placed in accordance with the manufacturer's recommendations.

6.7.3.7. The area of sand fill must be sufficient to extend 2 feet beyond the edges of the required absorption area before the sides are shaped to a 3 horizontal to 1 vertical or lesser slope.

6.7.3.8. The mound must be covered with a minimum of 12 inches, at the center of the mound, and 6 inches, at the edge of the mound, of a suitable medium, such as sandy loam, loamy sand, or silt loam, to provide drainage and aeration.

6.7.4. Construction

6.7.4.1. The ground surface where a mound is to be placed must be plowed, scarified, or keyed into the natural ground 4 inches to 8 inches parallel to the land contour. This must be achieved by removing a portion of the topsoil with the plow throwing the soil up slope to provide a proper interface between the fill and natural soils. When mounds are keyed in, the removed soil must be replaced with the same sand as required for the rest of the mound, and this sand will not count as part of the required 21 inches of sand in the mound as described in Subsection 6.7.3.4. A minimum of 4 feet of natural soil from the bottom of the plowed surface, scarified surface, or key to the limiting layer must be maintained.

6.7.4.2. Construction equipment that would cause undesirable compaction of the soils must not be moved across the plowed surface or the effluent disposal area until a minimum of 6 inches of sand fill has been placed over the plowed area. Construction and/or plowing must not be initiated when the soil moisture content is high.

Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or ribbon, the soil moisture content is too high for construction purposes.

6.7.4.3. Aboveground vegetation must be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material. Tree stumps should be cut flush with the surface of the ground and roots should not be pulled. Trees may be left in place within the 3:1 side sloped portion of the fill.

6.7.4.4. The area surrounding the elevated sand mound must be graded to provide diversion of surface runoff waters.

6.7.4.5. Construction should be initiated immediately after preparation of the soil interface by placing the sand fill needed for the mound to a minimum depth of 21 inches above the plowed surface. This depth will permit excavation in the sand fill to accommodate the 9 inches of drain rock meeting the requirements of Section

1.2.25 necessary for the distribution piping. After hand leveling the absorption area, the drain rock should be placed and hand leveled. An observation port into the gravel is recommended but not required. An appropriate geotextile fabric, untreated building paper, or straw must be placed over the drain rock to separate the drain rock from the soil cover. After installation of the distribution system, the entire mound should be covered with 6 inches of a finer textured soil material, such as sandy loam to loam. A 4- to 6-inch layer of topsoil should then be added. The entire mound should be sloped to drain, either by providing a crown at the center or a uniform slope across the mound, with a minimum slope of 1 percent in either case. The entire mound must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

6.7.5. Certification and As-builts

Certification and as-built plans are required in accordance with Appendix D.

Sand Mound Material Specifications:

Sand must be washed free of silts and clays.

The in-place fill material must meet one of the following specifications:

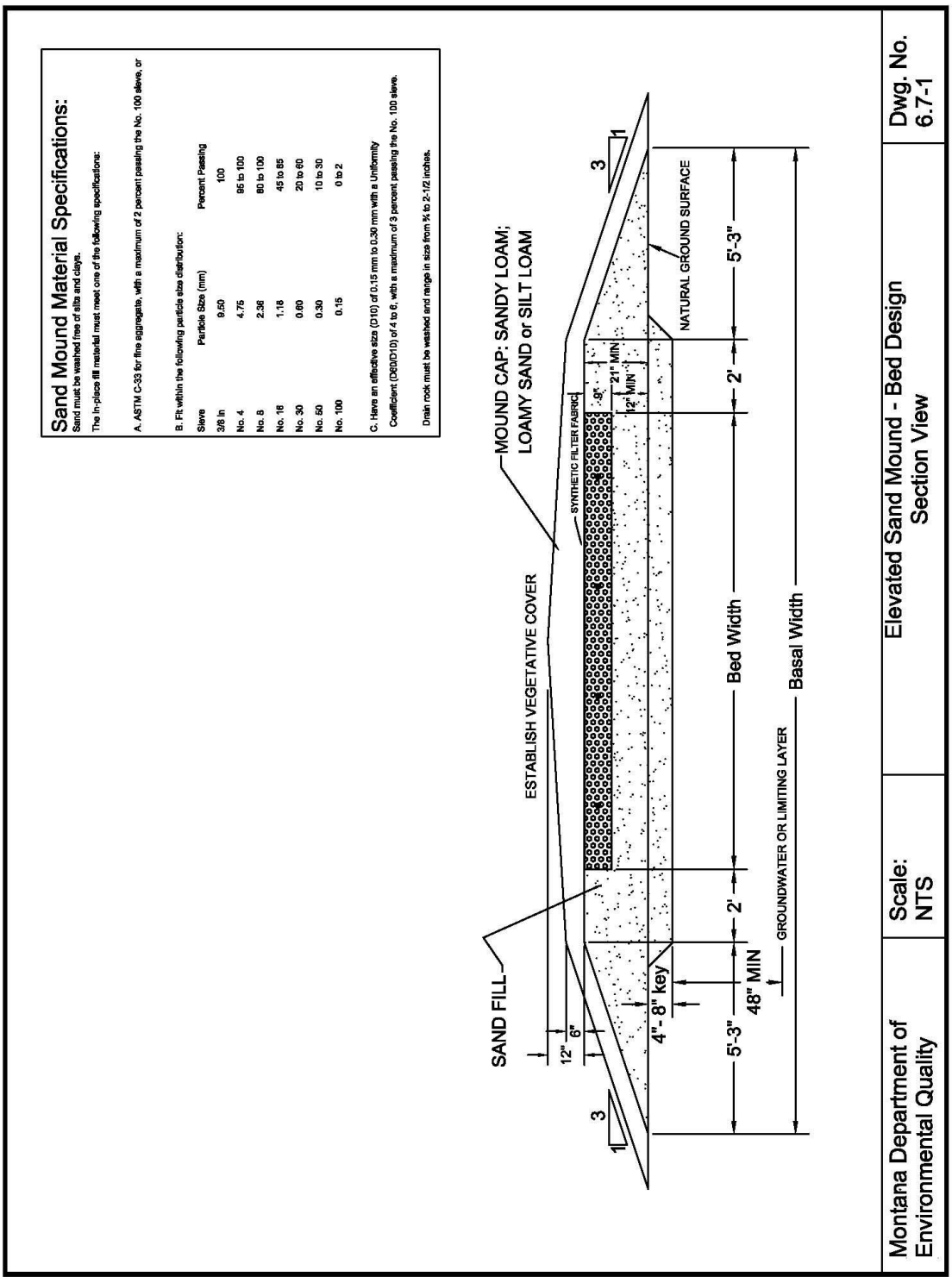
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or

B. Fit within the following particle size distribution:

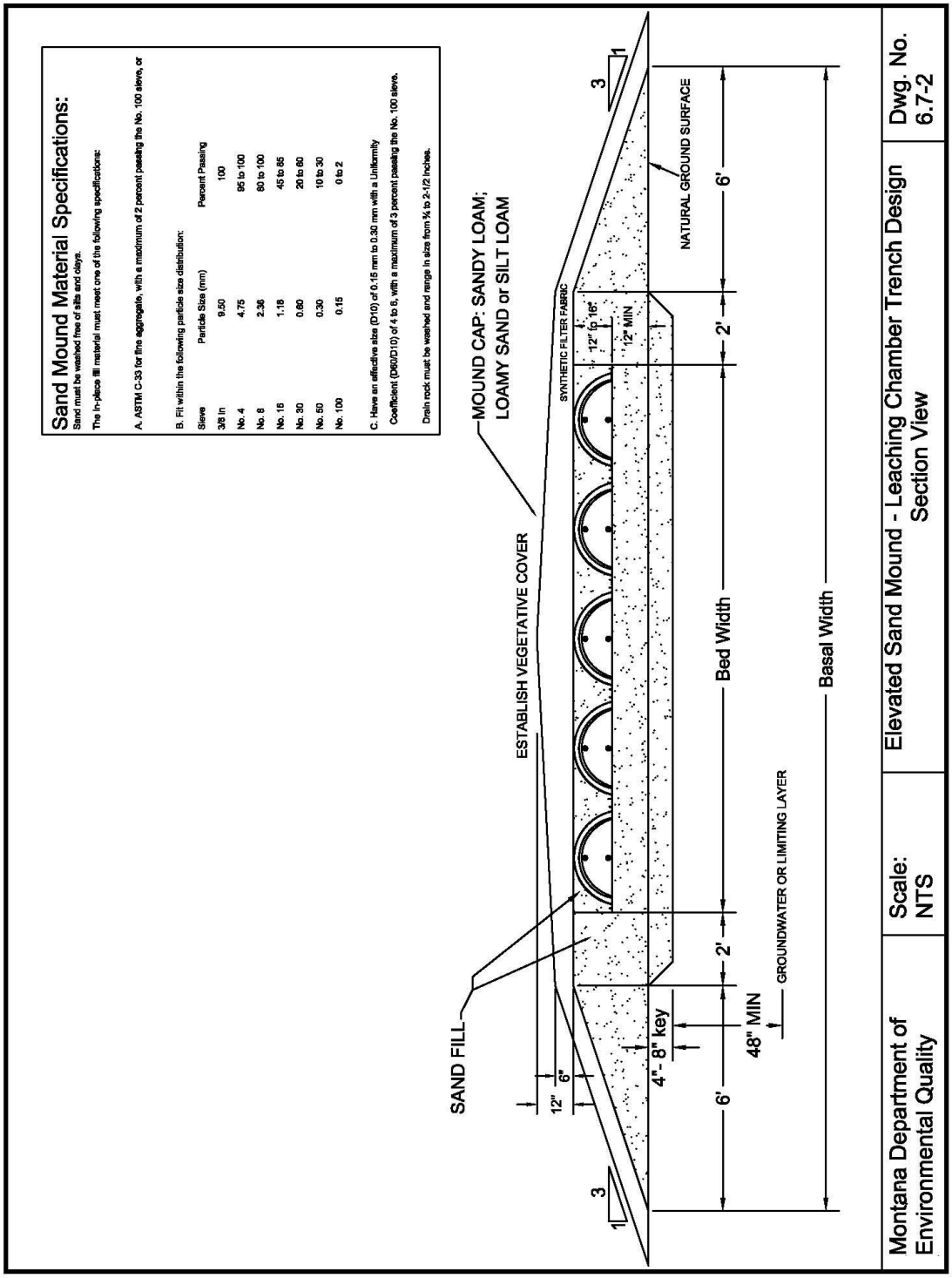
Sieve	Particle Size (mm)	Percent Passing
3/8 in	9.50	100
No. 4	4.75	95 to 100
No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	20 to 60
No. 50	0.30	10 to 30
No. 100	0.15	0 to 2

C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.

Drain rock must be washed and range in size from ¾ to 2-1/2 inches.



Montana Department of Environmental Quality | Scale: NTS | Elevated Sand Mound - Bed Design Section View | Dwg. No. 6.7-1


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve Particle Size (mm) Percent Passing
3/8 In 9.50 100
No. 4 4.75 95 to 100
No. 8 2.36 80 to 100
No. 16 1.18 45 to 85
No. 30 0.60 20 to 60
No. 50 0.30 10 to 30
No. 100 0.15 0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-1/2 inches.
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
ESTABLISH VEGETATIVE COVER
SAND FILL
SYNTHETIC FILTER FABRIC
NATURAL GROUND SURFACE
12" to 16"
12" MIN
12"
6"
4"- 8" key
6'
2'
Bed Width
6'
2'
48" MIN
GROUNDWATER OR LIMITING LAYER
Basal Width
3
1
3
1
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Leaching Chamber Trench Design
Section View
Dwg. No. 6.7-2

6.8. SUBSURFACE DRIP

6.8.1. General

Subsurface drip systems are an efficient method for dispersal of wastewater and/or gray water into the soil in small volume doses throughout the day. Uniformly spaced drip emitters in flexible polyethylene tubing control the rate of wastewater discharge and are available in either turbulent flow or pressure compensating configurations.

Each emitter's pressure compensating feature controls discharge at a nearly constant rate along the entire drip line lateral's length over a wide range of pressures. Typically, the drip line is installed directly into the soil without aggregate or other media. Pumps fill and pressurize the drip line sufficiently to achieve uniform distribution.

Monitoring system function and performance along with effluent metering is essential to proper operation. The subsurface drip system is typically operated by an integrated controller programmed to activate the pumps to dose the drip line at appropriate intervals and duration. The controller must be programmable to perform a forward flush of the drip line and back flushing of a filter. The controller should also store operating data for documenting system performance and diagnosing system malfunctions.

6.8.2. Location

Subsurface drip systems must meet the site evaluation criteria of Chapter 2.

Subsurface drip systems must meet the location criteria in ARM Title 17, Chapter 36, subchapter 3 or 9, as applicable. The subsurface drip system may not be located where vehicles will cross the drip lines. Potable water lines may not pass under or through any part of the dispersal system.

Each submittal must address how the service provider can access the subsurface drip system for maintenance and how property use can be controlled to prevent unauthorized access to components.

6.8.3. Design

6.8.3.1. Wastewater Quantity and Quality Characterization

The quantity of expected wastewater or gray water shall be estimated using the guidelines outlined in Chapter 3 or Subchapter 6.10.

6.8.3.2. Materials

All subsurface drip system materials must be warranted by the manufacturer for use with sewage and be resistant to plugging from solids, bacterial slime, and root intrusion.

Fittings used to join the drip line to the distribution line and for flushing the manifolds must be installed in accordance with manufacturer's recommendations. Either compression or barb fittings may be specified, depending on the manufacturer's recommendations and system operating pressure.

6.8.3.3. System Components

A. Primary Treatment

All subsurface drip systems must include a septic tank in compliance with Chapter 5.

B. Advanced Wastewater Treatment System

An advanced wastewater treatment system is required prior to final subsurface disposal in compliance with Chapter 7.

C. Dosing System

Pressure distribution must be provided.

All subsurface drip systems must operate at pressures indicated in the manufacturer's specifications. These operating pressures are typically between 15 to 45 psi.

Timed dosing is required. A minimum number of 12 equally spaced doses per day are required. A method to track and verify dosing volumes and times, such as a digital control panel, pump elapsed time meters (ETMs), event counters, etc., must be provided.

D. Pumps/System Flushing

Pump selection must take into account the operating volume and pressure for the drip dispersal field when calculating the total dynamic head required for filter flushing and/or back flushing, field dosing, and drip line flushing. All disposal and flushing parameters must fall within the operational range of the pump selected.

All subsurface drip systems must include means to backwash the filters and flush drip lines and manifolds.

Filter backwash and drip line flushing must be automatic. Filter backwash and drip line flushing must be accomplished according to manufacturer's recommendations to prevent damage to the drip line and maintain product warranty.

Filter backwash and drip line flushing debris must be returned to the septic

tank or the primary treatment tank.

Hose bibs are not allowed for use as a flushing component, to prevent cross contamination of potable water supply.

Field flushing velocity must be designed at the distal end of each drip line lateral connection. This velocity must be the same as required by the drip line manufacturer.

The flush return volume may not exceed the hydraulic capacity of the pretreatment unit.

E. Supply and Return Manifolds

Both supply and return manifolds are required on all subsurface drip systems.

F. Component Design and Construction

All piping, valves, fittings, level control switches, and all other components must be designed and manufactured to resist the corrosive effects of wastewater and common household chemicals.

G. Drip Line/Dispersal Line

Drip line tubing is typically a flexible polyethylene (PE) available in several diameters with a nominal 1/2 inch as the typical size in wastewater applications.

The drip line must be color coded purple by the manufacturer to be easily recognized as suitable for subsurface drip dispersal.

The drip line must be warranted fully by the manufacturer for protection against root intrusion for a minimum period of 10 years.

Drip lines should always be installed as level as possible on the contour line.

Drip lines must be installed to facilitate positive drainage back to the manifold. No standing water may pool within the system. Subsurface drip systems located on sloped sites must be designed and installed to prevent drainage to lower elevated components (drip lines, tanks, valve boxes, etc.).

Minimum installation depth for drip lines and manifolds is 8 inches beneath grade. Site specific characteristics and land use practices may require a deeper depth of installation.

Drip lines should be installed on 2-foot centers.

H. Emitters

Emitter size and type must be specifically designed for use in a subsurface drip system.

All subsurface drip systems must be equipped with self-cleaning, pressure compensating, or turbulent flow emitters.

Emitters should be installed on 2-foot intervals along the drip line with an effective subsurface infiltrative area of 4 square feet. This spacing may be altered for specific reuse systems per both the manufacturer's recommendations and the Department's approval. Spacing of emitters closer than 2 feet does not change the required subsurface infiltrative area.

The discharge rate of emitters may not vary by more than 10 percent over the entire drip line lateral in order to ensure that the effluent is uniformly distributed over the disposal area.

I. Filters

Designers shall specify the filter that is recommended by the drip line manufacturer.

All filters used must be resistant to corrosion. The manufacturer shall warrant the filters for wastewater use.

All filters must be sized to operate at a flow rate at least equal to the maximum design discharge rate of the system. Filter backwash must be included in calculating the maximum discharge rate, where applicable.

Filters may either require backwashing in accordance with manufacturer's recommendations or may be the continuously self-cleaning type.

All subsurface drip system filters must be readily accessible for inspection and servicing.

J. Flow Meter

Flow meters or some other means to monitor flow must be installed in a readily accessible location for reading and servicing. Flow meters must be warranted by the manufacturer for use with wastewater and must be accurate within the expected flow range of the installed system.

K. Electronic control panel

A controller capable of timed dosing and automatic line/filter flushing is required.

L. Air/Vacuum Relief Valve(s)

Air/vacuum relief valve(s) must be installed at the high point(s) of each supply or return manifold. All valves must be installed in a valve box with access to grade and include a gravel sump. They must have constant venting to the atmosphere.

M. Control Valves

Valves must be readily accessible for inspection and/or service, such as in a valve box with access to grade.

Control valves used for system flushing and zone distribution must operate automatically.

Pressure regulators are recommended for all subsurface drip systems.

Pressure gauge access points (Schrader valves or equal) are required at appropriate locations on system networks utilizing turbulent flow emitters to verify design and operational performance. Pressure gauge access points are recommended to be installed on all systems.

6.8.3.4. Sizing

Subsurface drip systems must be sized in accordance with soil descriptions of Chapter 2 and Appendix B. Unless otherwise approved by the reviewing authority, the effective width of the absorption area will be 2 feet per drip line.

No reduction in absorption field size will be granted for advanced wastewater treatment systems.

6.8.3.5 All subsurface drip systems must be designed to remain free flowing during freezing conditions. The Department may direct the timing for installation of the subsurface drip system to correspond to favorable weather conditions.

6.8.4 Construction

Installation instructions and recommendations vary by manufacturer. Installation knowledge and skill may be product-specific. Installers are responsible for obtaining proper training before attempting to install subsurface drip systems.

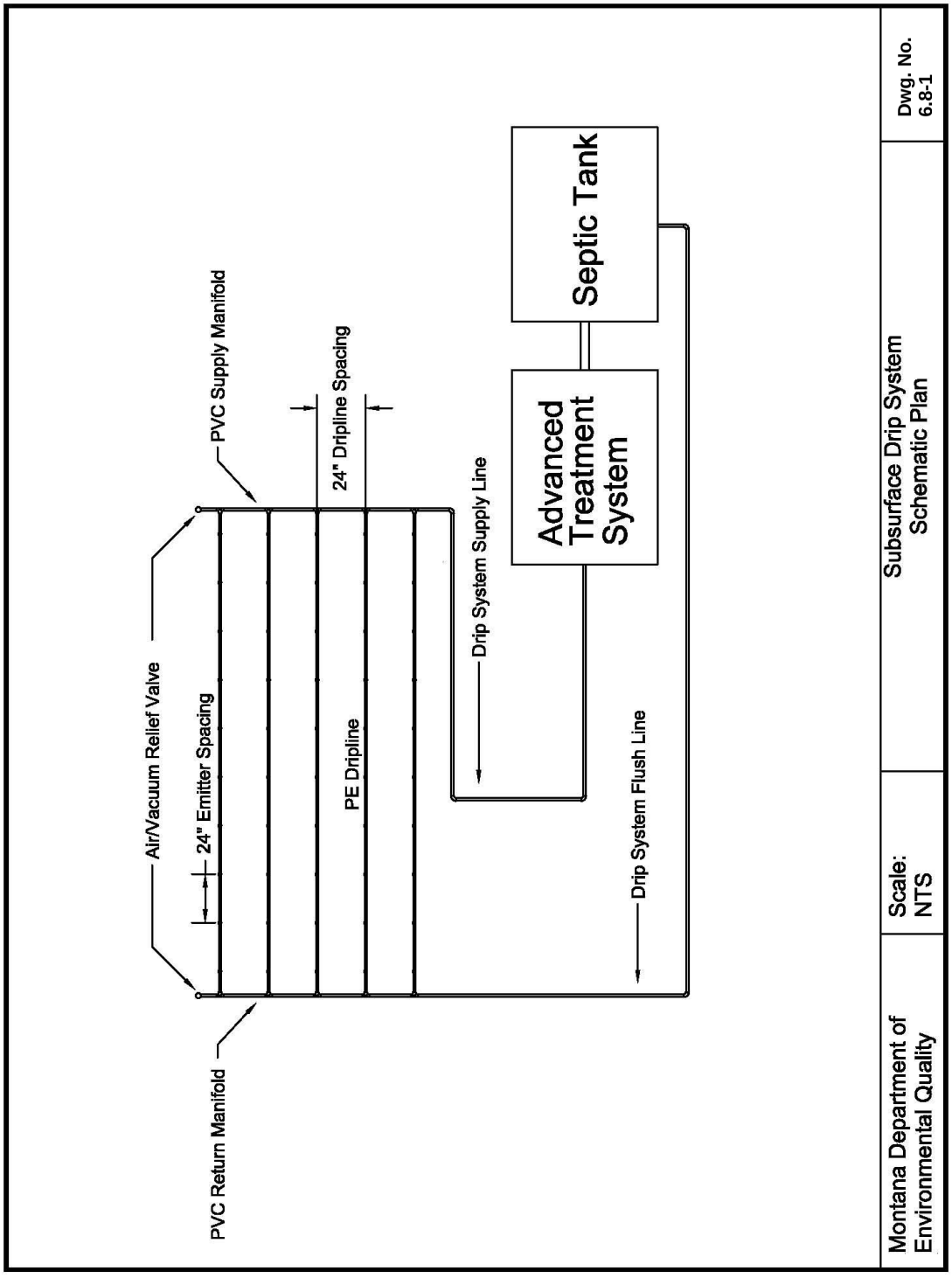
A ground cover (turf or other appropriate landscaping) must be planted over the dispersal field after installation to prevent erosion. Selection of the ground cover type and subsequent maintenance requirements must not compromise the integrity of the disposal

area.

In addition to these standards, all systems must be constructed in accordance with manufacturer's recommendations.

6.8.5 Operation and Maintenance

A detailed set of plans and specifications and an operation and maintenance plan are required for all components of the system. The operation and maintenance plan must meet the requirements outlined in Appendix D.


Septic Tank
Advanced Treatment System
PVC Supply Manifold
24" Dripline Spacing
Drip System Supply Line
Air/Vacuum Relief Valve
24" Emitter Spacing
PE Dripline
Drip System Flush Line
PVC Return Manifold
Montana Department of Environmental Quality
Scale: NTS
Subsurface Drip System Schematic Plan
Dwg. No. 6.8-1

6.9 GRAY WATER IRRIGATION SYSTEMS

6.9.1. General

Gray water is untreated wastewater collected from bath tubs, showers, lavatory sinks, clothes washing machines, and laundry tubs. Gray water systems used in conjunction with a waste segregation system may also use wastewater collected from kitchens. Gray water can be contaminated with organic matter, suspended solids, or microorganisms that are potentially pathogenic. In general, treatment and disposal of gray water is subject to all applicable provisions in this Construction Standard, except that gray water may be used for irrigation as provided in this chapter.

Gray water reuse within a building or residence, for uses such as toilet flushing, is permitted without review, provided that the gray water is ultimately disposed of by means of an approved wastewater treatment system that meets all applicable requirements of this Construction Standard.

Gray water irrigation systems that meet the requirements of this chapter are not subject to the other chapters in this Construction Standard, except as specifically referenced in this chapter.

6.9.2. Location

Gray water irrigation systems must meet the location criteria for gray water reuse set out in ARM Title 17, Chapter 36, subchapter 3 or 9, as applicable.

6.9.3. Design

6.9.3.1. The collection, storage, and distribution portions of a gray water irrigation system must be designed in accordance with this chapter. The Department may allow the use of other designs and material pursuant to the review of manufacturer's information and data to substantiate the proposed alternative.

6.9.3.2. Except for lots with waste segregation systems, lots with gray water irrigation systems must be served by an existing approved alternate wastewater treatment system that is adequate to treat both the gray water and the other wastewater from the lot. Lots with waste segregation systems must have an alternate approved waste water treatment system for treating gray water, although the system need not be installed if gray water irrigation is conducted pursuant to this chapter.

6.9.3.3. Gray water from kitchen sources may be used for irrigation only where a waste segregation system is used.

6.9.3.4. All effluent from sources that are not gray water must be disposed of in an approved wastewater system.

6.9.3.5. The reviewing authority may require sampling data to ensure that the strength of

gray water used for irrigation does not exceed typical residential strength parameters.

6.9.3.6. Gray water irrigation systems must use subsurface dispersal. All systems must be a minimum of 6 inches below the ground surface. Ponding or water surfacing may not occur at any gray water irrigation location.

6.9.3.7. Gray water irrigation system designs may be augmented with potable water. If potable water is used to augment gray water for irrigation within the same distribution network, a method of backflow prevention for the potable water source must be included that is consistent with the requirements of ARM Title 17, Chapter 38, subchapter 3.

6.9.3.8. All gray water irrigation system piping and appurtenances must be easily identifiable as non-potable through the use of purple piping and continuous marking at a minimum of 4-foot intervals. Tanks, pumps, and other equipment must also be labeled as "non-potable" using a permanent label placed in a conspicuous location.

6.9.3.9. If a gray water irrigation system is proposed for a lot served by a public wastewater system, the Department may not approve the gray water system unless the managing entity of the public system provides a letter of approval.

6.9.3.10. Gray water design flow rates must be estimated as follows:

A. Estimated Residential Flow Rates:

To determine total flow rate for the gray water irrigation system, the number of occupants must be multiplied by the estimated flow shown in this subsection, Table 6.10-1.

Table 6.10-1

Number of occupants per residential living unit:		
	1st bedroom	2
	each additional bedroom	1
Flow for each occupant is:		
	showers, tubs, wash basins	25 gpd
	laundry	15 gpd
	kitchen	10 gpd

B. Estimated Nonresidential Flow Rates:

Nonresidential flow rates must be substantiated by the system designer in order to be approved by the reviewing authority.

6.9.3.11. Gray water irrigation systems must have a minimum absorption area based on soil

types as described in accordance with Chapter 2 and Appendix B and Section 6.1.4.

6.9.3.12. Gray water irrigation systems that are not designed to prevent freezing must be used in conjunction with a supplemental year-round method for wastewater treatment and disposal that meets applicable state and local requirements.

6.9.3.13. When a supplemental year-round system is used, gray water irrigation systems must include a three-way diverter valve to easily direct gray water to the year-round wastewater treatment system when needed. A backflow prevention device must be installed to prevent black water from entering the gray water irrigation system.

6.9.3.14. The year-round wastewater treatment system must be sized to accept and treat the total flow from the gray water irrigation system together with any other effluent in the system.

6.9.3.15. A gray water irrigation system may not adversely impact the functioning of the year-round wastewater treatment system.

6.9.3.16. Gray water systems may be installed in fill.

6.9.4. Collection and Distribution

6.9.4.1. Hose bib or hose-type attachments, including frost-free hydrants, may not be present on a gray water irrigation system.

6.9.4.2. The design must include appropriate valves or other methods to isolate the surge tank, irrigation zones, and connection to a wastewater treatment system.

6.9.4.3. Surge tanks may be incorporated into a gray water irrigation system design. Surge tanks allow for uniform distribution of the gray water despite variable flow from the source. If a gray water irrigation system contains a surge tank, the tank must meet the following requirements:

A. Surge tanks used for the storage and distribution of gray water must be designed by the manufacturer for use with wastewater;
B. Surge tanks must be easily accessible for maintenance with a locking gasketed access opening or approved equivalent;
C. Surge tanks must be covered;
D. The minimum capacity of the surge tank must be 50 gallons;
E. Surge tanks may be installed either inside or outside a building, above or below ground;
F. Aboveground surge tanks must be installed on a level, 3-inch concrete slab or equivalent, and must be anchored to prevent overturning;
G. Below ground surge tanks must be installed in dry, level, well-compacted soil. Buoyancy of the surge tank must be prevented with appropriate

construction where high ground water exists;

H. Surge tanks must be equipped with an overflow pipe of the same diameter as the gray water influent pipe. The overflow must be permanently connected to an approved wastewater treatment system. This connection should be made to the building sewer, or septic tank, if any. The overflow drain may not be equipped with a shutoff valve. For waste segregation systems without an approved alternate wastewater treatment system installed, the overflow from the surge tank must be connected to a second surge tank. The second surge tank must also connect to the gray water irrigation system;

I. Above ground surge tanks must be equipped with an emergency drain of the same diameter as the gray water influent pipe. The emergency drain must be permanently connected to an approved wastewater treatment system. This connection should be made to the building drain, building sewer, or septic tank, if any;

J. The surge tank must include a method of backflow prevention that complies with ARM Title 17, Chapter 38, subchapter 3;

K. Surge tanks must include vents to the atmosphere; and

L. If storage time within the collection system is going to exceed 24 hours, appropriate treatment for odor control may be necessary.

6.9.4.4. All gray water irrigation systems should include a filter to prevent the buildup of solids and to ensure proper system functioning. If no filter is included in the design, at least 3 valved irrigation zones must be designated. Each irrigation zone must have the required length of trench to accommodate the entire gray water flow per day with automatic valves to rotate the distribution of gray water between irrigation zones.

6.9.4.5. Pressure dosed gray water irrigation systems must meet the following minimum requirements:

A. Surge tanks must provide sufficient access to allow maintenance of the tank and pump. Surge tanks using a siphon should have a dose counter installed to check for continued function of the siphon;

B. High-water alarms must be provided for all surge tanks utilizing pumps;

C. The minimum dose volume must be equal to the drained volume of the discharge line and manifold plus a volume equal to at least 2 times the lateral volume;

D. The duration of each discharge should not exceed 15 minutes to promote uniform distribution and soil absorption;

E. The reserve volume of the dosing system surge tank must be at least equivalent to 25 percent of the design flow. This reserve volume is computed from the high-level alarm;

F. Cleanouts must be provided at the end of every lateral. Cleanouts must be within 6 inches of finished grade and should be made with either a long sweep elbow or 2 45-degree bends; and

G. Dosed irrigation systems should be field-tested to verify uniform

distribution.

6.9.5. Operation and Maintenance, Certification, and As-builts

6.9.5.1. Property owners are responsible for proper operation and maintenance of their gray water irrigation systems. Gray water systems that include kitchen wastewater may have increased maintenance requirements.

6.9.5.2. All public gray water irrigation systems must submit a detailed set of plans, specifications, and an operation and maintenance plan to the Department in accordance with Appendix D. Certification and as-built plans are required in accordance with Appendix D.

6.10. ABSORPTION BEDS

6.10.1. General

Absorption beds may be used as replacement wastewater treatment systems in existing lots where standard absorption trenches cannot be utilized. Absorption beds may be used as replacement for previously approved seepage pits. Absorption beds may not be used on new lots without an existing wastewater treatment system that has been in continuous use and that was permitted by the Department.

Absorption beds must meet the same requirements as standard absorption trenches as described in Subchapter 6.1, except where specifically modified in this chapter.

Rapid infiltration basins designed for effluent disposal rather than subsurface treatment must be designed in accordance with Department of Environmental Quality DEQ-2.

6.10.2. Design

6.10.2.1. Absorption beds must be more than 3 feet wide, and must be at least 2 feet in depth, unless a limiting condition requires a lesser depth, but in no case may the bed be less than 1 foot in depth.

6.10.2.2. A minimum of 2 distribution pipes installed per system.

6.10.2.3. Distribution piping should be separated by a minimum of 30 inches and a maximum of 48 inches and 18 to 30 inches from the edge of the excavation.

6.10.2.4. Absorption bed sizing is determined by flows described in Chapter 3, the application rates in Chapter 2, along with the procedure described in Section 6.1.4 or by using the maximum area available. Absorption beds shall not be installed with soils that have percolation rates greater than 60 mpi.

6.10.3. Construction

6.10.3.1. Absorption beds may be constructed in accordance with Chapter 2 but must not be constructed on unstabilized fill.

6.10.3.2. The excavation must be filled with a minimum of 6 inches of washed rock ~~or 6 inches of ASTM C-33-13 sand~~.

6.10.3.3. Distribution piping should be covered by 2 inches of drain rock meeting the requirements of Section 1.2.25.

6.10.3.4 Distribution piping must be installed to ensure uniform distribution of effluent.

6.10.3.5 Drain rock must be covered with an appropriate geotextile fabric, untreated building paper, or straw at least 4 inches in depth.

6.10.3.6 Backfill for beds should be loam type soils that do not form an impervious seal. High clay or silt content soils may not be used for backfill.

6.10.4. Gravelless or other absorption systems may be used in absorption beds. Gravelless or other absorption systems must be installed in accordance with Subchapter 6.6 and this subchapter. No reduction in sizing will be allowed for the use of gravelless or other systems in absorption beds.

7. ADVANCED WASTEWATER TREATMENT SYSTEMS

7.1. RECIRCULATING MEDIA TRICKLING FILTERS

7.1.1. General

These systems utilize aerobic, attached-growth treatment processes to biologically oxidize organic material and convert ammonia to nitrate (nitrification). A trickling filter consists of a bed of highly permeable medium to which a bio-film adheres in an unsaturated environment. Wastewater is applied to the top of the bed and trickles through the media. Microorganisms in the bio-film degrade organic material and may also nitrify the wastewater. An under-drain system collects the treated wastewater and any sloughed solids and transports it to a settling tank from which it is recirculated and trickled back through the media.

Due to the reduced amount of BOD_5 and TSS produced by this technology, the absorption system used for final disposal may be reduced, except where specifically prohibited in these Construction Standards, for the following soil types:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

The Department may request data from the recirculating trickling media filter to demonstrate performance criteria.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using a recirculating trickling media filter.

Classification of a recirculating media trickling filter as a Level 1a, Level 1b, or Level 2 system for nutrient reduction, under ARM 17.30.718, must be made under separate application. The Department may impose additional design requirements for systems with extremely low BOD_5 levels to ensure adequate treatment of effluent in the soil.

7.1.2. Design

7.1.2.1. The design criteria must include, but not necessarily be limited to, primary treatment, filter size, filter media, organic loading, hydraulic loading, dosing rate, and recirculation rate. The level of treatment provided by the recirculating media trickling filter must be provided.

7.1.2.2. Recirculating media trickling filter systems must have a means of primary and secondary settling. Additional components such as pump chambers, pumps,

controls, recirculation valves, etc. may be used as required.

7.1.2.3. Filter media must be resistant to spalling or flaking, and must be relatively insoluble in wastewater. The type, size, depth, volume, and clogging potential of the medium used must be based on published criteria and proven through monitoring and testing in accordance with Appendix D.

7.1.2.4. The vessel containing the media must be watertight and corrosion resistant.

7.1.2.5. Waste effluent must be distributed uniformly across the design surface area of the filter.

7.1.2.6. The means of aerating the media must be described.

7.1.2.7. The method of recirculation and recirculation rate must be discussed and justified to show adequate functioning of the system. The recirculation tank must meet the same material and construction specifications as a septic tank. The Department may require systems with large surge flows to have recirculation tank size based on the estimated or actual surge flow volume.

7.1.2.8. All recirculating trickling systems must operate in a manner such that, if a component of the system fails and treatment diminishes or ceases, untreated effluent will not be discharged to the absorption system. Systems must be equipped with adequate alarms.

7.1.3. A detailed set of plans and specifications and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D.

7.1.4. Gravelless or other absorption systems constructed in accordance with the requirements of Subchapter 6.6 may be used in lieu of a standard absorption trench. The use of gravelless trenches and other absorption systems will not qualify for any additional reduction beyond that listed in Section 7.1.1.

7.2. INTERMITTENT SAND FILTERS

7.2.1. General

The design criteria must include, but not necessarily be limited to, the type of usage, primary treatment, filter media, filtration rate, and dosage rate.

The wastewater strength discharged to the filter must not exceed residential strength wastewater. Intermittent sand filters must discharge to a subsurface absorption system.

Due to the reduced amount of BOD_5 and TSS produced by intermittent sand filters, the absorption system used for final disposal may be reduced for the following soil types except where specifically addressed in these Construction Standards:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an intermittent sand filter.

Intermittent sand filters classified as Level 1a, Level 1b, or Level 2 systems, as defined in ARM 17.30.718, may have additional requirements beyond those listed in these Construction Standards.

7.2.2. Design

7.2.2.1. The minimum area in any subsurface sand filter must be based upon flow rates as determined in Chapter 3.

7.2.2.2. The application rate for intermittent sand filters may not exceed 1.0 gpd/ft^2. This must be computed by dividing the effluent flow rate by the area, in square feet, of the filter.

7.2.2.3. A minimum of one 4-inch in diameter collection line must be provided at the bottom of the intermittent sand filter. The upper end of the collection line(s) must be provided with a 90-degree elbow turned up, a pipe to the surface of the filter, and a removable cap. The collection(s) line may be level. The bottom of the filter may be level or sloped to the collection line(s).

7.2.2.4. Distribution lines must be level and must be horizontally spaced a maximum of 3 feet apart, center-to-center. Orifices must be placed such that that there is at least one orifice for each 4 square feet of sand surface area. All intermittent sand filter dosing must be controlled by a programmable timer. The minimum depth of filter

media must be 24 inches.

7.2.2.5. A watertight, 30-mil PVC liner, or equivalent, must be used to line the sand filter.

7.2.2.6. There must be a minimum of 2 inches of sand fill between the natural soil surface and/or any projecting rocks and the liner.

7.2.2.7. Washed drain rock meeting the requirements of Section 1.2.25 must be placed in the bottom of the system to provide a minimum depth of 8 inches in all places and to provide a minimum of 4 inches of material over the top of the collection lines.

7.2.2.8. The drain rock must be covered with a 3-inch thick layer of 1/4-inch to 1-inch washed gravel.

7.2.2.9. A minimum of 24 inches of filter sand media must be placed above the 1/4-inch to 1-inch washed gravel.

7.2.2.10. A layer of 1/4-inch to 1-inch washed gravel must be placed over the sand media, with at least 3 inches placed over the distribution lines and 3 inches placed under the distribution lines. The distribution pipes must be installed in the center of this layer, and all parts of the distribution system must drain between cycles.

7.2.2.11. An appropriate geotextile fabric, untreated building paper, or straw must be used to separate the top layer of washed gravel containing the distribution lines and the sand media to keep silt from moving into the sand while allowing air and water to pass through the fabric.

7.2.2.12. The intermittent sand filter must be backfilled with 6 inches at the edges to 8 inches at the center of a suitable medium, such as sandy loam or loamy sand that is then planted with sod or other shallow-rooted vegetative cover.

7.2.2.13. Monitoring pipes to detect filter clogging must be installed. A means for sampling effluent quality must be provided.

7.2.3. Pressure distribution in accordance with Subsection 4.2.3.3, except Subsection 4.2.3.3.D, must be provided for all sand filters.

7.2.4. The dose volume must not exceed 0.25 gallons per dose per orifice. The dose frequency must not exceed 1 dose per hour per zone. The dose tank must include a minimum surge volume of 1/2 the daily flow for individual or shared systems. For multiple-user and public systems, the applicant must demonstrate that a smaller surge volume is adequate. The surge volume is the liquid storage capacity between the "timer-on" float and the "timer-override" float. The "timer-override" float and the "high-water alarm" float may be combined. Note that the surge volume defined here is not the same as the reserve storage volume defined in Chapter 4.

7.2.5. Materials

7.2.5.1. Washed drain rock meeting the requirements of Section 1.2.25 must be a minimum of 1 inch in diameter to prevent clogging.

7.2.5.2. Washed gravel measuring 1/4-inch to 3/4 inch in diameter must meet the following gradation:

Sieve	Particle Size (mm)	Percent Passing
1 inch	25	100
3/4 inch	19	50 to 100
3/8 inch	9.5	30 to 80
No. 4	4.75	0 to 10
No. 8	2.36	0 to 2
No. 16	1.18	0 to 1

7.2.5.3. The filter media must be washed and free of clay or silt and contain the following criteria in place:

Sieve	Particle Size (mm)	Percent Passing
3/8 in	9.50	100
No. 4	4.75	95 to 100
No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	15 to 60
No. 50	0.30	3 to 10
No. 100	0.15	0 to 2

7.2.5.4. The intermittent sand filter must be covered by a suitable medium, such as sandy loam or loamy sand, to provide drainage and aeration. The material must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

7.2.6. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

7.2.7. Gravelless trenches and other absorption systems, constructed in accordance with the requirements of Subchapter 6.6, may be used in lieu of a standard absorption trench. The use of gravelless trenches and other absorption systems will not qualify for any additional reduction beyond that listed in Section 7.2.1.

7.3. RECIRCULATING SAND FILTERS

7.3.1. General

The design criteria must include, but not necessarily be limited to, the type of usage, primary treatment, filter media, filtration rate, and dosage rate. The wastewater strength discharged to the sand filter must not exceed residential strength wastewater. Recirculating sand filters must discharge to a subsurface absorption system.

Due to the reduced amount of BOD_5 and TSS produced by recirculating sand filters, the absorption system used for final disposal may be reduced for the following soil types except where specifically addressed in these Construction Standards:

A. For subsurface absorption systems, constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using a recirculating sand filter.

Recirculating sand filters classified as Level 1a, Level 1b, or Level 2 systems, as defined in ARM 17.30.718, may have additional requirements beyond those listed in these Construction Standard.

7.3.2. Design

7.3.2.1. A watertight 30-mil PVC liner, or equivalent, must be used to line the sand filter. There must be a minimum of 2 inches of sand fill between the soil surface and/or any projecting rocks and the liner.

7.3.2.2. Entrance and exit points resulting in liner penetration must be water tight.

7.3.2.3. Drain rock meeting the requirements of Section 1.2.25 must be placed in the bottom of the filter, providing a minimum depth of 6 inches in all places and providing a minimum of 2 inches of material over the top of the collection lines. The drain rock must be covered with a 3-inch layer of 1/4-inch to 3/4-inch washed gravel meeting the gradation chart in Subsection 7.2.5.2. Drain rock for the under-drain lines must meet the requirements for a standard absorption system, except it must be a minimum of 1 inch in diameter to prevent clogging.

7.3.2.4. The depth of filter media must be at least 24 inches. The media must have a Uniformity Coefficient of 2 or less, must be washed, and must meet the following gradation:

Sieve	Particle Size (mm)	Percent Passing
1/2 in	12.5	100
3/8 in	9.50	50 to 95
No. 4	4.75	0 to 15
No. 8	2.36	0 to 1.6

7.3.2.5. The filter media must be covered with a layer of 3/4- to 1.5-inch washed gravel at least 6 inches thick. The distribution pipes must be installed in the center of this layer, and all parts of the distribution system must drain between cycles.

7.3.2.6. For sizing the filter, the application rate must not exceed 5 gallons per day per square foot of filter area. This must be computed by dividing the effluent flow rate, not considering the amount of recirculation, by the area, in square feet, of the filter.

7.3.2.7. The liquid capacity of the recirculation tank must be at least 1.5 times the daily design wastewater flow. The recirculation tank must meet the same material and construction specifications as a septic tank. The minimum liquid level in the recirculation tank must be at least 80 percent of the daily flow at all times during the 24-hour daily cycle. The Department may require systems with large surge flows to have recirculation tank size based on the estimated or actual surge flow volume.

7.3.2.8. The filter-effluent line passing through the recirculation tank must be provided with a control device that directs the flow of the filter effluent. The filter effluent will be returned to the recirculation tank for recycling or be discharged to the subsurface absorption system, depending upon the liquid level in the recirculation tank. The recirculation pump(s) must be located at the opposite end of the recirculation tank from the filter return line and the tank inlet(s).

7.3.2.9. The system must be designed with a minimum recirculation ratio of not less than four. Each orifice must be dosed at least every 30 minutes, and the maximum dose volume must be 2 gallons per orifice per dose. All recirculating sand-filter dosing must be controlled with a programmable timer.

7.3.2.10. A minimum of 1 4-inch in diameter collection line must be provided. The upper end of the collection line(s) must be provided with a sweep to the surface which includes a 90-degree elbow turned up, a pipe to the surface of the filter, and a removable cap. The collection line(s) may be level. The bottom of the filter may be level or sloped to the collection line(s)

7.3.2.11. Distribution lines must be level and must be horizontally spaced a maximum of 3 feet apart, center-to-center. Orifices must be placed such that there is at least one orifice for each 4 square feet of filter media surface area.

7.3.2.12. The effluent must be discharged in such a manner as to provide uniform

distribution in accordance with Subsection 4.2.3.3, except for Subsection 4.2.3.3.D.

7.3.2.13. The distribution line must be designed for freezing conditions. The plans and engineering report will specify how this is accomplished.

7.3.2.14. Topsoil or other oxygen-limiting materials must not be placed over the filter.

7.3.3. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

7.3.4. Gravelless trenches and other absorption systems, constructed in accordance with the requirements of Subchapter 6.6, may be used in lieu of a standard absorption trench. The use of gravelless trenches and other absorption systems will not qualify for any additional reduction beyond that listed in Section 7.3.1.

7.4. AEROBIC WASTEWATER TREATMENT UNITS

7.4.1. General

Aerobic treatment units (ATUs) are concrete tanks or other containers of various configurations that provide for aerobic biodegradation or decomposition of the wastewater components in a saturated environment by bringing the wastewater in contact with air by some mechanical means. ATUs are exclusively proprietary products representing a wide variety of designs, materials, and methods of assembly.

Classification of ATUs as Level 1a, Level 1b, or Level 2 systems for nutrient reduction, under ARM 17.30.718, must be made under separate application.

All ATUs must discharge to a subsurface wastewater treatment system. This treatment system must be sized in accordance with Chapters 2~~,~~ and 3~~,~~ and Section 6.1.4. Aerobic treatment devices must demonstrate compliance with the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification. This compliance may be demonstrated either through NSF, through a third independent party using comparable protocol, or through the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD_5 and 30 mg/L TSS only. ATUs may apply the following sizing reduction to the subsurface absorption area:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an ATU.

7.4.2. An adequate form of positive filtration will be required between the treatment device and the disposal component to prevent excessive solids from being carried over into the disposal component during periods of bulking.

7.4.3. ATU systems must provide primary treatment for wastewater through a septic tank that meets all of the requirements of Chapter 5. Designs for the use of an external trash rack will be evaluated on a case-by-case basis.

7.4.4. Access ports

7.4.4.1. Ground level access ports must be sized and located to facilitate installation, removal, sampling, examination, maintenance, and servicing of components or compartments that require routine maintenance or inspection.

7.4.4.2. Access ports must be protected against unauthorized intrusion. Acceptable

protective measures include, but are not limited to, padlocks or covers that can be removed only with tools.

7.4.5. Failure sensing and signaling equipment

7.4.5.1. The ATU must possess a mechanism or process capable of detecting:

A. failure of electrical and mechanical components that are critical to the treatment process; and,
B. high liquid level conditions above the normal operation specifications.

7.4.5.2. The ATU must possess a mechanism or process capable of notifying the system owner of failure identified by the failure sensing components. The mechanism must deliver a visible and audible signal.

7.4.6. Installation

ATUs must be installed according to the manufacturer's instructions.

7.4.7. Sampling ports

7.4.7.1. A sampling port must be designed, constructed, and installed to provide easy access for collecting a water sample from the effluent stream. The sampling port may be located within the ATU or other system component, such as a pump chamber, provided that the wastewater stream being sampled is representative of the effluent stream from the ATU.

For ATUs using effluent disinfection to meet the fecal coliform criteria, the sampling port must be located downstream of the disinfection component, including the contact chamber if chemical disinfection is used, so that samples will accurately reflect disinfection performance.

7.4.7.2. Sampling ports must be protected against unauthorized intrusion, as described in Subsection 7.4.4.2.

7.4.8. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

7.5. CHEMICAL NUTRIENT REDUCTION SYSTEMS

7.5.1. General

Chemical nutrient reduction systems are used to provide advanced treatment of septic tank effluent. The monitoring frequency must be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic conditions. The Department will consider the complexity and maintenance required of the system, the stability of the processes, and the monitoring data in determining the adequacy, level of maintenance, and monitoring frequency of the system.

A means of securing continuous maintenance and operation of the system must be approved by the Department.

7.5.2. Design

Specific design criteria will not be outlined in this document due to the various alternatives and design complexity involved. The EPA manual, *On-Site Wastewater Treatment Systems Manual* (February 2002), pages TFS-41 to 52, will be used as a guideline for the design of these systems.

7.5.3. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

7.6. ALTERNATIVE ADVANCED TREATMENT SYSTEMS

7.6.1. General

Alternative advanced treatment systems will be evaluated by the Department on a case-by-case basis.

7.6.2. Design

Specific design criteria will not be outlined in this document due to the various alternatives and design complexity involved.

Those systems that provide documentation or demonstrate through a third independent party that the unit is able to meet the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification or meet the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD_5 and 30 mg/L TSS only may apply the following sizing reduction to the subsurface absorption area:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 50 percent;
B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 mpi as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25 percent.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an alternative advanced treatment system.

7.6.3. Classification as a Level 1a, Level 1b, or Level 2 system for nutrient reduction, under ARM 17.30.718, must be made under separate application. Additional design requirements may apply.

7.6.4. Operation and Maintenance, Certification, and As-builts

A detailed set of plans, specifications, and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D. Certification and as-built plans are required in accordance with Appendix D.

8. MISCELLANEOUS

8.1. HOLDING TANKS

8.1.1. General

Holding tanks are used to hold wastewater until pumping occurs by a licensed septic tank pumping service and wastewater is disposed at an approved location. They are used for storage and do not, as part of their normal operation, dispose of or treat the wastewater**.**

8.1.2. Holding tanks are septic tanks that have no standard outlets and are modified to provide full time access for pumping.

8.1.3. Holding tanks must have a minimum capacity of 1,000 gallons. Larger tank capacity may be required by the Department.

8.1.4. Holding tanks must meet the construction standards for septic tanks in Chapter 5, except that no outlet opening shall be cast in the tank walls.

8.1.5. 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.

8.1.6. Holding tanks installed where the seasonal ground water table may reach any portion of the tank must be evaluated for buoyancy by a qualified individual and flotation prevented. The tanks must be a single pour (seamless) tank design, and must be waterproofed against infiltration.

8.1.7. Holding tanks must meet the separation distances and other applicable requirements in ARM Title 17, Chapter 36, subchapter 3 or 9, as applicable.

8.2. SEALED (VAULT) PIT PRIVY

8.2.1. General

A sealed pit privy is an underground vault for the temporary storage of non-water-carried wastewater. The vault must be pumped periodically and the wastewater disposed of at a treatment site.

8.2.2. Construction

8.2.2.1. The vault must be watertight, constructed of durable material, and not subject to excessive corrosion, decay, frost damage, or cracking.

8.2.2.2. The vault may be used in a floodplain or high ground water area provided that the floor surface of the privy is 1 foot above the floodplain elevation and the weight of the structure is adequate to prevent the vault from floating during high ground water or a flood even when the vault is empty. The vault must be evaluated for buoyancy by a qualified individual ~~and~~ to assure flotation is prevented.

8.2.2.3. The access or pumping port should be located outside of any structure and should have a minimum diameter of 8 inches. This access must have a tight, locking lid.

8.2.2.4. The vault may be a modified septic tank with the inlet and outlet opening sealed. The toilet structure over the tank vault must meet construction standards for a pit privy, as described in Section 8.3.2.

8.2.3. Maintenance and Operation

The vault must be pumped prior to reaching the maximum capacity of the tank by a licensed septic tank pumper and wastewater is disposed of at an approved location.

8.3. WASTE SEGREGATION

8.3.1. General

Waste segregation systems consist of dry disposal for human waste, such as various biological or composting and incinerator type systems, with separate disposal for gray water.

8.3.2. Location

A complete layout must be provided showing the location of the absorption system and the location of a replacement site with adequate area for a full-size system not utilizing waste segregation, or an alternate approved wastewater treatment system for future development needs.

8.3.3. Design

These Construction Standards addresses the specific requirements relating to the use of composting and incinerating toilets. The Department may allow the use of other designs and materials pursuant to the review of manufacturer's information and data to substantiate the proposed alternative.

8.3.3.1. Composting Toilets

A. An applicant for a composting toilet must have documentation, or demonstrate through a third independent party, that the unit is able to meet the testing criteria and performance requirements for NSF Standard 41.
B. All materials used must be durable, easily cleanable, and impervious to strong acid or alkaline solutions and corrosive environments.
C. Composting toilets must be used in accordance with the manufacturer's recommendation to serve the anticipated number of persons.
D. The composting unit must be constructed to separate the solid fraction from the liquid fraction and produce a stable humus material with less than 200 most probable number (MPN) per gram of fecal coliform.
E. Bulking agents may be added to provide spaces for aeration and microbial colonization.
F. When operated at the design rated capacity, the device must be capable of accommodating full- or part-time usage.
G. Continuous forced ventilation to the outside (e.g. electric fan or wind-driven turbo vent) of the storage or treatment chamber must be provided. Ventilation components must be independent of other household venting systems. Venting connections must not be made to room vents or to chimneys. All vents must be designed to prevent flies and other insects from entering the treatment chamber. Vent conduits and pipes must be adequately insulated to prevent the formation of interior-condensed vapors.
H. Components in which biological activity is intended to occur must be insulated, heated, or otherwise protected from low temperature conditions.

In order to maintain the stored wastes at temperatures conducive to aerobic biological decomposition, it is recommended that the components maintain a temperature range of 20° C - 55° C (68° F - 130° F). The device must be capable of maintaining wastes within a moisture range of 40 percent to 75 percent.

I. The device must be designed to prevent the deposition of inadequately treated waste near the clean-out port. The solid end product (i.e. waste humus) must be stabilized to meet NSF criteria prior to removal at the clean-out port.

J. Any liquid overflow must be discharged to a disposal field designed and approved in accordance with these Construction Standards.

K. The contents of a composting toilet shall be removed and disposed of in compliance with 40 CFR Part 503 and Title 75, Chapter 10, MCA.

L. The owner of a composting toilet shall maintain the waste disposal system.

8.3.3.2. Incinerating Toilets

A. Incinerating toilets may be electric or gas-fired.

B. An applicant for an incinerating toilet must have documentation, or demonstrate through a third independent party, that the unit is able to meet the testing criteria and performance requirements for NSF Standard 41.

C. Incinerating toilets must be used in accordance with the manufacturer's recommendation to serve the anticipated number of persons.

D. All gas-fired incinerating toilets must be plumbed and installed as per the manufacture's recommendation and local requirements.

E. An anti-foaming agent may be added to incinerating toilets to prevent boil-over of liquid waste.

F. When operated at the design rated capacity, the device must be capable of accommodating full- or part-time usage.

G. The contents of an incinerating toilet must be removed and disposed of in compliance with 40 CFR Part 503 and Title 75, Chapter 10, part 2, MCA.

H. Vapor and products of combustion must be vented. Ventilation components must be independent of other household venting systems.

I. Incinerating toilets must be installed and operated in accordance with local air pollution requirements.

J. The owner of an incinerating toilet shall maintain the waste disposal system.

8.4. EXPERIMENTAL SYSTEMS

8.4.1. General

Treatment systems not listed in these Construction Standards may receive a waiver for use as experimental systems. Experimental systems may be considered only under the following conditions:

8.4.1.1. The applicant shall provide adequate information to the Department that ensures the system will effectively treat the wastewater in a manner that will prevent ground water contamination and will meet all of the requirements of ARM Title 17, Chapter 36, subchapter 9.

8.4.1.2. The applicant shall include a complete description of a scientific evaluation process to be carried out by a scientific, educational, governmental, or engineering organization.

8.4.1.3. The applicant shall provide for any funding necessary to provide adequate design, installation, monitoring, and maintenance.

8.4.1.4. A professional engineer shall design the system.

8.4.2. Department

The Department may place any requirements or restrictions it deems necessary on an experimental system. All requirements for conventional systems must apply to experimental systems, except those specifically exempted by waiver. Applicants shall provide for inspections to be made by persons acceptable to the Department. Monitoring and inspections must be conducted as required by the Department. The monitoring and inspection results must be submitted to the Department. The reviewing authority may require that a redundant system (i.e., a system that meets the requirements of another chapter of these Construction Standards) be installed in parallel with the experimental system.

8.4.3. Seller's Disclosure

Any person who sells a property containing an experimental system shall disclose all permit, monitoring, and maintenance requirements to the buyer.

8.4.4. Maintenance and Operation

8.4.4.1. Continuous maintenance and operation must be provided for the life of the system by a management entity acceptable to the Department. The type of entity required and the degree of management must be commensurate with the complexity of the system and the site conditions.

8.4.4.2. The management entity shall be responsible for monitoring the operation of the

system.

8.4.4.3. Frequent inspections, as determined by the Department, of the mechanical equipment must be provided during the first 90-day start-up period.

8.4.4.4. The routine inspection schedule must be quarterly at a minimum.

8.4.4.5. Records, both of maintenance and performance, must be kept and made available to the Department upon request.

8.4.4.6. All manufacturers of experimental systems shall provide an operation and maintenance plan in accordance with Appendix D.

APPENDIX A - PERCOLATION TEST PROCEDURE

Properly conducted percolation tests may be needed to determine absorption system site suitability and to size the absorption system. If needed, percolation tests must be conducted within the boundary of the proposed absorption system. The percolation test must be completed by a qualified site evaluator approved by the Department. Some system designs may dictate different test procedures than those outlined below. Please see applicable chapters for further requirements.

Procedures outlined in ASTM D5093-02, Field Measurement of Infiltration Rate Using a Double-Ring Infiltrometer with a Sealed-Inner Ring, may be required in addition to those listed below.

Test Hole Preparation

1. Dig or bore holes 6 to 10 inches in diameter with vertical sides. The depth of the holes must be at the approximate depth of the proposed absorption trenches, typically 24 inches below ground. If the hole is larger than 6 to 8 inches, place a piece of 4-inch diameter, perforated pipe inside the hole, and fill the space between the pipe and the walls of the hole with drain rock. It is recommended that a sketch or photograph of the hole be provided to the reviewing authority.

2. Roughen or scratch the bottoms and sides of the holes to provide natural unsmeared surfaces. Remove loose material. Place about 2 inches of 3/4-inch washed gravel in the bottom of holes to prevent scouring during water addition.

3. Establish a reference point for measurements in or above each hole.

Soaking

1. Fill holes with clear water to a level of at least 12 inches above the gravel.

2. If the soil is coarser than sandy clay loam and the first 12 inches of water seeps away in 60 minutes or less, add 12 inches of water a second time. If the second filling seeps away in 60 minutes or less, the percolation test should be run immediately in accordance with the sandy soil test. If both the first and second fillings have percolation rates faster than 3 mpi, the test may be stopped.

3. If either the soil is sandy clay loam or finer, or the first 12 inches or the second 12 inches does not seep away in 60 minutes, the percolation test must be run in accordance with the test for other soils. In these other soils, maintain at least 12 inches of water in the hole for at least 4 hours to presoak the hole.

Sandy Soils Test (percolation rate of 10 mpi or faster)

This test is applicable to sandy soils only (percolation rate of 10 mpi or faster). Add water to provide a depth of 6 inches above gravel. Measure water level drop

at least four times, in equally spaced intervals, in a 1-hour time period. Measure to nearest 1/4 inch. Refill to 6-inch depth after each measurement. Do not exceed 6-inch depth of water. Use final water-level drop to calculate rate.

Other Soils Test (percolation rate slower than 10 mpi)

This test is applicable to other soils (percolation rate slower than 10 mpi). Remove loose material on top of gravel. Add water to provide a depth of 6 inches above gravel. Measure water levels for a minimum of 1 hour. A minimum of 4 measurements must be taken. The test must continue until 2 successive readings yield percolation rates that do not vary by more than 15 percent, or until measurements have been taken for 4 hours. Do not exceed 6-inch depth of water. Use final water-level drop to calculate rate.

Records

Record the following information on the attached form and include as part of the application:

- Date(s) of test(s)
- Location, diameter, and depth of each test hole,
- Time of day that each soak period began and ended
- Time of day for beginning and end of each water-level drop interval
- Each water-level drop measurement
- Calculated percolation rate
- Name and signature of person performing test
- Name of owner or project name.

Rate Calculation

Percolation Rate = Time interval in minutes/water-level drop in inches.

PERCOLATION TEST FORM

Owner Name _____

Project Name _____

Lot of Tract Number _____ Test Number _____

Diameter of Test Hole _____ Depth of Test Hole _____

Date and Time Soak Period Began _____ Ended _____

Date Test Began _____

Distance of the reference point above the bottom of the hole _____

Test Results

Start Time of Day	End Time of Day	Time Interval (minutes)	Initial Distance Below Reference Point	Final Distance Below Reference Point	Drop in Water Level (inches)	Percolation Rate (mpi)

I certify that this percolation test was done by a qualified site evaluator in accordance with DEQ-4 Section 1.2.68 and Appendix A.

_____ _____ _____

Name (printed) Signature Date

_____

Company

APPENDIX B - SOILS AND SITE CHARACTERIZATION

Accurate description of soil types must be based on information within Appendix B for evaluating the soils in the area of the proposed absorption system to determine if suitable conditions for wastewater treatment and disposal exist. Appendix B provides guidance for reporting soil characteristics using terminology generally accepted by the field of soil science. Application rate for wastewater treatment and disposal is based on soil characteristics using this terminology and the relative proportions of sand, silt and clay within a soil matrix.

Soil Texture

Soil texture refers to the weight proportion of the separates for particles less than 2 mm. Field criteria for estimating soil texture must be chosen to fit the soils of the area. Sand particles feel gritty and can be seen individually with the naked eye. Silt particles cannot be seen individually without magnification. They have a smooth feel to the fingers when dry or wet. In some places, clay soils are sticky, in others, they are not. Soils dominated by montmorillonite clays, for example, feel different than soils that contain similar amounts of micaceous or kaolinitic clay. The Department may require that field estimates of soil texture be checked against laboratory determinations and adjusted as necessary when soil texture cannot be identified.

Definitions of the soil texture classes according to distribution of size classes of mineral particles less than 2 mm in diameter are as follows:

Sands: 85 percent or more sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or less.

Coarse sand: 25 percent or more very coarse and coarse sand and less than 50 percent any other single grade of sand.

Sand: 25 percent or more very coarse, coarse, and medium sand, but less than 25 percent very coarse and coarse sand, and less than 50 percent either fine sand or very fine sand.

Fine sand: 50 percent or more fine sand, or less than 25 percent very coarse, coarse, and medium sand, and less than 50 percent very fine sand.

Very fine sand: 50 percent or more very fine sand.

Loamy sands: At the upper limit, 85 to 90 percent sand and the percentage of silt, plus 1.5 times the percentage of clay, is 15 or more. -At the lower limit, 70 to 85 percent sand and the percentage of silt, plus twice the percentage of clay, is 30 or less.

Loamy coarse sand: 25 percent or more very coarse and coarse sand and less than 50 percent any other single grade of sand.

Loamy sand: 25 percent or more very coarse, coarse, and medium sand, but less than 25 percent very coarse and coarse sand, and less than 50 percent either fine sand or very fine

sand.

Loamy fine sand: 50 percent or more fine sand or less than 50 percent very fine sand and less than 25 percent very coarse, coarse, and medium sand.

Loamy very fine sand: 50 percent or more very fine sand.

Sandy loams: 20 percent or less clay and 52 percent or more sand and the percentage of silt, plus twice the percentage of clay, exceeds 30, or less than 7 percent clay, less than 50 percent silt, and between 43 and 52 percent sand.

Coarse sandy loam: 25 percent or more very course and coarse sand and less than 50 percent any other single grade of sand.

Sandy loam: 30 percent or more very coarse, coarse, and medium sand, ~~(~~but less than 25 percent very coarse and coarse sand~~)~~, and less than 30 percent either fine sand or very fine sand.

Fine sandy loam: 30 percent or more fine sand and less than 30 percent, or between 15 to 30 percent very coarse, coarse, and medium sand, or more than 40 percent fine and very fine sand, at least half of which is fine sand, and less than 15 percent very coarse, coarse, and medium sand.

Very fine sandy loam: 30 percent or more very fine sand or more than 40 percent fine and very fine sand, at least half of which is very fine sand, and less than 15 percent very coarse, coarse, and medium sand.

Loam: 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

Silt loam: 50 percent or more silt and 12 to 27 percent clay or 50 to 80 percent silt and less than 12 percent clay.

Silt: 80 percent or more silt and less than 12 percent clay.

Sandy clay loam: 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more sand.

Clay loam: 27 to 40 percent clay and 20 to 45 percent sand.

Silty clay loam: 27 to 40 percent clay and less than 20 percent sand.

Sandy clay: 35 percent or more clay and 45 percent or more sand.

Silty clay: 40 percent or more clay and 40 percent or more silt.

Clay: 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Necessarily, these verbal definitions are somewhat complicated. The texture triangle is used to

resolve problems related to word definitions. The eight distinctions in the sand and loamy sand groups provide refinement greater than can be consistently determined by field techniques. Only those distinctions that are significant and that can be consistently made in the field should be applied.

Particle Size Distribution

Particle size distribution (fine earth or less than 2 mm) is determined in the field mainly by feel. The content of rock fragments is determined by estimating the proportion of the soil volume that they occupy.

Soil

The United States Department of Agriculture uses the following size separates for the <2 mm mineral material:

Very coarse sand: 2.0 – 1.0 mm
Coarse sand: 1.0 – 0.5 mm
Medium sand: 0.5 – 0.25 mm
Fine sand: 0.25 – 0.10 mm
Very fine sand: 0.10 – 0.05 mm
Silt: 0.05 – 0.002 mm
Clay: <0.002 mm

The texture classes are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. Subclasses of sand are subdivided into coarse sand, sand, fine sand, and very fine sand. Subclasses of loamy sands and sandy loams that are based on sand size are named similarly.

Rock Fragments

Rock fragments are unattached pieces of rock 2 mm in diameter, or larger, that are strongly cemented or more resistant to rupture. Rock fragments include all sizes that have horizontal dimensions less than the size of a pedon.

Rock fragments are described by size, shape, and, for some, the kind of rock. The classes are pebbles, cobbles, channers, flagstones, stones, and boulders. If a size or range of sizes predominates, the class is modified as, for example: "fine pebbles," "cobbles 100 to 150 mm in diameter," and "channers 25 to 50 mm in length."

Gravel is a collection of pebbles that have diameters ranging from 2 to 75 mm. The terms "pebble" and "cobble" are usually restricted to rounded or subrounded fragments. However, they can be used to describe angular fragments if they are not flat. Words like chert, limestone, and shale refer to a kind of rock, not a piece of rock. The upper size of gravel is 3 inches (75 mm). The 5-mm and 20-mm divisions for the separation of fine, medium, and coarse gravel coincide with the sizes of openings in the "number 4" screen (4.76 mm) and the "3/4-inch" screen (19.05 mm) used in engineering.

The 75-mm (3-inch) limit separates gravel from cobbles. The 250-mm (10-inch) limit separates cobbles from stones and the 600-mm (24-inch) limit separates stones from boulders. The 150-mm (channers) and the 380-mm (flagstones) limits for thin, flat fragments follow conventions used for many years to provide class limits for plate-shaped and crudely spherical rock fragments that have about the same soil use implications as the 250-mm limit for spherical shapes.

Rock Fragments in Soil

The adjectival form of a class name of rock fragments (Appendix B, Table B-1) is used as a modifier of the textural class name: "gravelly loam," and "stony loam." The following classes, based on volume percentages, are used:

Less than 15 percent: No adjectival or modifying terms are used in writing for contrast with soils having less than 15 percent pebbles, cobbles, or flagstones. The adjective "slightly" may be used, however, to recognize those soils used for special purposes.

15 to 35 percent: The adjectival term of the dominant kind of rock fragment is used as a modifier of the textural terms: "gravelly loam," "channery loam," and "cobbly loam."

35 to 60 percent: The adjectival term of the dominant kind of rock fragment is used with the word "very" as a modifier of the textural term: "very gravelly loam" and "very flaggy loam."

More than 60 percent: If enough fine earth is present to determine the textural class (approximately 10 percent or more by volume), the adjectival term of the dominant kind of rock fragment is used with the word "extremely" as a modifier of the textural term: "extremely gravelly loam," and “extremely bouldery loam." If there is too little fine earth to determine the textural class (less than about 10 percent by volume), the terms "gravel," "cobbles," "stones," or "boulders" are used as appropriate.

The class limits apply to the volume of the layer occupied by all pieces of rock larger than 2 mm. The soil generally contains fragments smaller or larger than those identified in the term. For example, a stony loam usually contains pebbles, but "gravelly" is not mentioned in the name. The use of a term for larger pieces of rock, such as boulders does not imply that the pieces are entirely within a given soil layer. A simple boulder may extend through several layers.

Table B-1
Terms for Rock Fragments

Shape and size	Noun	Adjective
Spherical, cubelike, or equiaxial:		
2-75 mm diameter	Pebbles	Gravelly
2-5 mm diameter	Fine	Fine gravelly
5-20 mm diameter	Medium	Medium gravelly
20-75 mm diameter	Coarse	Coarse gravelly
75-250 mm diameter	Cobbles	Cobbly
250-600 mm diameter	Stones	Stony
> 600 mm diameter	Boulders	Bouldery
Flat:		
2-150 mm long	Channers	Channery
150-380 mm long	Flagstones	Flaggy
380-600 mm long	Stones	Stony
> 600 mm long	Boulders	Bouldery

Table B-2
Classes of Surface Stones and Boulders in Terms of Cover and Spacing

Class	Percentage of surface covered	Distance in meters between stones or boulders if the diameter is:			Name
		0.25m	0.6m	1.2m	
1	0.01 - 0.1	>8	>20	>37	Stony or bouldery
2	0.1 - 3.0	1 - 8	3 - 20	6 - 37	Very stony or very bouldery
3	3.0 - 15	0.5 - 1	1 - 3	2 - 6	Extremely stony or extremely bouldery
4	15 - 50	0.3 - 0.5	0.5 - 1	1 - 2	Rubbly
5	50 - 90	<0.3	<0.05 - 1	<1	Very rubbly

Soil Color

Elements of soil color descriptions are the color name, the Munsell notation, the water state, and the physical state: "brown (10YR 5/3), dry, crushed, and smoothed."

Physical state is recorded as broken, rubbed, crushed, or crushed and smoothed. The term "crushed" usually applies to dry samples and "rubbed" to moist samples. If unspecified, the surface is broken. The color of the soil is recorded for a surface broken through a ped, if a ped can be broken as a unit.

The color value of most soil material becomes lower after moistening. Consequently, the water state of a sample is always given. The water state is either "moist" or "dry." The dry state for color determinations is air-dry and should be made at the point where the color does not change with additional drying. Color in the moist state is determined on moderately moist or very moist soil material and should be made at the point where the color does not change with additional moistening. The soil should not be moistened to the extent that glistening takes place, as color determinations of wet soil may be in error because of the light reflection of water films.

Munsell notation is obtained by comparison with a Munsell system color chart. The most commonly used chart includes only about 1/5 of the entire range of hues. It consists of about 250 different colored papers, or chips, systematically arranged on hue cards according to their Munsell notations.

The Munsell color system uses 3 elements of color – hue, value, and chroma – to make up a color notation. The notation is recorded in the form: hue, value/chroma – for example, 5Y 6/3.

Hue is a measure of the chromatic composition of light that reaches the eye. The Munsell system is based on five principle hues: red (R), yellow (Y), green (G), blue (B), and purple (P). Five intermediate hues representing midpoints between each pair of principle hues complete the 10 major hue names used to describe the notation. The intermediate hues are yellow-red (YR), green-yellow (GY), blue-green (BG), purple-blue (PB), and red-purple (RP).

Value indicates the degree of lightness or darkness of a color in relation to a neutral gray scale. On a neutral gray (achromatic) scale, value extends from pure black (0/) to pure white (10/). The value notation is a measure of the amount of light that reaches the eye under standard lighting conditions.

Chroma is the relative purity or strength of the spectral color. Chroma indicates the degree of saturation of neutral gray by the spectral color. The scales of chroma for soils extend from /0 to a chroma of /8 as the strongest expression of color used for soils.

Conditions for Measuring Color

The quality and intensity of the light affect the amount and quality of the light reflected from the sample to the eye. The moisture content of the sample and the roughness of its surface affect the light reflected. The visual impression of color from the standard color chips is accurate only under standard conditions of light intensity and quality. Color determination may be inaccurate

early in the morning or late in the evening. When the sun is low in the sky or the atmosphere is smoky, the light reaching the sample and the light reflected is redder. Even though the same kind of light reaches the color standard and the sample, the reading of sample color at these times is commonly one or more intervals of hue redder than at midday. Colors also appear different in the subdued light of a cloudy day than in bright sunlight. If artificial light is used, as for color determinations in an office, the light source used must be as near the white light of midday as possible. With practice, compensation can be made for the differences, unless the light is so subdued that the distinctions between color chips are not apparent. The intensity of incidental light is especially critical when matching soil to chips of low chroma and low value.

Roughness of the reflecting surface affects the amount of reflected light, especially if the incidental light falls at an acute angle. The incidental light should be as nearly as possible at a right angle. For crushed samples, the surface is smoothed and the state is recorded as "dry, crushed, and smoothed."

Recording Guidelines

Uncertainty exists under field conditions. Measurements of color are reproducible by different individuals within 2.5 units of hue (1 card) and 1 unit of value and chroma.

Dominant color is the color that occupies the greatest volume of the layer. Dominant color (or colors) is always given first among those of a multicolored layer. It is judged on the basis of colors of a broken sample. For only 2 colors, the dominant color makes up more than 50 percent of the volume. For 3 or more colors, the dominant color makes up more of the volume of the layer than any other color, although it may occupy less than 50 percent.

Mottling refers to repetitive color changes that cannot be associated with compositional properties of the soil. Redoximorphic features are a type of mottling that is associated with wetness. A color pattern that can be related to the proximity to a ped surface of other organizational or compositional feature is not mottling. Mottle description follows the dominant color. Mottles are described by quantity, contrast, color, and other attributes in that order.

Quantity is indicated by three areal percentage classes of the observed surface:

Few: less than 2 percent
Common: 2 to 20 percent
Many: more than 20 percent

The notations must clearly indicate to which colors the terms for quantity apply.

Size refers to dimensions as seen on a plane surface. If the length of a mottle is not more than 2 or 3 times the width, the dimension recorded is the greater of the 2. If the mottle is long and narrow, as a band of color at the periphery of a ped, the dimension recorded is the smaller of the 2 and the shape and location are also described. Three size classes are used:

Fine: smaller than 5 mm
Medium: 5 to 15 mm

Coarse: larger than 15 mm

Contrast refers to the degree of visual distinction that is evident between associated colors:

Faint: Evident only on close examination, faint mottles commonly have the same hue as the color to which they are compared and differ by no more than 1 unit of chroma or 2 units of value. Some faint mottles of similar but low chroma and value differ by 2.5 units (one card) of hue.

Distinct: Readily seen but contrast only moderately with the color to which they are compared. Distinct mottles commonly have the same hue as the color at which they are compared, but differ by 2 to 4 units of chroma or 3 to 4 units of value, or differ from the color to which they are compared by 2 units (1 card) of hue, but by no more than 1 unit of chroma or 2 units of value.

Prominent: Contrast strongly with the color to which they are compared. Prominent mottles are commonly the most obvious color feature of the section described. Prominent mottles that have medium chroma and value commonly differ from the color to which they are compared by at least 5 units (two pages) of hue, if chroma and value are the same, at least 4 units of value or chroma, if the hue is the same, or at least 2 units of chroma or 2 units of value, if hue differs by 2.5 units (one card).

Contrast is often not a simple comparison of one color with another, but is a visual impression of the prominence of the one color against a background, commonly involving several colors.

Soil Structure

Soil structure refers to units composed of primary particles. The cohesion within these units is greater than the adhesion among units. As a consequence, under stress, the soil mass tends to rupture along predetermined planes or zones. Three planes or zones, in turn, form the boundary. A structural unit that is the consequence of soil development is called a ped. The surfaces of peds persist through cycles of wetting and drying in place. Commonly, the surface of the ped and its interior differ as to composition or organization, or both, because of soil development.

Some soils lack structure and are referred to as structureless. In structureless layers or horizons, no units are observable in place or after the soil has been gently disturbed, such as by tapping a space containing a slice of soil against a hard surface or by dropping a large fragment on the ground. When structureless soils are ruptured, soil fragments, single grains, or both, result. Structureless soil material may be either single grain or massive. Soil material of single grains lacks structure. In addition, it is loose. On rupture, more than 50 percent of the mass consists of discrete mineral particles.

Some soils have simple structure, each unit being an entity without component smaller units. Others have compound structure, in which large units are composed of smaller units separated by persistent planes of weakness.

In soils that have structure, the shape, size, and grade (distinctness) of the units are described.

Field terminology for soil structure consists of separate sets of terms designating each of the 3 properties, which by combination form the names for structure.

Shape

Several basic shapes of structural units are recognized in soils:

Platy: The units are flat and platelike. They are generally oriented horizontally. A special form, lenticular platy structure, is recognized for plates that are thickest in the middle and thin toward the edges.

Prismatic: The individual units are bounded by flat to rounded vertical faces. Units are distinctly longer vertically and the faces are typically casts or molds of adjoining units. Vertices are angular or subrounded. The tops of prisms are somewhat indistinct and normally flat.

Columnar: The units are similar to prisms and are bounded by flat or slightly rounded vertical faces. The tops of columns, in contrast to those prisms, are very distinct and normally rounded.

Blocky: The units are block like or polyhedral. They are bounded by flat or slightly rounded surfaces that are casts of the faces of surrounding peds. Typically, blocky structural units are nearly equidimensional but grade to prisms and to plates. The structure is described as angular blocky if the faces intersect at relatively sharp angles. The structure is described as subangular blocky if the faces are a mixture of rounded and plane faces and the corners are mostly rounded.

Granular: The units are approximately spherical or polyhedral and are bounded by curved or very irregular faces that are not casts of adjoining peds.

Size

Five classes are employed: very fine, fine, medium, coarse, and very coarse. The size limits differ according to the shape of the units. The size limit classes are given in Appendix B, Table B-3. The size limits refer to the smallest dimension of plates, prisms, and columns.

Table B-3
Size Classes of Soil Structure

	Shape of Structure			
Size Classes	**Platy[1] mm**	**Prismatic & Columnar mm**	**Blocky mm**	**Granular mm**
Very Fine	<1	<10	<5	<1
Fine	1 – 2	10 – 20	5 – 10	1 – 2
Medium	2 – 5	20 – 50	10 – 20	2 – 5
Coarse	5 – 10	50 – 100	20 – 50	5 – 10
Very Coarse	>10	>100	>50	>10

[1] In describing plates, "thin" is used instead of "fine" and "thick" instead of "coarse."

Grade

Grade describes the distinctness of units. Criteria are the ease of separation into discrete units and the proportion of units that hold together when the soil is handled. Three classes are used:

Weak: The units are barely observable in place. When gently disturbed, the soil material parts into a mixture of whole and broken units and much material that exhibits no planes of weakness. Faces that indicate persistence through wet-dry-wet cycles are evident if the soil is handled carefully. Distinguishing structurelessness from weak structure is sometimes difficult. Weakly expressed structural units in virtually all soil materials have surfaces that differ in some way from the interiors.

Moderate: The units are well formed and evident in undisturbed soil. When disturbed, the soil material parts into a mixture of mostly whole units, some broken units, and material that is not in units. Peds part from adjoining peds to reveal nearly entire faces that have properties distinct from those of fractured surfaces.

Strong: The units are distinct in undisturbed soil. They separate cleanly when the soil is disturbed. When removed, the soil material separates mainly into whole units. Peds have distinctive surface properties.

Three terms for soil structure are combined in order (1) grade, (2) size, (3) shape. "Strong fine granular structure" is used to describe a soil that separates almost entirely into discrete units that are loosely packed, roughly spherical, and mostly between 1 and 2 mm in diameter.

Compound Structure

Smaller structural units may be held together to form larger units. Grade, size, and shape are given for both, and the relationship of one set to the other is indicated: "strong medium blocks within moderate coarse prisms" or "moderate coarse prismatic structure parting to strong medium blocky."

Concentrations

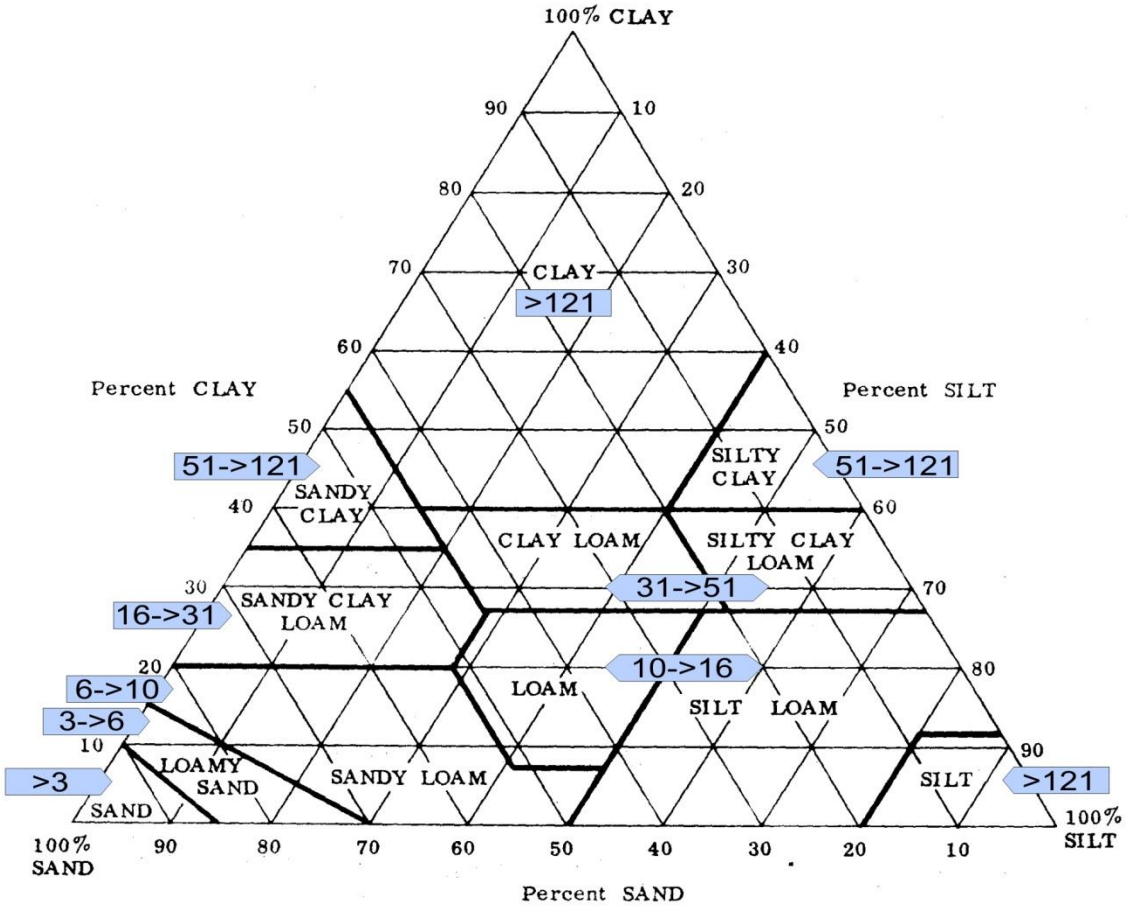
The features discussed here are identifiable bodies within the soil that were formed by pedogenesis. Some of these bodies are thin and sheetlike, some are nearly equidimensional, and others have irregular shapes. They may contrast sharply with the surrounding material in strength, composition, or internal organization. Masses are non-cemented concentrations of substances that commonly cannot be removed from the soil as a discrete unit. Most accumulations consist of calcium carbonate, fine crystals of gypsum or more soluble salts, or iron and manganese oxides. Except for very unusual conditions, masses have formed in place.

Nodules and concretions are cemented bodies that can be removed from the soil intact. Composition ranges from material dominantly like that of the surrounding soil to nearly pure chemical substances entirely different from the surrounding material.

Concretions are distinguished from nodules on the basis of internal organization. Concretions have crude internal symmetry organized around a point, a line, or a plane. Nodules lack evident, orderly internal organization.

Textural Triangle

Soil Percolation Rate min/in



APPENDIX C - GROUND WATER OBSERVATION WELL INSTALLATION AND MEASURING PROCEDURES

Observation Schedule

Observation must be done during the time when ground water levels are highest. This is typically during spring runoff or during the irrigation period, but may also be at some other time during the year. Observation must be done weekly or more frequently during the appropriate periods of suspected high ground water. Observation must include at least two weeks of observation prior to and after the ground water peak, otherwise the Department may reject the results. The applicant is encouraged to consult with the state and/or county before installing wells. The monitoring of the observation well must be completed by a qualified site evaluator as defined in Section 1.2.68 approved by the Department.

Surface water levels may be indicative of the ground water levels that may peak several weeks after spring runoff and irrigation seasons.

Local conditions may indicate that there is more than one geologic horizon that can become seasonally saturated. This may require observation wells to be installed at different horizons. The well should be placed in, but not extended through, the horizon that is to be monitored.

The Department may refuse to accept seasonal high ground water data when the total precipitation for the previous year, defined as May 1 of the previous year to April 30 of the current year, of April 1 snowpack equivalent, measured at the nearest officially recognized observation station, is more than 25 percent below the 30-year historical average. This is based upon the definition of drought conditions created by the National Drought Mitigation Center. The Department may consider soil morphology and data from nearby ground water observation sites with similar soil, geology, and proximity to streams or irrigation ditches, if available, to determine maximum ground water elevation during periods of drought.

Where to Install

The observation well(s) must be installed within 25 feet of the proposed absorption trench and on the same elevation. The Department may require the placement of the well(s) in an exact location. Additional observation wells may be required if the recommended observation sites show ground water higher than 6 feet below the ground surface.

Installation Process

The observation well must be installed vertically into a dug or drilled hole.

A slotted water well pipe should be used that is 2 to 4 inches in diameter and 10 feet long.

A. Slotted pipe (PVC is the most common material) with slot sizes between 40 and 100 (i.e. slot widths between 0.04 and 0.10 inches wide) is suggested. Slots should be horizontal and spaced at intervals less than or equal to 0.5 inches.

B. Check with the Department to determine if an alternate well material is acceptable.

The pipe should be perforated from 1 foot below the ground surface to 8 feet below the ground surface unless multiple horizons exist.

The casing must be unperforated 1 foot below the ground surface to the top of the observation well. The well must extend at least 2 feet above the ground surface.

The top of the observation well must be sealed with a watertight cap.

The area around the well must be backfilled with native material to 1 foot below the ground surface.

The observation well must be sealed in such a manner that prevents surface runoff from running along the outside of the well casing. The well should be sealed from 1 foot below the ground surface to slightly above grade to allow for subsidence and to maintain a positive ground slope away from well casing. The material used to seal the well can be either fine-grained material or bentonite.

Each observation well should be flagged to facilitate locating the well and labeled with the lot number, location, and subdivision name.

Measuring Procedures

Lower a measuring tape or stick to the water level and measure the distance from the water level to the top of the pipe (see example on next page). Water levels should be measured to the nearest inch. A plunking device or electronic water sensor can also be used. Data should be submitted in a similar form to that of the example.

Measure the distance from the top of the pipe to the natural ground surface (B distance) (see example). Then measure the distance from the top of the pipe to the water level (A distance) (see example). Subtract B from A. This value equals the actual separation between the water table and the natural ground surface.

Decommissioning

The applicant should consult with the Department before decommissioning observation wells.

Ground Water Observation Results

Monitored By:

Location :

Section _____ Township_____ Range_____ Lot #_____

Observation Well # _____

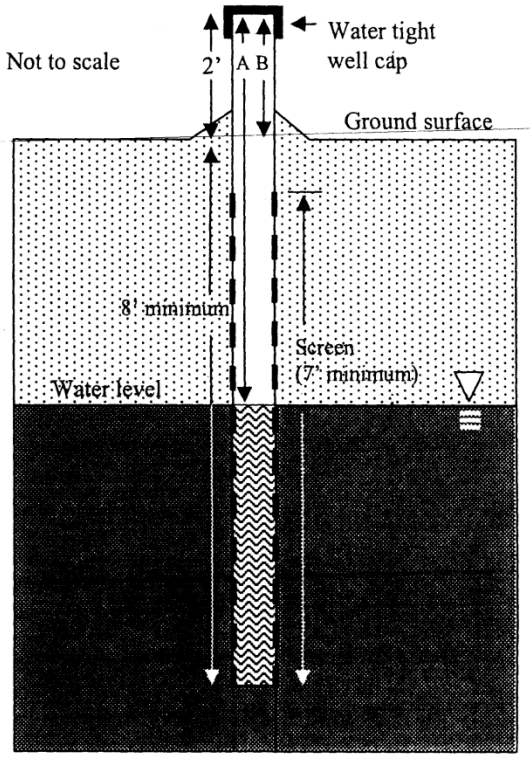
Other Location Information:

Date	Time	A (inches)	B (inches)	A-B (inches)

A= Distance to top of casing to the ground water level in pipe (inches). Note: If the observation pipe is dry, enter the total depth measured and "dry" in this column.

B= Distance from top of casing to the natural ground surface (inches).

Ground Water Observation Well Design



APPENDIX D - OPERATION AND MAINTENANCE PLAN

Continued service and maintenance of the wastewater system must be addressed for the life of the system by an approved operation and maintenance plan.

The owner of the residence or facility is responsible for assuring proper operation and providing timely maintenance of the system. A copy of the approved operation and maintenance plan must be given to the local health department for their files. Some health departments may require that this document be presented in electronic format. If observations reveal a system failure, absorption trench failure, or history of effluent ponding within the absorption trench, the owner of the system must take appropriate action. Notification to the local health department and, if appropriate, the service provider must be made within two business days if any unit of the system fails to function properly.

The Department will consider the complexity and maintenance required of the system along with the stability of the processes in determining the adequacy, level of maintenance, and monitoring frequency of the system. The monitoring frequency should be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic condition.

The operation and maintenance plan must include: an owner's manual, a system installation manual, an operation and maintenance manual, and as-built plans with the name of the designer and installer.

Certification and As-builts
The following wastewater treatment systems require certification and as-builts:

Public Wastewater Systems, regardless of type, in accordance with ARM 17.38.101
Cut, Fill, and Artificially Drained Systems
Drainfields that serve 10 or More Living Units
High Strength Wastewater Treatment Systems
Alternative Wastewater Collection Systems
Raw Wastewater Pumping Stations
Elevated Sand Mounds
Evapotranspiration Absorption and Evapotranspiration Systems
Gray Water Irrigation Systems
Intermittent Sand Filters
Recirculating Sand Filters
Aerobic Wastewater Treatment Units
Chemical Nutrient Reduction Systems
Alternate Advanced Treatment Systems

The wastewater system owner may not commence or continue the operation of the wastewater systems listed above, or any portion of such system, prior to certifying by letter to the Department that the system, or portion of the system constructed, altered, or extended to that date, was completed in accordance with plans and specifications approved by the Department.
Within 90 days after the completion of construction, alteration, or extension of the wastewater

systems listed above, or any portion of such system, a complete set of certified "as-built" drawings must be signed and submitted to the Department.

Owner's Manual

A comprehensive owner's manual must be submitted to the Department and include:

A. A clear statement providing examples of the types of waste that can be effectively treated by the system;
B. Requirements for periodic removal of residuals from the system. The septic tank, grease trap, or other settling tanks should be pumped as specified by the manufacturer;
C. A course of action to be applied if the system will be used intermittently or if extended periods of non-use are anticipated;
D. The name and telephone number of a service representative, pumpers, and the local health department to be contacted in the event that the system experiences a problem; and
E. Description of the initial and extended service policies.

Installation Manual

A comprehensive installation manual must be submitted to the Department and include:

A. A numbered parts list of system components with accompanying illustrations, photographs, or prints in which the components are respectively identified;

B. Design, construction, and material specifications for the system's components;

C. Schematic drawings of the system's electrical components;

D. A process overview explaining the function of each component and a description of how the entire system functions when all components are properly assembled and connected;

E. A clear description of installation requirements for, but not limited to, plumbing, electrical power, ventilation, air intake protection, bedding, hydrostatic displacement protection (floating in high ground water conditions), watertightness, slope, and miscellaneous fittings and appurtenances;

F. A sequential installation procedure from the residence out to the effluent discharge connection; and

G. A detailed start-up procedure.

Operations and Maintenance Manual

Comprehensive instruction in the operation and maintenance of the system must be provided to the Department and must include:

A. Maintenance procedures and schedules for all components;

B. Requirements and recommended procedures for periodic removal of residuals from the system;

C. A detailed procedure for visually evaluating function of system components; and

D. Safety concerns that may need to be addressed.

As-built Plans

A comprehensive set of as-built plans must be submitted to the Department and include the name of the designer and installer. As-builts will be added to the operation and maintenance plan after initial approval and construction of the system.

Proprietary and High Strength Wastewater Treatment Systems

In addition to the requirements of this Appendix, all proprietary and high strength wastewater treatment systems must have both an initial and a renewed service contract for the life of the system. Service contracts must include:

A. Owner's name and address;

B. Property address and legal description;

C. Local health department permit requirements;

D. Detail of service to be provided. The owner must be notified, in writing, about any improper system function that cannot be remedied during the time of inspection, and an estimate for the date of correction;

E. Schedule of service provider duties. Initial 2-year service policies must stipulate a minimum of 4 inspection/service visits, scheduled at least once every 6 months over the 2-year period, during which electrical, mechanical, and other components are inspected, adjusted, and serviced;

F. Cost and length of service contract/time period;

G. Details of product warranty; and

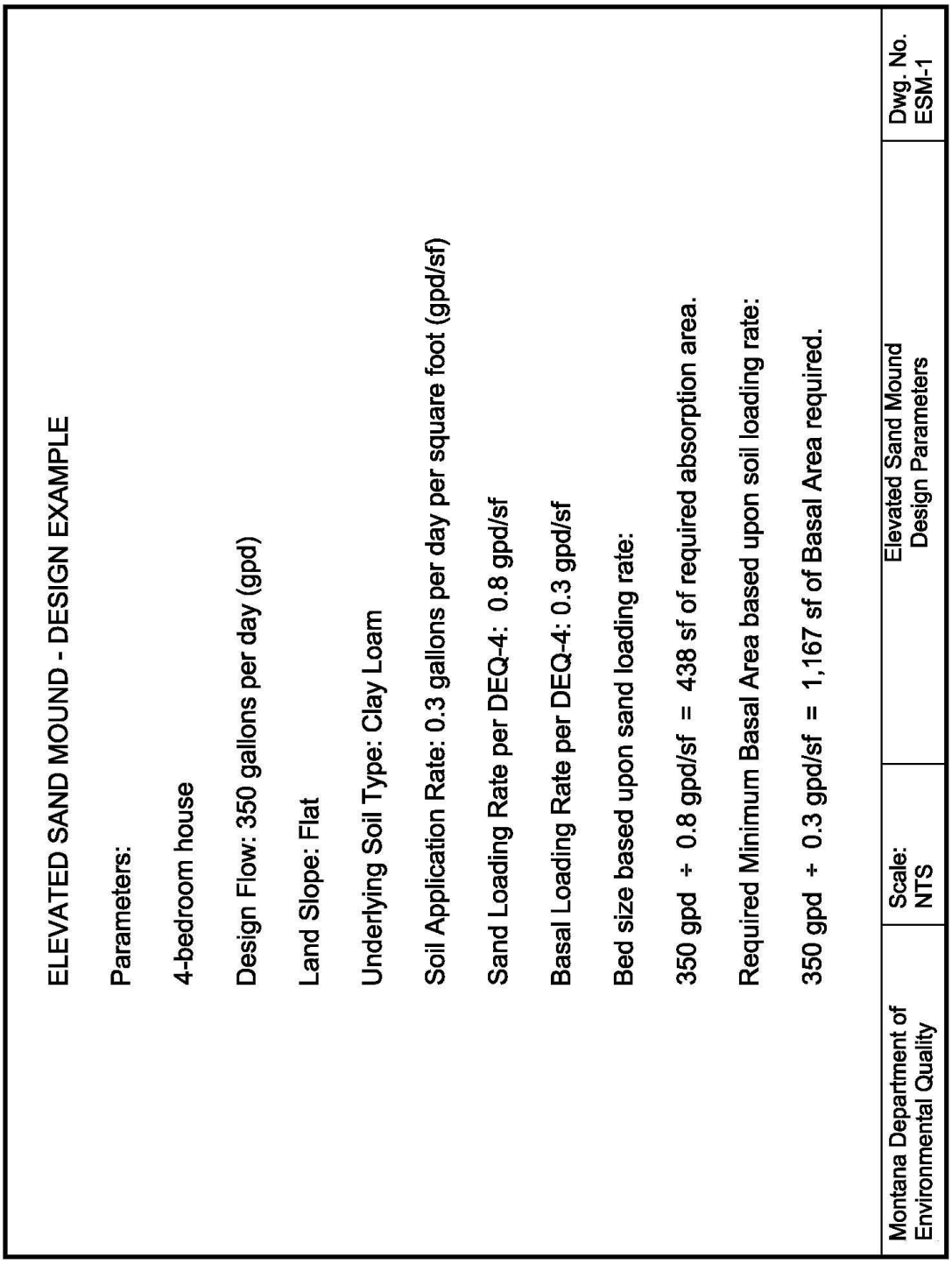
H. Owner's responsibilities.

For subsurface wastewater treatment systems, classified under ARM 17.30.718 as Level 1a, Level 1b, or Level 2 for nutrient reduction, the system vendor or manufacturer must offer an operation

and maintenance plan that meets the requirements of this Appendix and ARM 17.30.718.

APPENDIX E - DESIGN EXAMPLES

ESM - Elevated Sand Mound Example



BED DESIGN

438 sf of bed required.

§6.6.3.7 requires a minimum 3:1 ratio of length to width.

Let "x" = width, then "3x = length

Thus:

$3x^2 = 438$

$x = \sqrt{438/3}$

x = 12.08' ; 3x = 32.25'

Round to 12.5' x 37.5' so §6.6.3.7 is still met.

Check Basal Area Requirements:

Overall Width of Mound:

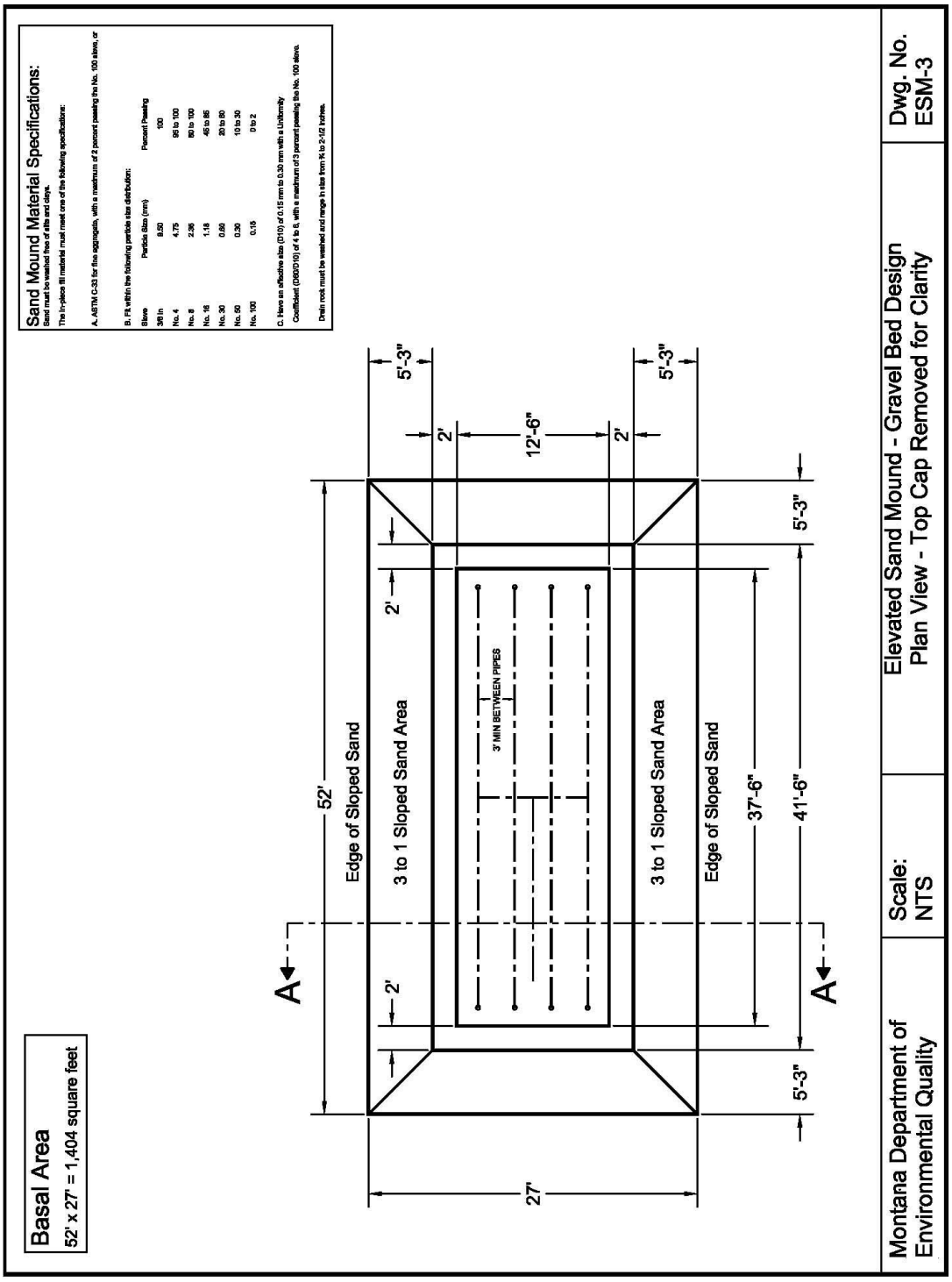
5.25' + 2' + 12.5' + 2' + 5.25' = 27'

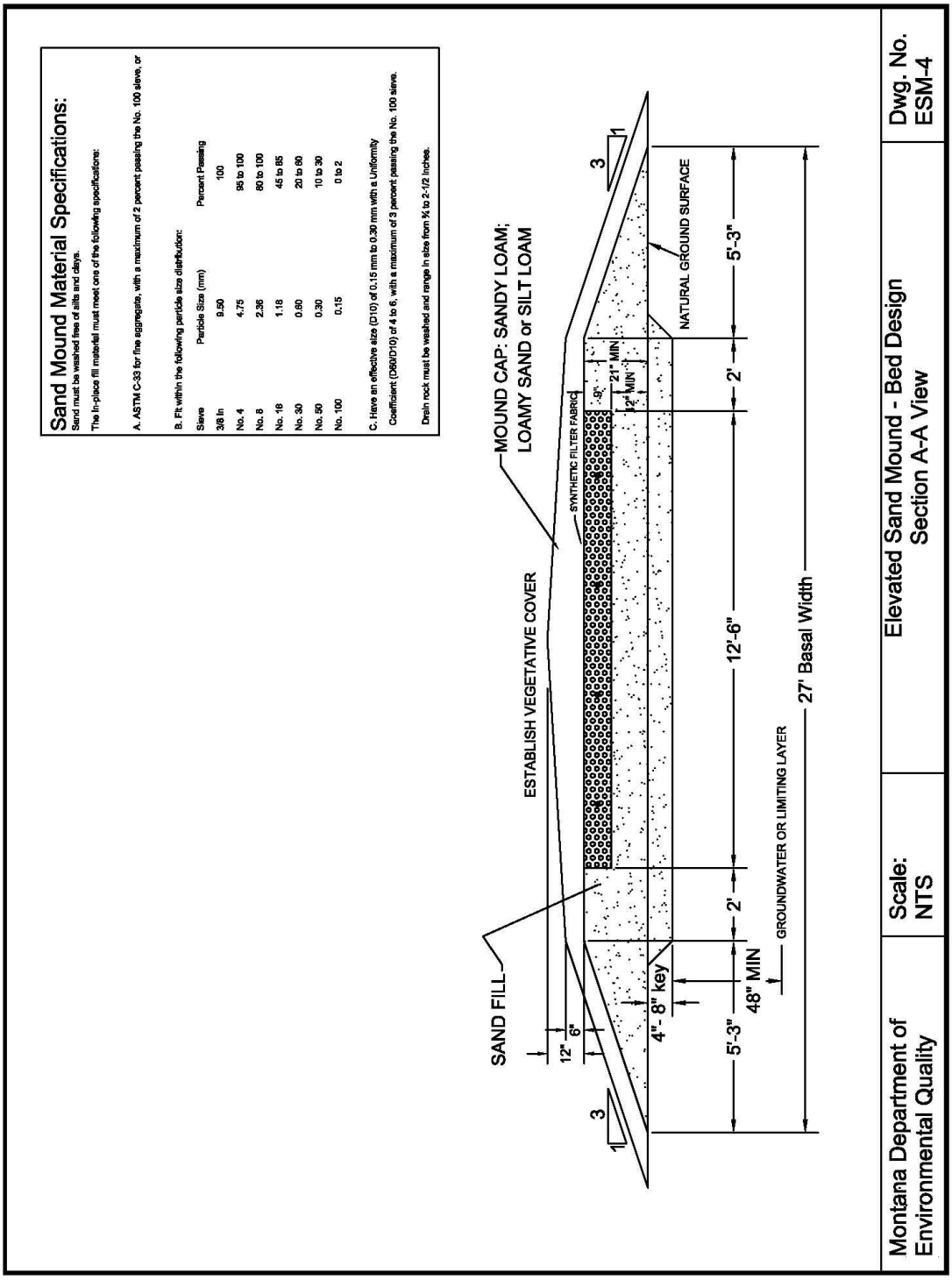
Overall Length of Mound:

5.25' + 2' + 37.5' + 2' + 5.25' = 52'

52' x 27' = 1,404 sf > 1,167 sf so §6.6.3.3 requirement met

Montana Department of Environmental Quality	Scale: NTS	Elevated Sand Mound Gravel Bed Design Parameters	Dwg. No. ESM-2


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve Particle Size (mm) Percent Passing
3/8 in 9.50 100
No. 4 4.75 95 to 100
No. 8 2.36 80 to 100
No. 16 1.18 45 to 85
No. 30 0.60 20 to 60
No. 50 0.30 10 to 30
No. 100 0.15 0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 8, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-½ inches.
Basal Area
52' x 27' = 1,404 square feet
A
A
52'
27'
Edge of Sloped Sand
3 to 1 Sloped Sand Area
3" MIN BETWEEN PIPES
3 to 1 Sloped Sand Area
Edge of Sloped Sand
2'
2'
2'
2'
5'-3"
5'-3"
5'-3"
5'-3"
12'-6"
37'-6"
41'-6"
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Gravel Bed Design
Plan View - Top Cap Removed for Clarity
Dwg. No. ESM-3


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve Particle Size (mm) Percent Passing
3/8 In 9.50 100
No. 4 4.75 95 to 100
No. 8 2.36 80 to 100
No. 16 1.18 45 to 85
No. 30 0.60 20 to 60
No. 50 0.30 10 to 30
No. 100 0.15 0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-1/2 inches.
SAND FILL
ESTABLISH VEGETATIVE COVER
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
SYNTHETIC FILTER FABRIC
NATURAL GROUND SURFACE
12"
6"
9"
21" MIN
12" MIN
3
1
4"- 8" key
5'-3"
2'
48" MIN
GROUNDWATER OR LIMITING LAYER
12'-6"
2'
5'-3"
27' Basal Width
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Bed Design
Section A-A View
Dwg. No. ESM-4

LEECHING BED DESIGN

438 sf of bed required.

§6.6.3.7 requires a minimum 3:1 ratio of length to width.

Let "x" = width, then "3x = length

Thus:

$3x^2 = 438$

$x = \sqrt{438/3}$

x = 12.08' ; 3x = 32.25'

Round to 15' x 36' for standard 3' wide x 4' long chambers: §6.6.3.7 is met.

Check Basal Area Requirements:

Overall Width of Mound:

6' + 2' + 15' + 2' + 6' = 31'

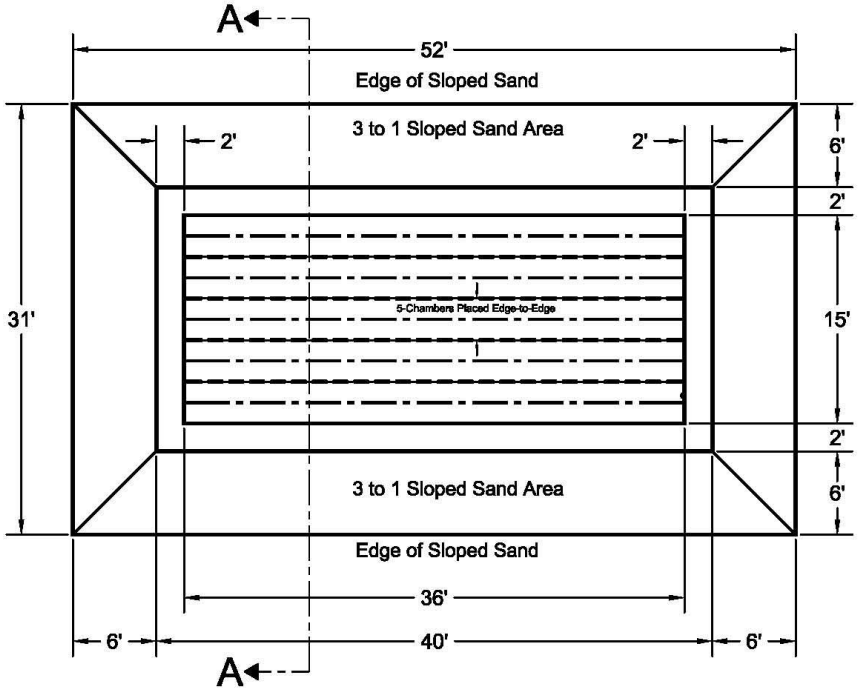
Overall Length of Mound:

6' + 2' + 36' + 2' + 6' = 52'

52' x 31' = 1,612 sf > 1,167 sf so §6.6.3.3 requirement met

Montana Department of Environmental Quality	Scale: 1" = 1' - 0"	Elevated Sand Mound Leeching Chamber Bed Design Parameters	Dwg. No. ESM-5

Basal Area
52' x 31' = 1,612 square feet



Sand Mound Material Specifications:

Sand must be washed free of silts and clays.

The in-place fill material must meet one of the following specifications:

A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or

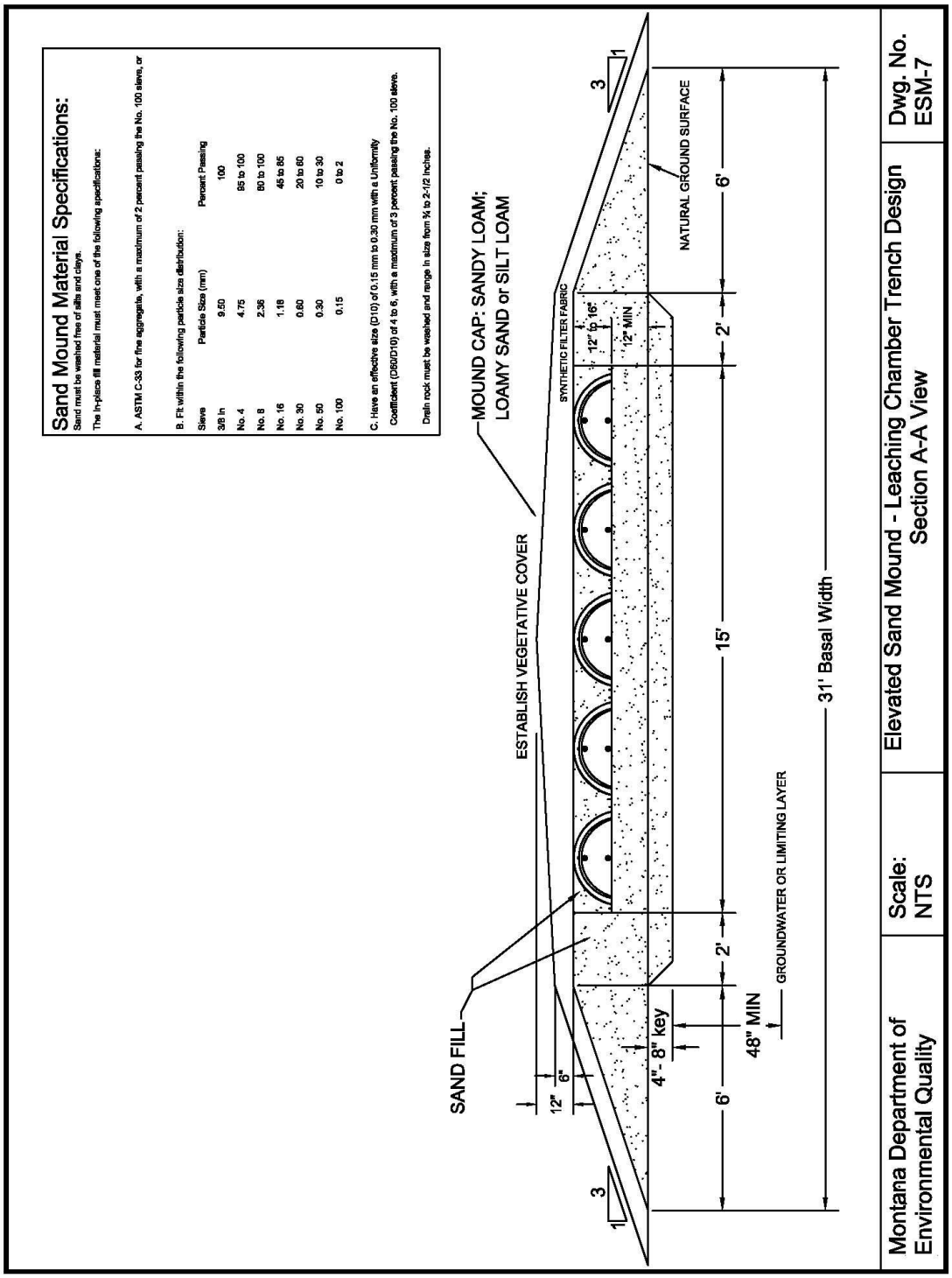
B. Fit within the following particle size distribution:

Sieve	Particle Size (mm)	Percent Passing
3/8 in	9.50	100
No. 4	4.75	95 to 100
No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	20 to 60
No. 50	0.30	10 to 30
No. 100	0.15	0 to 2

C. Have an effective size (D10) of 0.16 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.

Drain rock must be washed and range in size from ¾ to 2-1/2 inches.

Montana Department of Environmental Quality	Scale: NTS	Elevated Sand Mound - Bed Design with Leaching Chambers Plan View - Top Cap Removed for Clarity	Dwg. No. ESM-6


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve Particle Size (mm) Percent Passing
3/8 in 9.50 100
No. 4 4.75 95 to 100
No. 8 2.36 80 to 100
No. 16 1.18 45 to 85
No. 30 0.60 20 to 60
No. 50 0.30 10 to 30
No. 100 0.15 0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-1/2 inches.
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
ESTABLISH VEGETATIVE COVER
SAND FILL
SYNTHETIC FILTER FABRIC
NATURAL GROUND SURFACE
12" to 16"
12" MIN
12"
8"
4" - 8" key
48" MIN
GROUNDWATER OR LIMITING LAYER
6'
2'
15'
2'
6'
31' Basal Width
3
1
3
1
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Leaching Chamber Trench Design
Section A-A View
Dwg. No. ESM-7

APPENDIX F

Documents Adopted by Reference And Other Referenced Documents

A Montana agency adopting a standard by reference in a rule must provide a citation to the material adopted by reference and a statement of the general subject matter of the omitted rule and must state where a copy of the omitted material may be obtained. § 2-4-307(2), Montana Code Annotated (MCA). Standards developers have copyrights that protect against unauthorized use of their standards, and an agency cannot, without permission, provide free paper or internet copies of those standards. Table 1, column 2, provides the web address where the sources of all standards being proposed for adoption by reference in DEQ-4 can be purchased. Copies of the documents also may be viewed at the Helena office of the Public Water and Subdivision Section, Department of Environmental Quality, 1520 East 6th Ave., Helena, MT.

Table 1

Adopted-by-Reference	Web Addresses Where Documents can be Purchased
ASTM C117-13	http://global.ihs.com
ASTM D5093-02	http://global.ihs.com
ASTM D3034-08	http://global.ihs.com
ASTM D1785-12	http://global.ihs.com
ASTM D3350-12	http://global.ihs.com
ASTM D2729-11	http://global.ihs.com
ASTM D2241-09	http://global.ihs.com
ASTM C1227-12	http://global.ihs.com
ASTM C150-12	http://global.ihs.com
ASTM C 990-09	http://global.ihs.com
ASTM C 33-13	http://global.ihs.com
IAPMO/ ANSI	http://webstore.ansi.org

Z1000-07	
IAPMO PS 63-2005	http://iapmomembership.org
ACI 318-11	http://www.concrete.org

Table2 contains web addresses to other sources of information referenced in DEQ-4.

Table2

Underwriters Laboratories (http://www.ul.com)
Canadian Standards Association (http://www.csagroup.org)
National Electric Code Class 1, Division 2 locations (http://www.osha.gov)
ANSI/NSF Standard 46 (http://www.nsf.org)
USDA Soils Report (http://www.nrcs.usda.gov)
NSF Standard 40 (for class 1 certification) (http://www.nsf.org)
"The Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual", January 2000 (recommended) (http://www.soils.wisc.edu)
EPA Manual, "On-Site Wastewater Treatment Systems Manual", February 2002, pages TFS 41 to 52 (http://www.norweco.com)
NSF Standard 41 (http://www.nsf.org)
National Drought Mitigation Center (definition of drought) (http://drought.unl.edu)
MSU Extension Service, "Septic Tank and Drainfield Operations" (http://msuextension.org)
MSU Extension Service, "Maintenance and Septic System Inspection and Troubleshooting" (http://msuextension.org)

Flathead City-County Health Department
1035 1st Ave. West Kalispell, MT 59901
(406)-751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
406-751-8110 FAX 866-380-1740
Environmental Health Services
406-751-8130 FAX 406-751-8131
Flathead Family Planning
406-751-8150 FAX 855-931-9091
Population Health Services
406-751-8101 FAX 406-758-2497
WIC Services
406-751-8170 FAX 406-751-8171
Animal Shelter
406-752-1310 FAX 406-752-1546

Memorandum

March 11, 2022

To: Flathead City-County Board of Health

From: Joe Russell, Health Officer

Re: Appeal of the Health Officer's Decision, Appelgren-Jones

The following packet of information relates to a decision by the Health Officer to deny an appeal of a staff decision not to issue a sewage treatment system permit for Lot 9 of Haskill Creek Tracts, Section 4, Township 30N, Range 21W. Since Section 10.2 (Table 1, footnote a) of the Flathead County Regulations for Sewage Treatment Systems does not allow variances to the setback to the groundwater table for new construction, the appellant must appeal the decision of the Health Officer to the Board of Health as specified in Section 14.2 of the Regulation that follows.

> "14.2 Appeal to the Board of Health. Should an appeal to the Health Officer result in a denial of the appeal, the appellant may make an appeal to the Flathead City-County Board of Health. After receiving the appeal, the Board shall allow the appellant to present his/her appeal before the Board at its next regularly scheduled meeting, provided that such request is received ten (10) days prior to the scheduled meeting date. At this meeting, the appellant may appear in person, be represented by another person, or may appeal to the Board in writing. The Board shall, within fifteen (15) days after hearing and/or reviewing the appeal, respond to the applicant in writing stating its decision and the reasons therefore. The Board's decision shall be determined as final."

The Health Officer denial letter is attached as well as the appeal documentation submitted by Foley Engineering. Brent Foley, P.E. will represent the appellant(s) in this matter. If the Board decides to grant the appeal, a variance will have to be granted to Section 10.2 of the Regulation and findings will have to be adopted. For this purpose, I have prepared findings and they are provided at the end of the packet.

Flathead City-County Health Department
1035 1st Ave. West Kalispell, MT 59901
(406)-751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
406-751-8110 FAX 866-380-1740
Environmental Health Services
406-751-8130 FAX 406-751-8131
Flathead Family Planning
406-751-8150 FAX 855-931-9091
Population Health Services
406-751-8101 FAX 406-758-2497
WIC Services
406-751-8170 FAX 406-751-8171
Animal Shelter
406-752-1310 FAX 406-752-1546

February 8, 2022

Brent Appelgren
10 Green Place
Whitefish MT 59937

Derek Jones
103 A Wood Run Court
Whitefish MT 59937

Re: Lot 9 of Haskill Creek Tracts, Section 4, Township 30N, Range 21W

Dear Messrs. Appelgren and Jones,

I have received your letter requesting an appeal of the staff decision denying your request for the issuance of a sewage treatment (septic) system permit to serve the above reference property. Upon review of the file, I plan on upholding the decision of the staff that a permit will not be issued until variances to the regulation requested and granted by action of the Flathead City-County Board of Health. The regulation requires 48 inches of separation from the bottom of the drainfield to groundwater. This property has a long history with the Department and further explanation outlining our position is warranted.

Initial application for a sewage treatment system was made in March of 1993. The Department notified the property owner of potential shallow groundwater conditions and required groundwater monitoring to determine the actual depth to groundwater on three sites on the property. On July 13, 1994, the property owner (through correspondence with Terry Nelson) was notified that groundwater was too shallow for the issuance of a sewage treatment system permit. Alternatives were provided to the owner, none were pursued.

In 2007, Morrell Environmental and the Department evaluated additional sites on the property and groundwater monitoring occurred on seven locations. All seven site presented with shallow groundwater. Once again, the groundwater depth precluded the issuance of a permit at the staff level. No appeal was made to the Health Officer.

Variances were not requested in 1993 or 2007 due to Section 10.2 (2), Table 1, footnote (a) which states that variances shall not be granted on setbacks to the groundwater table for new construction. This property has some characteristics that must be considered as the process of obtaining a sewage treatment system moves forward, or does not.

- This property was platted at a very unique time in the history of the Montana subdivision law. The platting Act was approved well in advance of the Sanitation in Subdivisions Act, creating a dilemma that was generally overcome by placing sanitary restrictions on the subdivided land that would have to be removed prior to the development of the property.

A Certificate of Survey was filed on June 29, 1973 creating 20 lots known as Haskill Creek Tracts. Lot 9 of Haskill Creek Tracts is 5.3 acres in size. Two days later, the Sanitation Act was revised to include any tract of land less than ten (10) acres. Prior to July 1, 1973, a subdivision only included tracts of land five (5) acres in size or smaller. Therefore, if the plat was filed two days later, a sanitary restriction would have been placed on the property this restricted would have to have been lifted by the State of Montana through a review for compliance with the Sanitation Act. Even though there are no state regulatory requirements for the development of the property, compliance with the Flathead County Regulation for Sewage Treatment Systems (FCRSTS) is necessary.

- This property has been owned by the Appelgrens since 1976. The first sewage treatment system application filed with the Department in 1993. Documented shallow groundwater has precluded the development on this lot. Another attempt to identify a drainfield site was made in in 2007. These sites all failed to achieve the necessary distance to groundwater from the natural ground surface.

- Many of the properties surrounding Lot 9 are developed. Review of the properties in close proximity to Lot 9 revealed that elevated sand mounds were constructed on the lots due to shallow groundwater. Most, if not all of these lots, were monitored for shallow groundwater.

- As you know, test holes were evaluated on January 20, 2022. Test hole revealed 0 to 24 inches of an organic silt loam and clay was observes at 24 to 96 inches. It was evident to the staff that the clay was perching seasonal groundwater.

Based upon the findings referenced above, your appeal is denied. The Department will not move forward with a process to issue a sewage treatment system permit. Section 14.2 of the Flathead County Regulations for Sewage Treatment Systems allows you to appeal my decision to the Board of Health. You may review this section at: https://www.flatheadhealth.org/wp-content/uploads/2014/08/Septic-System-Regulation-2-16.pdf.

You may direct questions regarding this matter to me at jrussell@flathead.mt.gov. If you plan on an appeal of my decision to the Board of Health, you may send it to me at the Health Department address.

Sincerely,

Joseph W. Russell, R.S., M.P.H.
Health Officer

CC: Flathead City-County Board of Health via email.

FOLEY ENGINEERING
CIVIL ENGINEERING PROFESSIONALS

March 9, 2022

Joe Russell, R.S., M.P.H.
1035 1st Avenue West
Kalispell, MT 59901

Subject: Appeal of Health Officer Denial of Septic Permit
Lot 9 of Haskill Creek Tracts, Section 4, T30N, R21W

Dear Mr. Russell,

We are hereby appealing the denial you issued on February 8, 2022 for the above referenced property. Based on the state laws in effect at the time this subdivision was platted, we do not believe that certain current County Regulations should be applied. This particularly includes footnote (a) of Table 1 (Minimum Setback and Separation Distances) in FCROSTS Section 10. This states; "Variances to these setbacks will not be considered for new construction" and the footnote is applied to separation from: (1) Impermeable or Impervious Layer and (2) Groundwater Table.

We are officially requesting that the Board of Health remove footnote (a) of Table 1 from their consideration in granting a variance to setbacks from groundwater and impervious layers for this project. When this property was created in 1973 it was exempt from Sanitation in Subdivisions regulations. These subsurface separations were not required to be considered at that time for the creation of a residential lot with the intent to develop a home reliant upon an onsite septic system. Flathead County footnote (a) appears to effectively take away the rights to develop a residential home on this property. Rights which were granted to it by the State of Montana when the lot was created by subdivision in 1973.

The required separation of 48" to a low-transmissivity clay layer and groundwater table can still be obtained by adequate design methods. This is proposed to be achieved through the installation of an elevated sandmound drainfield which will have a minimum of 48" of separation between the drainfield bed and the first restrictive layer, which is clay. The primary difference here is that the measurement is simply not taken from the existing ground to these constraining subsurface properties. An elevated sandmound as depicted in the attached variance application appears to meet the intent of the minimum 48" separation requirement and is believed to provide adequate wastewater treatment, maintain protection of public health, and protect state waters from degradation.

105 VILLAGE LOOP SUITE B
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T (406) 314-6490

We sincerely hope that the Board of Health will consider the specific circumstances of this property, its legal subdivision history, physical and subsurface constraints, and the solutions proposed through engineered wastewater treatment design. It is our belief that this property possesses the right to build a home with necessary onsite infrastructure to serve it, including a wastewater system. We believe we have provided sufficient and legitimate information to support our variance request, however do not hesitate to contact me with any questions.

Thank you,

Brent Foley, P.E.
President/Principal Engineer
Foley Engineering, Inc
105 Village Loop, Suite B
Kalispell, MT 59901

FOLEY ENGINEERING
CIVIL ENGINEERING PROFESSIONALS

Wastewater Variance Request Submittal
Lot 9 of Haskill Creek Tracts, Section 4, T30N, R21W

March 4, 2022

Joe Russell, R.S., M.P.H.
1035 1st Avenue West
Kalispell, MT 59901

Dear Mr. Russell,

We are submitting to you a wastewater variance request in accordance with the denial letter Mr. Appelgren, and Mr. Jones received from you on February 8, 2022 regarding the above referenced property. We believe we have included all documentation required by the Flathead City-County Health Department in order to move forward with the variance request process. Please do not hesitate to reach out with any questions that may arise.

Thank you,

Brent Foley, P.E.
President/Principal Engineer
Foley Engineering, Inc
105 Village Loop, Suite B
Kalispell, MT 59901

Attachments:

- Detailed Project Description
- Description of Septic Permit Denial
- Wastewater Variance Request Explanation of Criteria Requirements
- Montana Department of Environmental Quality Memorandum
- Septic Site Plan and Details
- Groundwater Exhibit
- Map to Project Location

Flathead City-County Health Department
1035 1st Ave. West Kalispell, MT 59901
(406)-751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
406-751-8110 FAX 866-380-1740
Environmental Health Services
406-751-8130 FAX 406-751-8131
Flathead Family Planning
406-751-8150 FAX 855-931-9091
Population Health Services
406-751-8101 FAX 406-758-2497
WIC Services
406-751-8170 FAX 406-751-8171
Animal Shelter
406-752-1310 FAX 406-752-1546

WASTEWATER VARIANCE REQUEST

The local Board of Health shall have the authority to grant a variance from a requirement of the Flathead County Regulations for Onsite Sewage Treatment Systems unless it conflicts with state or federal law.

An application for a variance may be made to the Board of Health within 60 days of a denial of an application for a permit. The Health Officer shall receive all applications for a variance in writing. It is recommended that variance applications are turned in 30 days prior to the next Board of Health meeting to allow the Department adequate time to process the variance request.

Variance Application Request Fee of $600, each variance beyond 1st request within the application additional $150.

Total Fee $600

Receipt Number _____

The following application must be completed for a variance request.

Property Owner: Brent Appelgren Phone: 406-871-7229

Mailing Address: 10 Green Pl.

City: Whitefish State/Zip: MT / 59937

Physical Address of Property: Haskill Dr. City Whitefish State/Zip MT/59937

Section: 4 Township: 30 N Range: 21 W Assessor Number: 0024790

Certificate of Survey (COS) or Deed Exhibit No. Haskill Creek Tracts Lot: 9 Block: _____

County Asessor's Tract No. (example Tr. 1AA) 3021X04-HSK-9

Parcel Size: 5.345 AC E mail address: brenta22@yahoo.com

Describe PERMIT denial (if applicable). Attach additional sheet or denial letter received from this Department as necessary: See Attached

Wastewater System Designer: Foley Engineering, Inc. Phone: 406-314-6490

Mailing Address: 105 Village Loop Suite B City: Kalispell State/Zip: MT / 59901

Licensed Installer: JD Thinning Inc. Phone: 406-212-1312

Wastewater System: (Circle all that Apply) (New) ⊙ Replacement ○ Failed ○ Alteration ○

Structure(s) (Circle) (Single Family) Multi-Family ○ Mobile Home ○ Commercial ○ Garage/Shop ○ Other ○

Water System: (Circle) Existing ○ (Proposed) ⊙ (Circle) (Well) ⊙ Lake ○ Spring ○ Community Water System ○

Detailed Project Description (*e.g. "Construction of a new 3-bedroom single family home with a garage with bathroom"*)

Attach as a cover letter as necessary to adequately describe project description.

See Attached

Describe in detail how each of the following criteria will be met (*use additional attached narrative*).

(1) **The local board of health may grant a variance from a requirement only if it finds that <u>all the following criteria</u> exist:**
(a) Granting the variance will not:

(2) (i) contaminate any actual or potential drinking water supply;

(3) (ii) cause a public health hazard as a result of access to insects, rodents, or other possible carriers of disease to humans;

(4) (iii) cause a public health hazard by being accessible to persons or animals;
(iv) violate any law or regulation governing water pollution or wastewater treatment and disposal, including the rules contained in this subchapter except for the rule that the variance is requested from

(5) (v)pollute or contaminate state waters, in violation of 75-5-605, MCA;
(vi) degrade state waters unless authorized pursuant to 75-5-303, MCA; or

(6) (vii) cause a nuisance due to odor, unsightly appearance, or other aesthetic consideration;

(7) (b) compliance with the requirement from which the variance is requested would result in undue hardship to the applicant;

(c) the variance is necessary to address extraordinary conditions that the applicant could not reasonably have prevented;

(d) no alternatives that comply with the requirement are reasonably feasible; and

(e) the variance requested is not more than minimum needed to address the extraordinary conditions.

(3) the local board of health's decision regarding a variance of a requirement in this subchapter or in Department Circular DEQ-4 may be appealed to DEQ pursuant to ARM 17.36.924

Signature of Applicant: Brent Appelgren Date 03 / 03 / 2022

Printed Name of Applicant: Brent Appelgren

HELLOSIGN

Audit Trail

TITLE	Flathead County Variance
FILE NAME	1-VARIANCE APP- NEEDS SIGNATURE.pdf
DOCUMENT ID	d614744e3858368a31b4e4d8806b9b5f0e72629c
AUDIT TRAIL DATE FORMAT	MM / DD / YYYY
STATUS	Signed

Document History

SENT	**03 / 03 / 2022** 23:45:03 UTC	Sent for signature to Brent Applegren (brenta22@yahoo.com) from fodiej@gmail.com IP: 184.167.190.111
VIEWED	**03 / 04 / 2022** 00:59:34 UTC	Viewed by Brent Applegren (brenta22@yahoo.com) IP: 24.56.34.163
SIGNED	**03 / 04 / 2022** 01:02:49 UTC	Signed by Brent Applegren (brenta22@yahoo.com) IP: 24.56.34.163
COMPLETED	**03 / 04 / 2022** 01:02:49 UTC	The document has been completed.

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Wastewater Variance Request

Detailed Project Description

Lot 9 of Haskill Creek Tracts, Section 4, T30N, R21W

This project consists of a proposed 5 bedroom single-family home in a previously platted subdivision. It is proposed to be served by an individual well and an elevated sandmound septic system due to seasonally high groundwater in this area. The subject of seasonally high groundwater is discussed in detail within the description of the septic permit denial.

As mentioned in the denial letter from Mr. Russell, this subdivision was platted at a unique time in history and prior to an amendment to the Sanitation in Subdivisions Act by the State of Montana on July 1, 1973. Since it was platted prior to this amendment, this subdivision ended up creating lots intended for residential homes that were not subject to sanitation review. Despite this, there were sanitary restrictions erroneously placed on this subdivision. After an inquiry into this restriction, DEQ consulted with their legal department and issued a memo stating their feeling that sanitary restrictions were erroneously placed on this subdivision and that the development of Lot 9 can proceed without review by DEQ.

Haskill Creek Tracts was created with the intended use to have residential homes on the lots and the subject property (Lot 9) is the only lot within the subdivision that does not have a residence and septic permit. The subject property is surrounded by lots 8A, 10, 11, and 12, all of which have elevated sandmound septic systems. The proposed sandmound septic system for the subject property is consistent with the surrounding systems and our client is proposing to install a Level 2 advanced treatment system to further alleviate any concerns over the potential impact on shallow aquifers. Based on the information submitted, we believe that the proposed elevated sandmound system will not degrade or pollute state waters, it will protect the quality and potability of the water for drinking water supplies and domestic uses and would protect the quality of water for other beneficial uses, including those uses specified in MCA 76-4-101, and would not adversely affect public health, safety, and welfare in accordance with MCA 75-5-605.

105 VILLAGE LOOP SUITE B
KALISPELL, MT, 59901
T: (406)-314-6490

FOLEY ENGINEERING
CIVIL ENGINEERING PROFESSIONALS

Wastewater Variance Request

Description of Septic Permit Denial

Lot 9 of Haskill Creek Tracts, Section 4, T30N, R21W

Our Client submitted a septic permit application to the Flathead City-County Environmental Health Department (FCCHD) for a new septic system to serve a single-family home on the above-stated property. This application was denied by FCCHD staff. This denial was appealed to the Health Officer, Mr. Joe Russell, who upheld the decision of staff to not issue a septic permit. We are therefore submitting this variance request as an appeal to that denial per FCROSTS, Section 14.2. The reason for denial, as stated in Mr. Russell's letter, cites the requirement of 48 inches of separation from the bottom of the drainfield to groundwater.

While we do not disagree with the interpretation or application of the regulations by Mr. Russell, it is not possible to meet these standards due to the subsurface properties of this site. Therefore, the only course of action is to request a variance from the cited standard. As we understand, the granting of variances can only be done through the appeals and variance processes through the Flathead County Board of Health, which is our purpose for appealing this denial.

The denial letter from Mr. Russell mentions some past attempts on this property to obtain a septic permit and it appears that after they encountered high groundwater the property owners chose not to appeal or pursue any variances. We have reviewed past groundwater monitoring data on this property as well as numerous surrounding properties in detail. It appears that this property was first monitored in 1994 and review of the monitoring locations shows that they were in the lower elevations of this site. In 2007 groundwater monitoring was performed again with 3 pipes that were at higher elevations along the east boundary of the site. Two of these pipes were measured at 27 inches to groundwater and the third was measured at 30 inches to groundwater, which was the northernmost of the 3 pipes. The recently dug test pit was nearest the location of the southernmost pipe. It is evident by the presence of clay in the area that runoff is reaching the clay layer and remaining perched due to the low ability of the clay to transmit water. The high groundwater witnessed in this area appears to be seasonal saturation and not evidence of a permanent high-water table.

There are widely accepted wastewater treatment methods available that were created specifically for situations such as this where high groundwater is present. This project is proposing an elevated sandmound system, which has been used successfully for decades to protect water quality by elevating the infiltrative surface of the drainfield to allow for adequate separation and time for effluent to be treated before being transmitted into a shallow aquifer or seasonally high groundwater table.

Elevated sandmounds have been successfully utilized on adjacent properties within this subdivision. One of these sandmounds, installed in 2018, is approximately 223 feet to the northeast of the

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proposed location and another sandmound, installed in 2010, is located approximately 430 feet to the southwest of the proposed location. The sandmound to the southwest was installed at an existing ground elevation of approximately of 3065.49, while the one to the northeast was installed at an existing ground elevation of approximately 3065.82. The proposed sandmound is at an existing ground elevation of approximately 3065.95, which is extremely similar to the elevations of the nearby existing systems.

To counter any effects of seasonally high groundwater the proposed mound is elevated to achieve a distance from the infiltrative surface to clay layer of 48”, and a distance to measured high groundwater (27” in 2007) of 51”. The sandmound as proposed is believed to achieve an adequate vertical separation from groundwater and contains an extremely large basal area which should allow for sufficient treatment and infiltration of the effluent. Additionally, our client is proposing to install a Level 2 advanced treatment system to further alleviate any concerns over the potential impact on shallow aquifers.

Wastewater Variance Request Explanation of Criteria Requirements
Lot 9 of Haskill Creek Tracts, Section 4, T30N, R21W

(1) The local board of health may grant a variance from a requirement only if it finds that all the following criteria exist:

(a) Granting the variance will not:

(i) contaminate any actual or potential drinking water supply;
The proposed septic system meets setback requirements from the drinking water supply well and water conveyance lines. The granting of the variance therefore should not contaminate any actual or potential drinking water supply. It should also be noted that level II systems like the one being proposed vastly decreases the potency of the effluent being distributed through several different processes that occur in the AX-20 treatment pod.

(ii) cause a public health hazard as a result of access to insects, rodents, or other possible carriers of disease to humans;
The proposed level II system consists of sealed subsurface components that will not be accessible to insects, rodents, or other disease carriers.

(iii) cause a public health hazard by being accessible to persons or animals;
To the designer's knowledge the proposed system meets applicable standards for system maintenance accessibility. It is below ground and the maintenance access points are covered by mechanically fastened lids. These should only be removed when intended for maintenance using proper tools by experienced personnel.

(iv) violate any law or regulation governing water pollution or wastewater treatment and disposal, including the rules contained in this subchapter except for the rule that the variance is requested from;
To the designer's knowledge the proposed system components and design do not violate any law or regulation governing water pollution or wastewater treatment and disposal except for those rules from which the variance is requested.

(v) pollute or contaminate state waters, in violation of 75-5-605, MCA;
The proposed system consists of a level II Advantex AX-20 Advanced Treatment Pod wastewater treatment system, and an elevated sand mound, to provide wastewater treatment which vastly exceeds the capabilities of a standard system. Given the amount of treatment that will be provided, the system will not pollute or contaminate state waters if or when any treated wastewater reaches state waters.

(vi) degrade state waters unless authorized pursuant to 75-5-303, MCA; or
Upon approval of the Haskill Creek Tracts subdivision in 1973, these 20 lots were essentially designated as having approval to discharge to state waters. These lots were given this approval prior to the implementation of the requirement for the non-degradation of state waters analysis for wastewater systems and are exempt from many of the non-degradation requirements. Furthermore, the proposed level II system provides high-level treatment which vastly exceeds the capabilities of a standard system. Given the amount of treatment provided, this system will not

degrade state waters.

(vii) cause a nuisance due to odor, unsightly appearance, or other aesthetic consideration;
The proposed level II treatment system is a subsurface facility with sealed components which greatly decreases the amount of odor to that of any standard treatment system. The sandmound system has been graded to match into existing contours and will not cause an unsightly appearance or any negative aesthetics.

(b) compliance with the requirement from which the variance is requested would result in undue hardship to the applicant;
Given the subsurface constraints of the property it is absolutely not possible to comply with the requirements from which the variances are requested within the property boundaries. The next option would be to attempt to acquire suitable land away from the subject property and groundwater monitor the newly acquired land. Obtaining suitable land would offer significant logistical challenges including obtaining easements, and routing a line from the subject property to the drainfield location. If land could be acquired, it would be at a considerable cost for real estate and construction to install a sewer line up to a half-mile long depending upon where an approved drainfield site could be established. This would easily cost up to or over the million-dollar mark.

The current owner has owned the subject property since 1976 and inherited the issues caused from the rules and regulations changing over time. The owner is concerned about the issuance of a septic permit and possible litigation that could potentially come forth in the event of the sale of the land, and then the buyer not being able to develop it. Attempting to comply with the requirements from which the variance is requested has already caused a hardship on this owner as he has been trying to sell the property since the early 90's. Attempting to pursue additional options would continue this hardship in the form of loss of use, time, and the potential of an unbearable cost.

(c) the variance is necessary to address extraordinary conditions that the applicant could not reasonably have prevented;
The applicant recently sought to acquire this property and inherited the issues associated with trying to obtain substantial conformance to the Flathead County Subsurface Wastewater Treatment Standards and the property in general. The subdivision approval in 1973 created 20 lots, including the subject property, that could not possibly meet the regulatory requirements of today. The extraordinary challenges that these properties face could not reasonably have been prevented by the applicant.

(d) no alternatives that comply with the requirement are reasonably feasible; and
The alternative previously stated in Part b involving the possible acquisition of land, easements, and the unbearable costs associated with that process are absolutely not reasonably feasible. There are no other reasonably feasible alternatives that have been identified.

(e) the variance requested is not more than minimum needed to address the extraordinary conditions;
The extraordinary conditions involve the subsurface constraints of the property which do not allow it to meet certain regulations. The variance requested is only for the minimum needed to address these conditions of the property.

Montana Department of Environmental Quality

MEMORANDUM

TO: Truman Pisk/Foley Engineering
Wendee Jacobs/Flathead County Health Department

CC: Margarite Juarez-Thomas/PWS-Subdivisions Section Supervisor

FROM: Deanne Fischer
DEQ Public Water & Subdivision Section
Engineering Bureau

SUBJECT: Subdivision Review of Haskill Creek Lot 9, Flathead County, EQ#22-1506

DATE: December 21, 2021

A waiver request was received from Foley Engineering on October 19, 2021 requesting a waiver from the requirement of ground water monitoring (ARM 17.36.325(2)) on Lot 9 of the Haskill Creek Subdivision. The materials submitted with the waiver request include a Certificate of Survey (COS) issued on June 29, 1973, for 20 lots in Haskill Creek Subdivision.

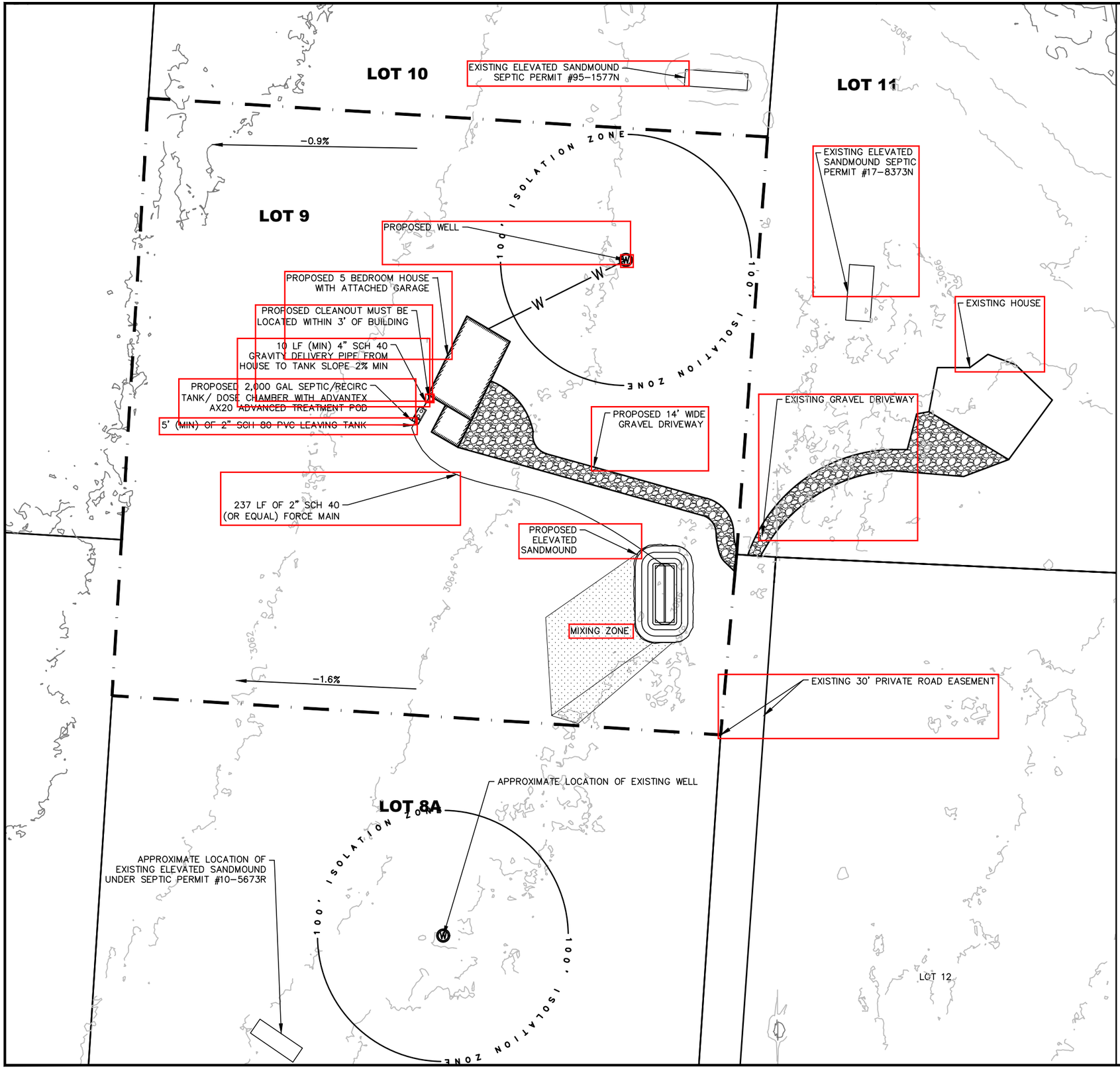
In 1967, a subdivision was defined as follows under the Sanitation in Subdivisions Act, 76-4, MCA: A division of land creating two or more parcels, any of which is less than five acres, along, an existing or proposed street, highway easement or right-of-way.

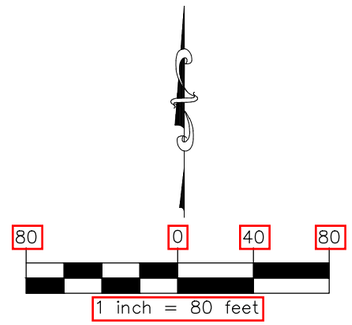
On July 1, 1973, the definition of a subdivision was revised as follows: the division of land into two or more parcels, whether contiguous or not, any of which is ten acres or less, excluding roadways; including condominiums or areas providing space for camping trailers, house trailers or mobile homes,

According to the COS, each of the lots in Haskill Creek is 5 acres or larger. It was determined that Lot 9 was created before the Sanitation Act had been changed to include subdivisions with lots less than 10 acre in size (revised in July 1, 1973).

Consequently, Haskill Creek Subdivision would not have qualified for review under the Sanitation Act when it was subdivided. If the lots did not fall under the Sanitation Act at the time of creation, there would be no means for sanitary restrictions to have been assigned to Haskill Creek.

The Department feels that sanitary restrictions were erroneously placed on the Haskill Creek COS and as such, development of Lot 9 can proceed without review by DEQ under the Sanitation Act.





SCALE

1. CONSULT WITH ENGINEER PRIOR TO CONSTRUCTION.
2. INSTALLATION OF SEPTIC SYSTEM SHALL BE IN ACCORDANCE WITH "FLATHEAD COUNTY CONSTRUCTION STANDARDS FOR SUBSURFACE WASTEWATER TREATMENT SYSTEMS", 2018.
3. ALL ELECTRICAL TO COMPLY WITH STATE AND LOCAL CODES, AND MUST MEET THE REQUIREMENTS FOR NATIONAL ELECTRIC CODE CLASS 1, DIVISION 2 LOCATIONS
4. ALL PORTIONS OF SYSTEM TO BE 10 FEET MINIMUM FROM OUTSIDE PROPERTY LINES. SEALED LINES AND SEPTIC TANK TO BE 50 FEET MINIMUM FROM WELL. DRAINFIELD TO BE 100 FEET MINIMUM FROM WELL. SEPTIC TANK TO BE 10 FEET (MIN.) FROM FOUNDATION WALL.
5. REMOVE ABOVE-GROUND VEGETATION AND DECOMPOSING ORGANIC MATTER UNDER FILL AREA AND PLOW OR SCARIFY AND SMOOTH UPPER 4-8 INCHES OF GROUND PRIOR TO FILL PLACEMENT. ROTO-TIL OR OTHERWISE MIX COARSE SAND WITH TOP 6" OF EXISTING MATERIAL.
6. PLACE OUTSIDE FILL PRIOR TO TRENCH EXCAVATION AND FILL AS NOTED. KEEP TRUCKS OFF SMOOTHED AREA.
7. SAND BEDDING FOR DRAINFIELD SHALL BE WASHED MASONRY OR CONCRETE SAND CONFORMING TO FCCS 6.7.3.4.
8. DEBURR ORIFICES PRIOR TO TESTING. ORIFICES SHALL BE TURNED UP OR DOWN AS SHOWN.
9. LATERALS SHALL BE FLUSHED PRIOR TO CAPPING ENDS AND PRESSURE TESTING.
10. ALL ORIFICES FACING UP WILL HAVE ORIFICE SHIELDS. SHIELDS TO BE INSTALLED PRIOR TO FINAL BACKFILL.
11. ENSURE PIPES FROM BUILDINGS TO SEPTIC TANK ARE 4" SCHEDULE 40 PVC. BEDDING SHALL BE 1" MINUS SAND MATERIAL WITH 6" MINIMUM ABOVE AND BELOW THE PIPE. NO ROCK OR FROZEN MATERIAL WITHIN 24" OF TOP OF PIPE. MINIMUM GRADE IS ¼" PER FOOT.
12. CONTROL PANEL TO BE SJE-RHOMBUS® MODEL 115 (OR EQUAL) FOR INDOOR/OUTDOOR USE WITH SEPARATE WATER ALARM. PUMP AND HIGH WATER ALARM MUST BE ON SEPARATE ELECTRICAL CIRCUITS. COORDINATE WITH OWNER REGARDING ELECTRICAL PLACEMENT.
13. FORCE MAIN FROM PUMP CHAMBER TO DRAINFIELD SHALL BE 2" DIAMETER SCH 40 PVC (OR EQUAL) PRESSURE PIPE. USE SCHEDULE 80 PVC FROM PUMP TO FIVE (5) FEET FROM PUMP CHAMBER. MAINTAIN 6' BURY OR INSULATE PIPE.
14. SEAL ALL JOINTS OF SEPTIC TANK/PUMP CHAMBER WITH HYDRAULIC GROUT OR EQUALLY APPROVED. ENSURE ALL SEALS ARE WATERTIGHT.
15. SEPTIC TANK/ PUMP CHAMBER TO BE LEAK TESTED PRIOR TO SERVICE. FILL AND OBSERVE FOR 24 HOURS. CORRECT ANY DEFICIENCIES AND RETEST FOR AN ADDITIONAL 24 HOURS.
16. CONTRACTOR TO SOD OR SEED WITH GRASS OR GRASS-CLOVER MIX AND COVER WITH STRAW MULCH. OWNER TO MAINTAIN.
17. INSPECTION OF SYSTEM AND PRESSURE TESTING TO BE COORDINATED WITH THE SANITARIAN'S OFFICE AND ENGINEER. CONTRACTOR TO NOTIFY ENGINEER FOR FINAL INSPECTION FOLLOWING COMPLETION OF THE SYSTEM.
18. ALL WELLS AND DRAINFIELDS WITHIN 100 FEET OF THE SUBJECT PROPERTY ARE SHOWN ON THE SEPTIC SITE PLAN
19. CONTRACTOR MUST MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES.

EXISTING UTILITIES AND SITE CONDITION NOTES

1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN AND ARE APPROXIMATE.
2. ACCURACY OF UTILITY INFORMATION IS NOT GUARANTEED AND CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND VERIFYING THE EXISTENCE, LOCATIONS, AND DEPTHS OF ALL UTILITIES THAT MAY BE PRESENT ON AND ADJACENT TO THE SITE.
3. UTILITIES MAY NOT BE BURIED AT CONSISTENT DEPTHS OR AS SHOWN WITHIN THE PLANS. CONTRACTOR SHALL NOTIFY EACH UTILITY COMPANY PRIOR TO PERFORMING ANY EXCAVATION OR EARTH DISTURBING ACTIVITIES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY UTILITIES DAMAGED BY THEIR ACTIVITIES.
5. ALL EXISTING AND PROPOSED WELLS AND/OR WATER SOURCES WITHIN 100' OF THE SUBJECT PROPERTY LINES ARE SHOWN TO OUR KNOWLEDGE.
6. ALL STREAMS, LAKES, PONDS, WETLANDS, IRRIGATION DITCHES/ OTHER SURFACE WATER SOURCES WITHIN 100' OF THE SUBJECT PROPERTY LINES ARE SHOWN TO OUR KNOWLEDGE.

FOLEY ENGINEERING
105 VILLAGE LOOP SUITE B KALISPELL, MT 59901
406. 314. 4220

PRELIMINARY NOT FOR CONSTRUCTION

SEAL

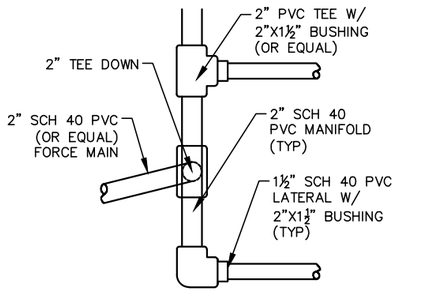
SEPTIC SITE PLAN
HASKILL CREEK TRACTS LOT 9
FLATHEAD COUNTY, MONTANA

NO.	REV.	DATE

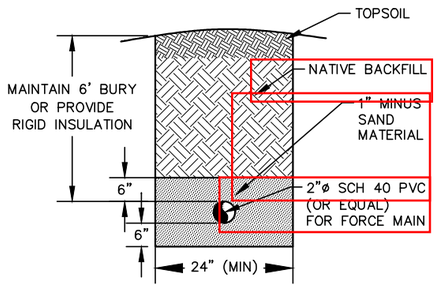
PROJECT NO.:	234.01
DESIGNED BY:	B. FOLEY
DRAWN BY:	T. PISK
CHECKED BY:	B. FOLEY

MARCH 2, 2022

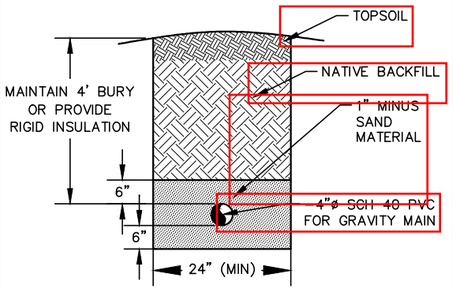
SHEET 1 OF 1



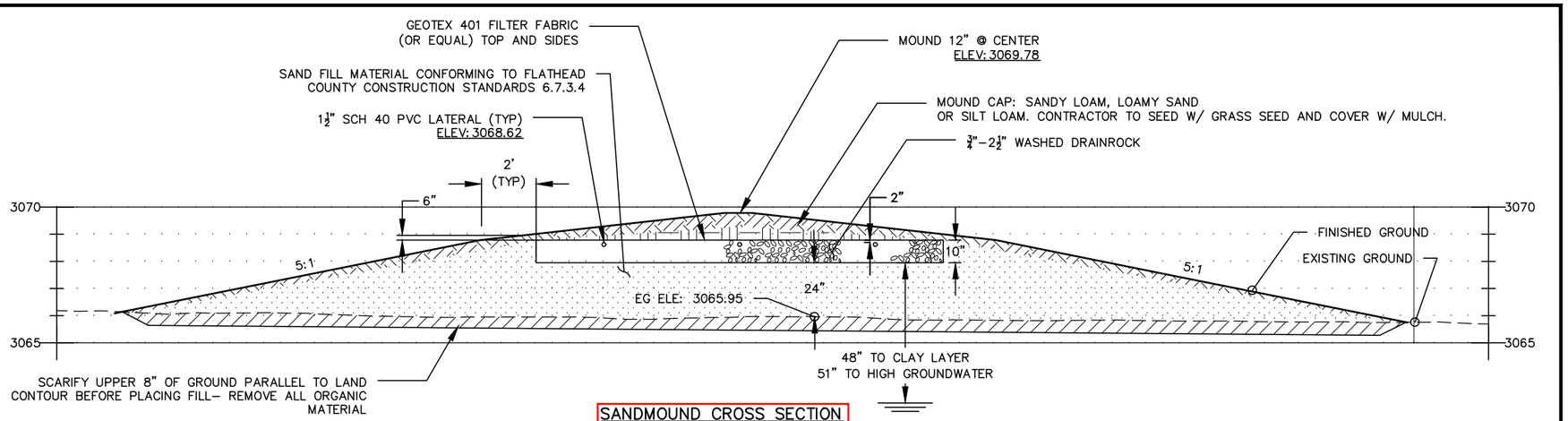
END MANIFOLD DETAIL
SCALE: NTS



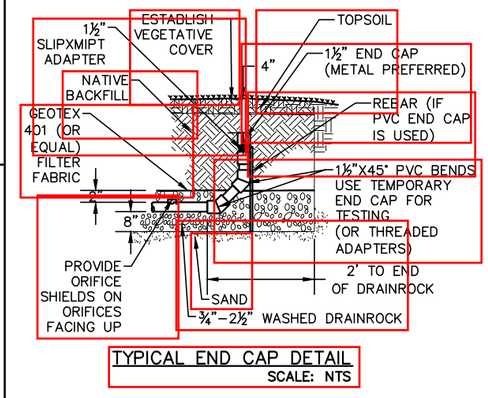
FORCE MAIN TRENCH DETAIL
SCALE: NTS



GRAVITY PIPE TRENCH DETAIL
SCALE: NTS



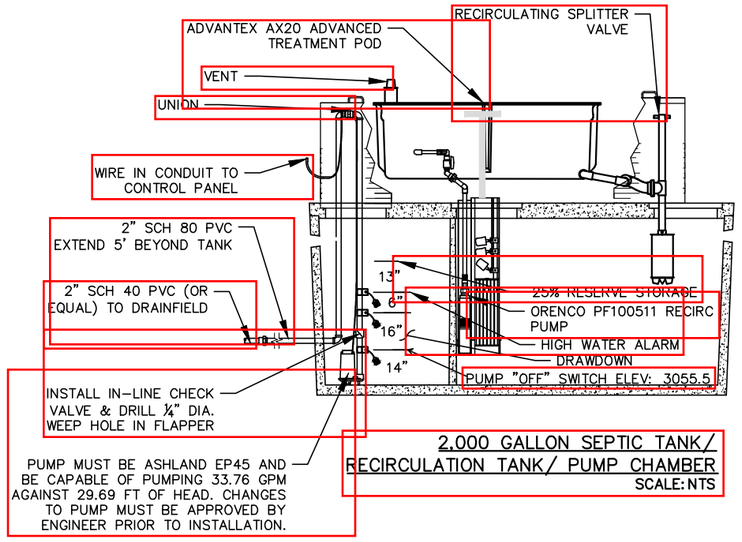
SANDMOUND CROSS SECTION
SCALE: NTS



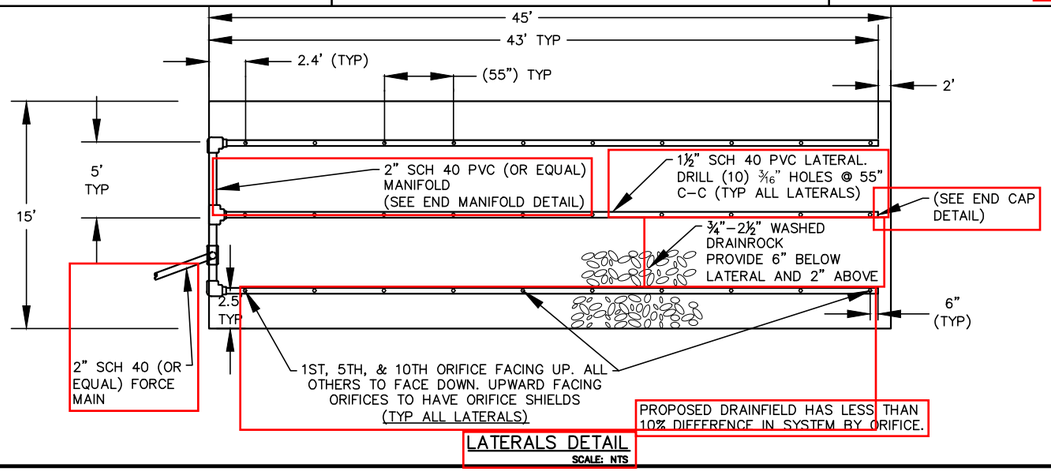
TYPICAL END CAP DETAIL
SCALE: NTS

1) SYSTEM SIZE = 5 BEDROOMS OR 500 GALLONS/DAY
2) SAND BED APPLICATION RATE = 0.8 GALLONS/FT²/DAY
3) MIN REQ'D BED SIZE = 500 GAL./DAY/0.8 = 625 FT² (MIN)
4) PROPOSED BED SIZE = 15'W x 45'L = 675 FT²
5) VOID VOLUMES: FORCE MAIN = 35.09 GAL
   MANIFOLD = 1.63 GAL
   TOTAL LATERALS = 11.84 GAL X 5
   MIN. DOSE VOLUME = 95.92 GAL
7) PROPOSED DOSE VOLUME = 165 GALLONS @ 16" DRAWDOWN
8) SOILS = CLAY
9) NATURAL SOIL APPLICATION RATE = 0.15 GPD/FT²
10) MIN REQ'D BASAL AREA = 500 GPD/0.15 = 3,334 FT²
11) PROPOSED BASAL AREA 47'W x 77'L = 3,619 FT²

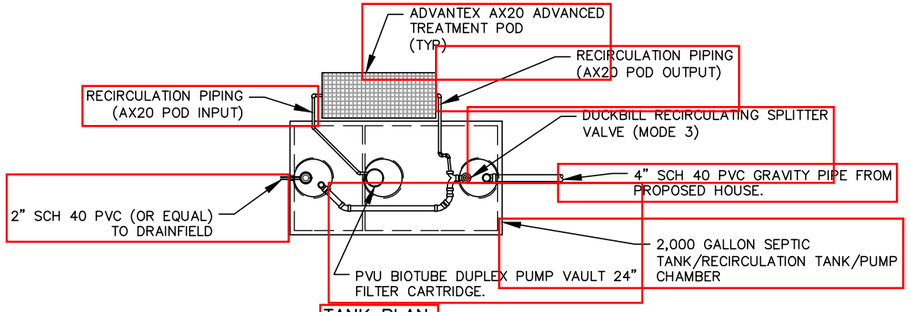
ASHLAND EP45



2,000 GALLON SEPTIC TANK/ RECIRCULATION TANK/ PUMP CHAMBER
SCALE: NTS



LATERALS DETAIL
SCALE: NTS



TANK PLAN
SCALE: NTS

FOLEY ENGINEERING
105 VILLAGE LOOP SUITE B KALISPELL, MT 59901
406. 314. 4280

PRELIMINARY NOT FOR CONSTRUCTION

SEAL

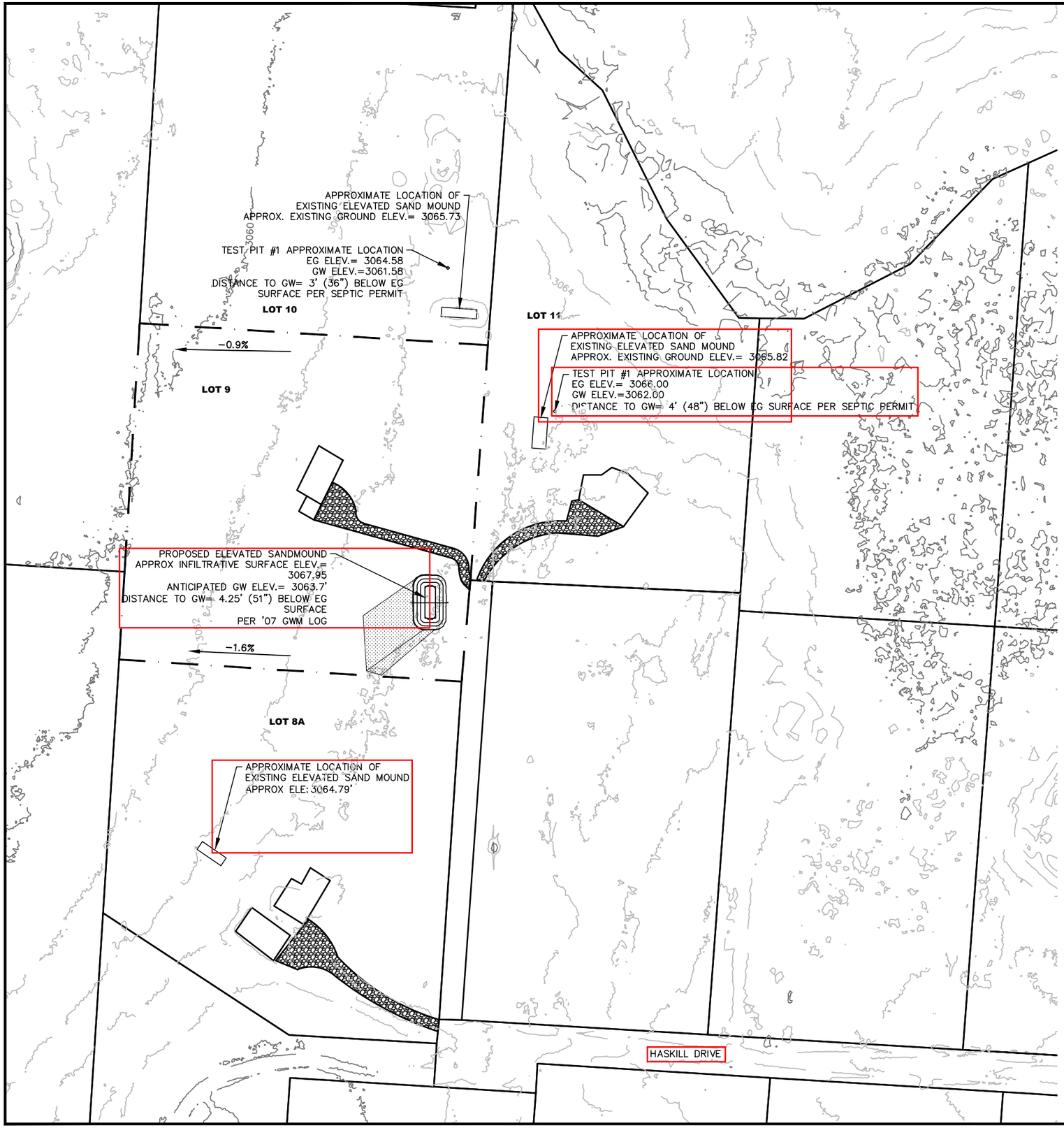
SEPTIC NOTES AND DETAILS
HASKILL CREEK TRACTS LOT 9
FLATHEAD COUNTY, MONTANA

NO.	REV.	DATE

PROJECT NO.:	234.01
DESIGNED BY:	B. FOLEY
DRAWN BY:	T. PISK
CHECKED BY:	B. FOLEY

MARCH 2, 2022

SHEET 2 OF 1



150 0 75 150

1 inch = 150 feet

SCALE

FOLEY ENGINEERING
105 VILLAGE LOOP SUITE B KALISPELL, MT 59901
406. 314. 4280

PRELIMINARY NOT FOR CONSTRUCTION

SEAL

GWM WAIVER EXHIBIT

HASKILL CREEK TRACTS LOT 9

FLATHEAD COUNTY, MONTANA

NO.	REV.	DATE

PROJECT NO.:	234.01
DESIGNED BY:	B. FOLEY
DRAWN BY:	T. PISK
CHECKED BY:	B. FOLEY

MARCH 2, 2022

SHEET 1 OF 1

EXISTING UTILITIES AND SITE CONDITION NOTES

1. ALL EXISTING UTILITY LOCATIONS SHOWN ARE FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN AND ARE APPROXIMATE.
2. ACCURACY OF UTILITY INFORMATION IS NOT GUARANTEED AND CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND VERIFYING THE EXISTENCE, LOCATIONS, AND DEPTHS OF ALL UTILITIES THAT MAY BE PRESENT ON AND ADJACENT TO THE SITE.
3. UTILITIES MAY NOT BE BURIED AT CONSISTENT DEPTHS OR AS SHOWN WITHIN THE PLANS. CONTRACTOR SHALL NOTIFY EACH UTILITY COMPANY PRIOR TO PERFORMING ANY EXCAVATION OR EARTH DISTURBING ACTIVITIES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY UTILITIES DAMAGED BY THEIR ACTIVITIES.

bing maps

A 1035 1st Ave W, Kalispell, Montana, United States
B 200 Haskill Dr, Whitefish, MT 59937, United States

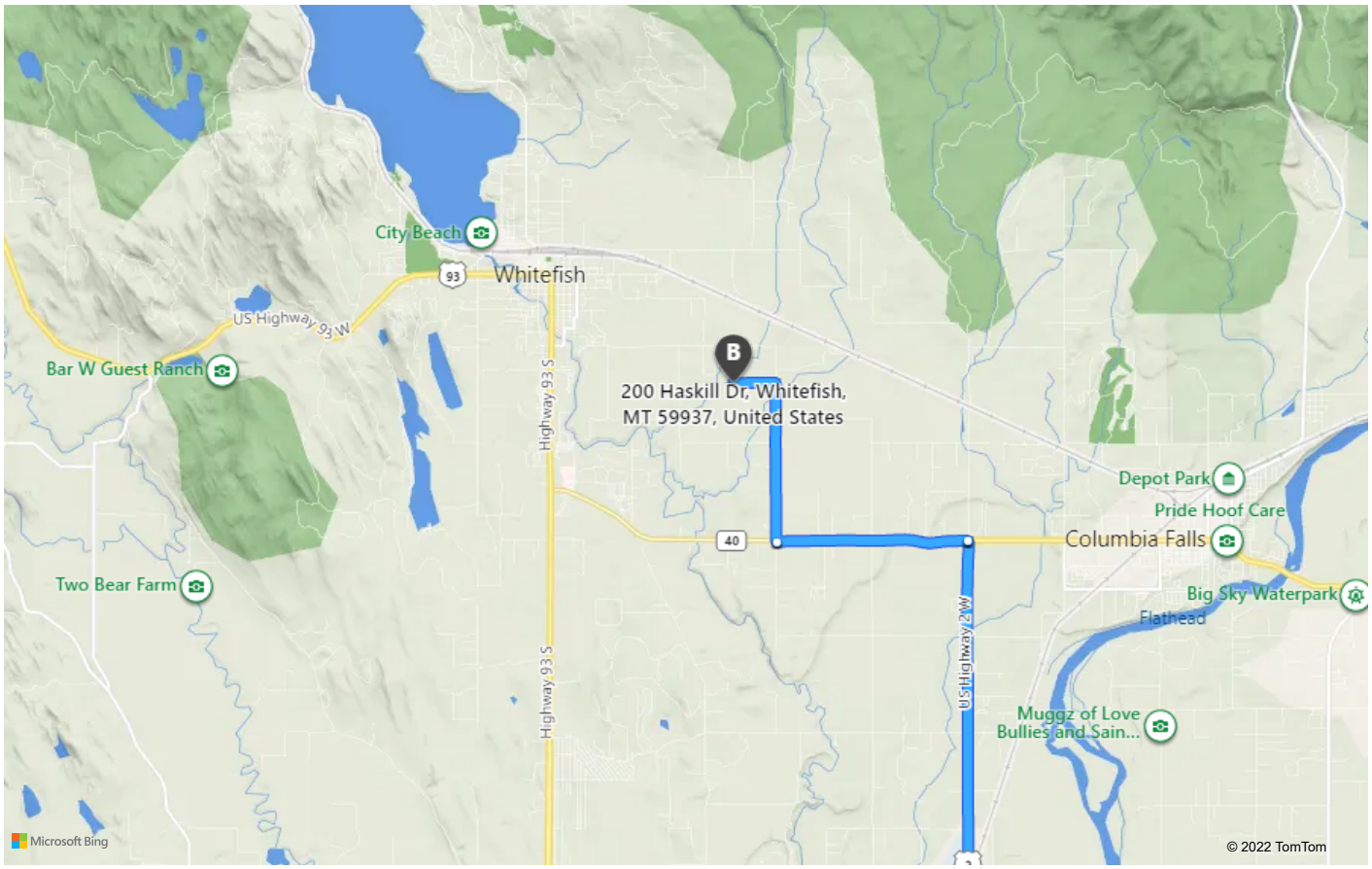
32 min , 18.2 miles
Light traffic (Leave at 3:36 PM)
Via US-2 E, MT-40

A 1035 1st Ave W, Kalispell, Montana, United States

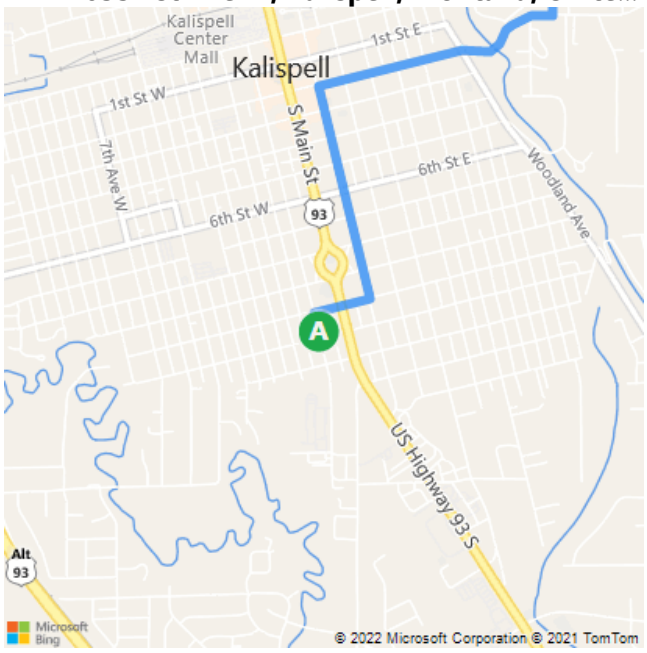
↑	1.	Head **north** on **1st Ave W** toward 10th St W	269 ft
↱	2.	Turn **right** onto **10th St W**	381 ft
↑	3.	Road name changes to **10th St E**	384 ft
↰	4.	Turn **left** onto **1st Ave E**	0.6 mi
↱	5.	Turn **right** onto **2nd St E**	0.6 mi
↑	6.	Road name changes to **Conrad Dr**	62 ft
↰	7.	Turn **left** onto **Woodland Park Dr** Conoco on the corner	0.4 mi
↱	8.	Turn **right** onto **US-2 E / US Highway 2 E** ▲ *Minor Congestion*	1.1 mi
↰	9.	Turn **left** onto **US-2 E / US Highway 2 E** Pass Wendy's on the right in 1.9 mi ▲ *Minor Congestion*	11.1 mi, 16 min
↰	10.	Turn **left** onto **MT-40 / Highway 40 W**	43 ft
↑	11.	Keep **straight** to get onto **MT-40 / Highway 40 W**	2.0 mi
↱	12.	Turn **right** onto **Dillon Rd**	1.6 mi
↰	13.	Turn **left** onto **Haskill Dr**	0.4 mi

14. Arrive at **Haskill Dr** on the right
The last intersection before your destination is Dillon Rd

B **200 Haskill Dr, Whitefish, MT 59937, United States**



A **1035 1st Ave W, Kalispell, Montana, Unite...**



B **200 Haskill Dr, Whitefish, MT 59937, Unit...**

Findings of the Flathead City-County Board of Health

Referenced Property: Lot 9 of Haskill Creek Tracts, Section 4, Township 30N, Range 21W

Before a variance can be granted, Section 14.6 of the Regulations requires that the Board make written findings of fact based upon evidence produced at the public hearing setting forth and showing that all of the following circumstances exist:

(1) Granting the variance will not:

(i) contaminate any actual or potential drinking water supply;
(ii) cause a public health hazard as a result of access to insects, rodents, or other possible carriers of disease to humans;
(iii) cause a public health hazard by being accessible to persons or animals;
(iv) violate any law or regulation governing water pollution or wastewater treatment and disposal, including the rules contained in this subchapter except for the rule that the variance is requested from;
(v) pollute or contaminate state waters, in violation of 75-5-605, MCA;
(vi) degrade state waters unless authorized pursuant to 75-5-303, MCA; or
(vii) cause a nuisance due to odor, unsightly appearance, or other aesthetic consideration;

Department Comment to Section (1):

- The elevated sand mound drainfield will be designed and constructed in such a manner that at least a 100-foot separation will be maintained from nearby water wells (domestic water source).
- The elevated sand mound drainfield will be designed and constructed in such a manner that it will not pose a threat to the public's health and will not be accessible to humans and animals.
- The elevated sand mound drainfield will be designed and constructed in such a manner that it will meet all regulatory setbacks so as not to violate any law or regulation governing water pollution or wastewater treatment. Furthermore, the Montana Department of Environmental Quality (DEQ) has stated that this lot is not subject to the Sanitation in Subdivisions Act in effect when this lot was created. Hence, no sanitary restrictions were imposed on this lot at the time of creation.
- The elevated sand mound drainfield will be designed and constructed in such a manner that it will not contaminate or cause degradation to state waters pursuant to 75-05-303, MCA. To further enhance groundwater protection, the engineer proposes Level II treatment technology.
- The elevated sand mound drainfield will be designed and constructed in such a manner that it will not cause a nuisance due to odor, unsightly appearance or other aesthetic consideration.

2. That compliance with the requirement from which the variance is requested would result in undue hardship to the applicant;

Department Comment:

- The applicant is requesting the variance due to the conditions on the property. Due to the elevated groundwater conditions, an elevated sand mound drainfield is required and based on current groundwater monitoring results development could not occur without this variance.

3. That the variance is necessary to address extraordinary conditions that the applicant could not reasonably have prevented;

Department Comment:

- The elevated groundwater on the site requires the design and construction of a sandmound to maintain the required setbacks to groundwater. The presence of shallow groundwater is not something the applicant could have prevented.

4. That no alternatives that comply with the Regulation are reasonably feasible;

Department Comment:

- This is the most effective means of overcoming shallow groundwater conditions and protect contamination of the shallow groundwater.

5. That the variance requested is not more than the minimum needed to address the extraordinary conditions.

Department Comment:

- This is the minimum variance that may be granted.


SUMMIT
InnoVet
InnoVet

Animal Shelter Monthly Board of Health Report - Feb., 2022

	Feb-22	12 Month Running Average	12 Month Running Total	Jan-22	Dec-21	Nov-21	Oct-21	Sep-21	Aug-21	Jul-21	Jun-21	May-21	Apr-21	Mar-21
Dog Beginning Pop.	19	15		18	15	20	17	16	26	13	20	16	9	12
Dogs In	57	72	867	60	56	71	73	61	72	106	86	76	78	71
Owned	17	19	228	22	20	20	16	21	21	24	19	11	20	17
Stray	40	52	629	37	36	51	57	37	50	82	65	64	57	53
DOA In	0	1	10	1	0	0	0	3	1	0	2	1	1	1
Dogs Out	59	72	861	59	53	75	70	60	82	93	93	72	71	74
Adopted	25	26	306	34	26	29	20	22	33	26	31	26	18	16
Rescued	0	1	6	0	1	2	1	0	0	2	0	0	0	0
Return To Owner	34	42	507	21	23	38	46	32	45	65	56	42	50	55
Escaped	0	0	2	0	0	1	1	0	0	0	0	0	0	0
Died	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Euthanized	0	3	30	3	3	5	2	3	3	0	4	3	2	2
DOA Out	0	1	10	1	0	0	0	3	1	0	2	1	1	1
Ending Population	17	16		19	18	16	20	17	16	26	13	20	16	9
Cat Beginning Pop.	10	17		11	25	15	14	20	26	24	25	19	15	10
Cats In	31	38	454	24	22	40	42	44	53	52	40	47	32	27
Owned	13	15	185	14	15	11	17	12	30	14	13	19	15	12
Stray	13	18	221	10	5	27	21	21	16	34	22	26	12	14
Service In	5	3	41	0	2	2	2	8	7	4	4	1	5	1
DOA in	0	1	7	0	0	0	2	3	0	0	1	1	0	0
Cats Out	27	38	451	25	36	30	41	50	60	50	41	41	28	22
Adopted	19	27	325	24	25	21	30	30	38	36	31	34	19	18
Rescued	0	0	2	0	0	0	0	1	0	0	0	0	0	1
Return To Owner	0	1	10	0	1	0	1	0	1	2	0	2	2	1
Escaped	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Died	0	1	9	0	0	0	0	4	1	1	2	0	1	0
DOA Out	0	1	7	0	0	0	2	3	0	0	1	1	0	0
Euthanized	2	1	16	1	1	1	2	2	2	3	0	1	1	0
Return to Field	6	7	82	0	9	8	6	10	18	8	7	3	5	2
Ending Population	14	17		10	11	25	15	14	20	26	24	25	19	15
Total In	88	110	1321	84	78	111	115	105	125	158	126	123	110	98
Total Out	86	109	1312	84	89	105	111	110	142	143	134	113	99	96

Past 12 Months: Asilomar Live Release Rate- 97.14%; Length of Stay: Dogs - 6.8 days; Cats - 14.5 days

Community Health Board of Health Report February 2022

IMMUNIZATIONS

	FEB 22	12 MONTH RUNNING AVERAGE	12 MONTH RUNNING TOTAL	JAN 22	DEC 21	NOV 21	OCT 21	SEP 21	AUG 21	JUL 21	JUN 21	MAY 21	APR 21	MAR 21	FEB 21
TOTAL VISITS	106	256	3,067	121	149	192	1615	191	263	139	126	110	59	48	54
OTHER IMMUNIZATIONS	130	183	2,199	129	133	248	138	297	430	194	186	170	109	79	86
INFLUENZA	10	157	1,886	42	77	111	1556	81	0	0	2	2	5	0	10
BLOOD DRAWS	6	13	155	8	8	4	6	14	10	13	15	11	12	47	7

WOMEN, INFANTS, CHILDREN SUPPLEMENTAL NUTRITION PROGRAM (WIC)

	FEB 22	12 MONTH RUNNING AVERAGE	JAN 22	DEC 21	NOV 21	OCT 21	SEP 21	AUG 21	JUL 21	JUN 21	MAY 21	APR 21	MAR 21	FEB 21
KALISPELL OFFICE	1001	1000	999	1000	1016	1002	1007	995	1010	1003	1000	971	994	1008
ONLINE WIC SMARTS	20	17	25	32	15	14	18	9	11	22	4	25	12	16
TOTAL VISITS	1021	1017	1024	1032	1031	1016	1025	1004	1021	1025	1004	996	1006	1024

HOME VISITING PROGRAMS- CASELOADS

	FEB 22	12 MONTH RUNNING AVERAGE	JAN 22	DEC 21	NOV 21	OCT 21	SEP 21	AUG 21	JUL 21	JUN 21	MAY 21	APR 21	MAR 21	FEB 21
PARENTS AS TEACHERS	82%	92%	85%	87%	94%	100%	78%	82%	92%	98%	99%	100%	99%	94%
MONTANA ASTHMA PROGAM	27%	19%	20%	13%	13%	0%	23%	23%	23%	23%	23%	23%	23%	23%

Community Health Board of Health Report February 2022

PARENTS AS TEACHERS- REFERRALS														
	FEB 22	12 MONTH RUNNING AVERAGE	JAN 22	DEC 21	NOV 21	OCT 21	SEP 21	AUG 21	JUL 21	JUN 21	MAY 21	APR 21	MAR 21	FEB 21
INCOMING REFERRALS	8	15	10	7	7	7	23	7	11	11	14	19	37	21
ENROLLMENTS	0	2	0	0	2	0	3	1	0	2	6	4	3	6
REFERRING AGENCIES	1	4	3	2	2	2	6	3	4	5	3	5	4	6
AGENCY OUTREACH PERFORMED	1	4	3	3	2	2	2	2	6	3	5	3	6	6

Communicable Disease

	Feb-22	12 Mo. Running Avg.	12 Mo. Running Total	Jan-22	Dec-21	Nov-21	Oct-21	Sep-21	Aug-21	Jul-21	Jun-21	May-21	Apr-21	Mar-21	Feb-21
Campylobacteriosis	1	1.33	16		2	2	4	1	2	2	2			1	
Chlamydia	24	21	249	22	30	17	17	19	29	24	15	15	22	27	12
Coccidioidomycosis		0.00	0												
Cryptosporidiosis		0.00	0												
Shiga toxin-producing E. coli (STEC)		0.50	6	1	1			1	1						2
Ehrlichiosis		0.08	1						1						
Giardiasis		0.83	10	2	1		1			2	2		1	1	
Gonorrhea	5	2.58	31	2	3	4	3	2	3	4	3	1		4	2
Haemophilus Influenzae invasive		0.17	2	1											1
Hepatitis A		0.00	0												
Hepatitis B chronic		0.25	3				1		1					1	
Hepatitis B acute		0.00	0												
Hepatitis C acute		0.17	2		1				1						
Hepatitis C chronic	7	4.75	57	2	7	2	2	7	4	6	3	5	5	6	8
HIV		0.00	0												
Influenza hospitalization	10	0.25	3	3											
Influenza death		0.00	0												
Lead Poisoning		0.33	4						2					2	
Legionellosis		0.00	2			2									
Listeria		0.00	0												
Lyme Disease		0.00	0												
Malaria		0.08	1								1				
Pertussis		0.00	0												
Salmonellosis		0.33	4		1				1				1	1	
Shigellosis		0.17	2						1	1					
Spotted Fever Rickettsiosis		0.00	0												
Streptococcus pneumoniae, invasive		0.58	7		1	2	1			1				2	
Streptococcal Toxic Shock Syndrome		0.00	0												
Syphilis	1	0.75	9		1	1	1	1	1	1			3		
Transmissible spongiform encephalopathies		0.08	1						1						
Tuberculosis (active)		0.00	0												
Tuberculosis (latent)	1	0.67	8				5		1	2					
Varicella (chickenpox)		0.08	1									1			
Vibriosis		0.25	3		1					2					
Month total	49		422	33	49	30	35	31	49	45	26	22	32	45	25

Population Health
Board of Health Report
February 2022

FLATHEAD CITY-COUNTY
HEALTH DEPARTMENT

TOBACCO USE PREVENTION PROGRAM

FY21 CALLS TO MONTANA TOBACCO QUITLINE

	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	FY 22 Total
FLATHEAD COUNTY	9	13	10	7	4	11	13						67
STATEWIDE	130	128	127	127	113	119	155						899
% TOTAL CALLS IN MONTANA	6.92	10.15	7.87	5.51	3.53	7.26	7.45						

MONTANA CANCER SCREENING PROGRAM

FY21 MONTANA CANCER SCREENING PROGRAM – Goal 660

	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	FY 22 Total
SCREENINGS COMPLETED	9	20	24	51	43	26	33	36					242
% OF GOAL	1%	4%	8%	16%	22%	26%	31%	37%					37%
# PATIENT NAVIGATION ENROLLED	3	12	14	23	26	17	3	17					103
BREAST SCREENING DIAGNOSED AS CANCER	1	0	0	1	0	1	1	0					4
CERVICAL SCREENING FOR FY21 (PAP, HPV, COLPO)	10	28	37	20	59	41	19	47					261
BREAST SCREENING FY21 (CBE, MAMMO, DIAGN, ETC)	12	12	17	80	33	28	60	36					278
CERVICAL SCREENING DIAGNOSED AS CANCER	0	0	0	0	0	0	0	2					2

AMERICAN INDIAN BREAST AND CERVICAL – GOAL 40													
	Jul 21	**Aug 21**	**Sep 21**	**Oct 21**	**Nov 21**	**Dec 21**	**Jan 22**	**Feb 22**	**Mar 22**	**Apr 22**	**May 22**	**Jun 22**	**FY 22 Total**
SCREENED	0	0	0	1	1	0	1	1					4
% OF GOAL													10%

***If a patient has had both a cervical screening and a breast screening they will count as only 1 in our overall number to the state.**

SAFE KIDS SAFE COMMUNITIES

CAR SEATS														
	Feb 22	**12Mo. Running Average**	**12Mo. Running Total**	**Jan 22**	**Dec 21**	**Nov 21**	**Oct 21**	**Sept 21**	**Aug 21**	**July 21**	**Jun 21**	**May 21**	**Apr 21**	**Mar 21**	**Feb 21**
CHECKED (Not Provided By FCCHD)	3	6.5	78	4	4	7	8	10	3	11	6	11	4	8	2
FREE OR REDUCED	2	4.5	54	3	3	2	8	3	3	9	3	9	5	4	2

ALIVE AT 25														
	Feb 22	**12Mo. Running Average**	**12Mo. Running Total**	**Jan 22**	**Dec 21**	**Nov 21**	**Oct 21**	**Sep 21**	**Aug 21**	**July 21**	**Jun 21**	**May 21**	**Apr 21**	**Mar 21**	**Feb 21**
NUMBER OF STUDENTS	9	7.5	90	1	12	15	12	0	13	8	8	7	7	7	0

SHARPS PROGRAM

FY22 SHARPS DISTRIBUTIONS

	July 21	Aug 21	Sept 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22				FY 22 Total
NUMBER OF PHARMACIES VISITED EACH MONTH	14	14	14	14	14	14	14	14					
NUMBER OF SHARPS CONTAINERS GIVEN	200	115	204	195	278	138	145	160					1,435
NUMBER OF SHARPS CONTAINERS TAKEN TO LANDFILL	159	121	188	108	247	185	129	144					1,281

Accreditation Update:

Background:

Public health accreditation occurs through the Public Health Accreditation Board (PHAB). We are one of 332 accredited state and local health departments spanning across the country.

Flathead City-County Health Department (FCCHD) first became accredited in November of 2016. Initial accreditation lasts for 5 years.

Current:

To maintain accreditation status, FCCHD is currently applying for reaccreditation. The reaccreditation process requires us to submit documentation and examples showing how our department meets the adopted PHAB standards and measures.

The standards and measures are broken into 12 domains, with each domain addressing a different aspect of the 10 essential services of public health.

12 Domains:

- Conduct and disseminate assessments
- Investigation of health problems and environmental public health hazards
- Inform and educate about public health issues and functions
- Engage with the community to identify and address health problems
- Develop policies and plans
- Enforce public health laws
- Identify and implement strategies to improve access to health care services
- Maintain a competent workforce
- Evaluate and continuously improve processes, programs, and interventions
- Contribute to and apply the evidence base of public health
- Maintain administrative and management capacity
- The public health governing entity is informed and engaged with the HD

FCCHD will submit our reaccreditation application by March 31, 2022. Once submitted, PHAB will review our submission, provide feedback, and allow an opportunity for revision. The reaccreditation process is expected to take a year or more.

Flathead City-County Health Department

1035 First Ave. West Kalispell, MT 59901
(406) 751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
751-8110 FAX 751-8111
Environmental Health Services
751-8130 FAX 751-8131
Family Planning Services
751-8150 FAX 751-8151
Home Health Services
751-6800 FAX 751-6807
WIC Services
751-8170 FAX 751-8171
Animal Shelter
752-1310 FAX 752-1546

Finance Report

Date: 3/3/2022

To: Board of Health Members

From: Kirk Zander

Re: Finance Update

The following update covers the period from February 1 to February 28, 2022.

Tentative Budget Dates

- BOH Finance Committee – first week in April
- Administrative review with Finance department and County Administrator – April 18th
- Commissioner Review – May 9th through May 20th

General Health Fund (Page 1 - 2)

The preliminary cash balance at the end of February is just over $1.4 million compared to approximately $1.2 million last year at this time. Immunization Clinic revenues are down 19% from the previous year and expenses also down, 17%. Immunization accounts receivable balance at end of the month is $91K, decreasing from $110K in January. Environmental Health revenues are up over 25% from last year and expenses remain under budget.

Capital Improvement (Page 3)

No Updates

Home Health (Page 4)

Home Health February cash balance is a negative $109K. This represents a cash balance increase of approximately $25K since end of January. AR balance at the end of February is $328k, down $15K from $343k, the previous month. Total cash and net account receivable balance is $169K, after allowance for doubtful accounts estimate. This is $12k higher than the previous month.

Program dashboards (Pages 5 - 10)

No Updates.

Kirk Zander

Flathead County Health Department
General Health Fund Budget FY22
Year to Date Summary, February 28, 2022
Total Budget vs. YTD Actual, Cash Basis, Adjusted*

	General Health Fund Budget		
	Budget FY22	**Actual YTD**	**Variance YTD**
Revenue			
Tax Revenue	1,825,752	990,140	(835,612)
Fee & Other Revenue	1,385,416	1,274,326	(111,090)
Transfers In	4,000	4,000	-
	3,215,168	2,268,466	(946,702)
Expenditures			
Salary	1,592,265	810,223	782,042
Benefits	633,585	320,472	313,113
Supplies	454,400	234,514	219,886
Contracted Services	399,951	443,867	(43,916)
Transfers Out	14,677	8,000	6,677
Transfers Out - Capital	75,000	-	75,000
Capital Outlay	-	-	-
	3,169,878	1,854,576	1,352,802
Net Increase/(Decrease)	45,290	413,890	406,100

Cash Recon

***Beginning Cash, July 1, 2021**	**1,051,149**
Change in Cash, YTD	413,890
Ending Cash, February 28, 2022	**1,465,039**

Flathead County Health Department
General Health Fund Budget FY22
Department Detail, Cash Basis, Adjusted*
YTD Budget vs. YTD Actual, February 28, 2022

	Summary All Departments			Administration			Immunization/CD			Environmental Health			Facilities/Sharps		
	Budget YTD	Actual YTD	Variance YTD	Budget YTD	Actual YTD	Variance YTD	Budget YTD	Actual YTD	Variance YTD	Budget YTD	Actual YTD	Variance YTD	Budget YTD	Actual YTD	Variance YTD
Revenue															
Tax Revenue	1,217,168	990,140	(227,028)	1,217,168	990,140	(227,028)									
Fee & Other Revenue	923,611	1,274,326	350,715	204,935	520,534	315,599	302,107	199,680	(102,427)	416,569	554,112	137,543			
Transfers In	2,667	4,000	1,333		-	-							2,667	4,000	1,333
	2,143,445	2,268,466	125,021	1,422,103	1,510,674	88,571	302,107	199,680	(102,427)	416,569	554,112	137,543	2,667	4,000	1,333
Expenditures															
Salary	1,061,510	810,223	251,287	290,177	241,850	48,327	269,492	109,534	159,958	462,537	423,097	39,440	39,304	35,743	3,561
Benefits	422,390	320,472	101,918	89,227	68,875	20,352	110,146	43,245	66,901	199,108	186,046	13,062	23,909	22,306	1,603
Supplies	302,933	234,514	68,419	45,567	35,191	10,376	240,633	186,190	54,443	11,400	13,132	(1,732)	5,333	-	5,333
Contracted Services	266,634	443,867	(177,233)	157,363	367,186	(209,823)	64,673	30,471	34,202	44,264	46,089	(1,825)	333	122	211
Transfers Out	9,785	8,000	1,785	4,219	8,000	(3,781)	4,267	-	4,267	1,299	-	1,299	-	-	-
Transfers Out - Capital	50,000	37,500	12,500	50,000	37,500	12,500	-	-	-	-	-	-	-	-	-
Capital Outlay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,113,252	1,854,576	258,676	636,553	758,602	(122,049)	689,211	369,440	319,771	718,608	668,364	50,244	68,879	58,171	10,708
Net Increase/(Decrease)	30,193	413,890	383,697	785,549	752,072	(33,477)	(387,105)	(169,760)	217,345	(302,039)	(114,252)	187,787	(66,213)	(54,171)	12,042
				YTD Tax Rev Collected Through Feb			IZ/CD Revenue under budget and down from last year at this time by 19%			EH Revenue up over budget and over last year at this time by 25%					
				Exp over budget and under compared to last year by 24%. due to insurance, COVID and engineering expenditures			Exp under budget and under 17% compared to last year at this time.			Exp under budget, and up over last year by 10%.			Exp under budget and comparable to last year		

Flathead County Health Department
Health CIP Budget FY22
Year to Date Summary, February 28, 2022
Total Budget vs. YTD Actual, Cash Basis

	Health CIP Budget		
	Budget FY22	**Actual YTD**	**Variance YTD**
Revenue			
Interest Earnings	2,000	1,409	(591)
Auction Proceeds	-	-	-
Transfers In	75,000	37,500	(37,500)
	77,000	38,909	(38,091)
Expenditures			
Vehicle #1 and #2	80,000	75,424	4,576
AC Chiller	118,236	3,201	115,035
Smart TV	6,000		
Transfers Out - GVHC	-	29,356	(29,356)
	204,236	107,981	90,255
Net Increase/(Decrease)	(127,236)	(69,072)	52,164

Cash Recon

Beginning Cash, July 1, 2021	**943,654**
Change in Cash, YTD	(69,072)
Ending Cash, February 28, 2022	**874,582**

Flathead County Health Department
Home Health FY22
Year to Date Summary, February 28, 2022
Total Budget vs. YTD Actual, Cash Basis

	Home Health Budget		
	Budget FY22	Actual YTD	Variance YTD
Revenue			
Private Pay	180,000	184,599	4,599
Federal Stimulus	-	-	-
Medicare	900,000	420,153	(479,847)
Medicaid	5,000	7,015	2,015
Misc	-	-	-
	1,085,000	611,767	(473,233)
Expenditures			
County Employees	22,439	-	22,439
Contracted Services	1,251,000	746,876	504,124
Building Rental	40,700	27,065	13,635
Insurance	4,800	5,096	(296)
IT Service Charge	3,440	1,720	1,720
	1,322,379	780,757	541,622
Net Increase/(Decrease)	(237,379)	(168,990)	68,389

Cash Recon

Beginning Cash, July 1, 2021	**59,708**
Change in Cash, YTD	(168,990)
Ending Cash, February 28, 2022	**(109,282)**

Average Cash Balance

FY21	116,368
FY20	196,797
FY19	268,968
FY18	291,822
FY17	388,255
FY16	400,049

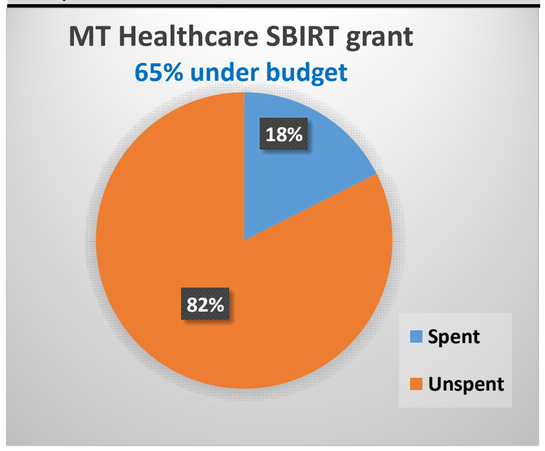
Cash and Account Receivable

Acct Receivable, February 28, 2022	**327,987**
***Less: Allowance for Doubtful Accounts**	(49,198)
Net Accounts Receivable	**278,789**
Ending Cash, February 28, 2022	**(109,282)**
Cash and Net Account Receivable	**169,507**

** estimated at 15% of AR Balance*

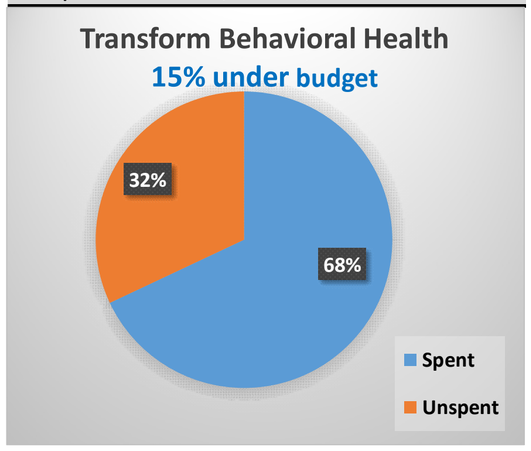
Health Administration Grants FY'22
Expenditures as of 2/28/22

MT HC SBIRT		$	%
Budget	$	50,000	100%
Spent	$	8,780	18%
Unspent	$	41,220	82%



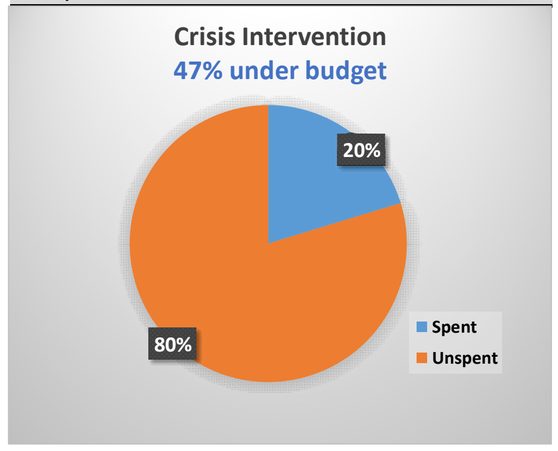
Grant Type	Revenue Source	Fiscal End Date
Deliverable	Private	06/30/22

Transform BH		$	%
Budget	$	25,000	100%
Spent	$	17,000	68%
Unspent	$	8,000	32%



Grant Type	Revenue Source	Fiscal End Date
Deliverable	Private	05/31/22

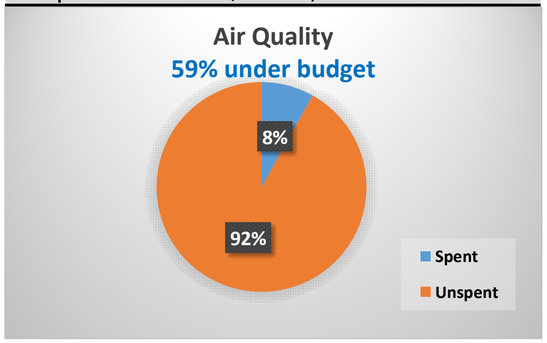
CTMG		$	%
Budget	$	275,000	100%
Spent	$	55,747	20%
Unspent	$	219,253	80%



Grant Type	Revenue Source	Fiscal End Date
Reimbursement	State	06/30/22

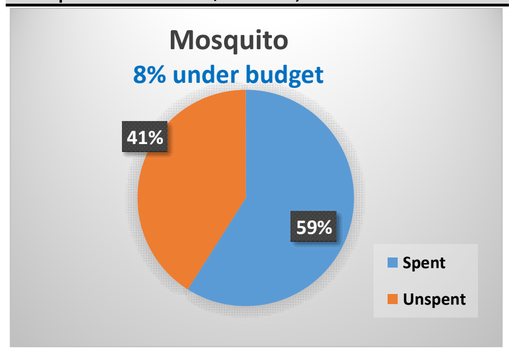
Environmental Health Grants FY'22
Expenditures as of 2/28/22

AIR QUALITY		$	%
Budget	$	50,213	100%
Spent	$	4,075	8%
Unspent	$	46,138	92%



Grant Type	Revenue Source	Fiscal End Date
Deliverable	Federal/State	06/30/22

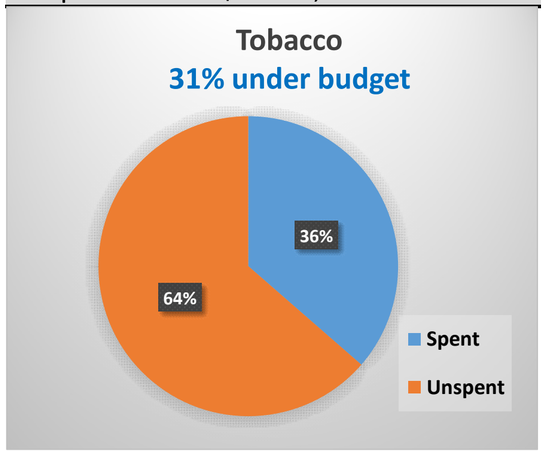
MOSQUITO		$	%
Budget	$	246,049	100%
Spent	$	145,173	59%
Unspent	$	100,876	41%



Health Dept	Revenue Source	Fiscal End Date
Mosquito	Tax Levy	06/30/22

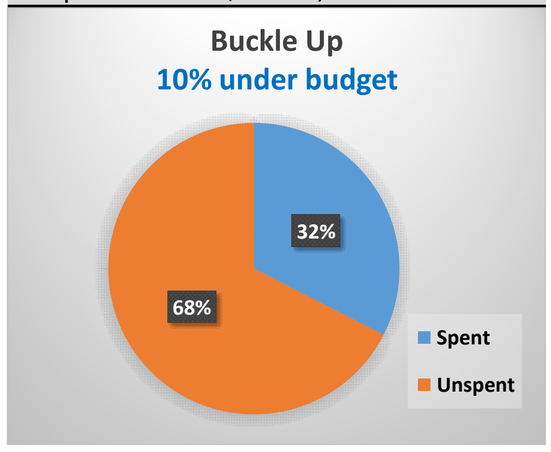
Health Promotion Programs FY'22
Expenditures as of 2/28/22

TOBACCO		$	%
Budget	$	115,546	100%
Spent	$	42,042	36%
Unspent	$	73,504	64%



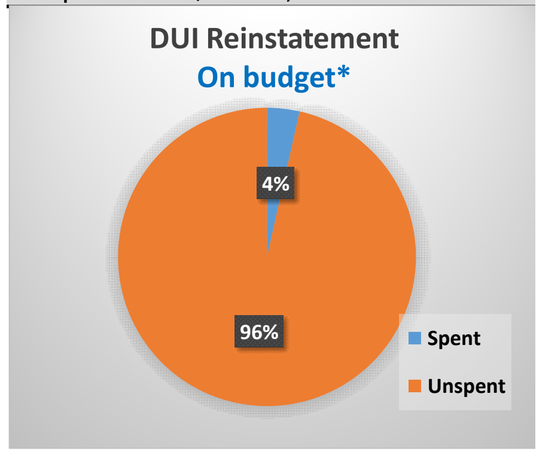
Grant Type	Revenue Source	Fiscal End Date
Deliverable	State	06/30/22

BUCKLE UP		$	%
Budget	$	47,455	100%
Spent	$	15,419	32%
Unspent	$	32,036	68%



Grant Type	Revenue Source	Fiscal End Date
Reimbursment	Federal	09/30/22

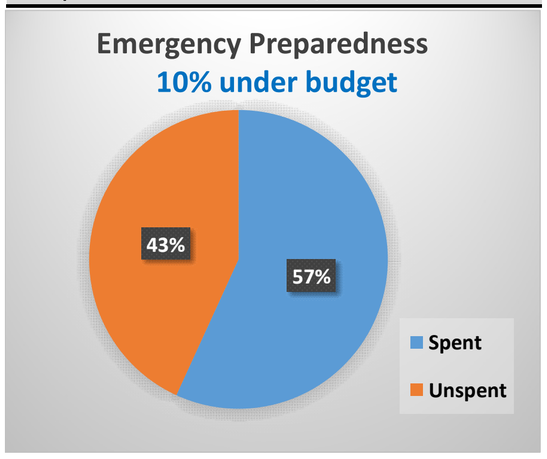
DUI		$	%
Budget	$	86,302	100%
Spent	$	3,045	4%
Unspent	$	83,257	96%



* Inflated budget per State request

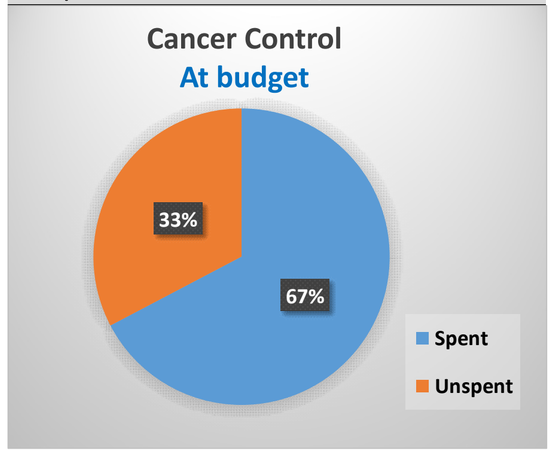
Grant Type	Revenue Source	Fiscal End Date
Deliverable	State	06/30/22

PHEP		$	%
Budget	$	218,667	100%
Spent	$	124,313	57%
Unspent	$	94,354	43%



Grant Type	Revenue Source	Fiscal End Date
Deliverable	Federal	06/30/22

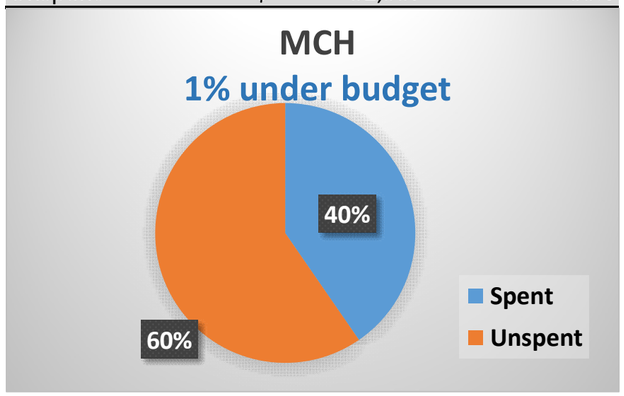
CANCER CONTROL		$	%
Budget	$	161,334	100%
Spent	$	108,587	67%
Unspent	$	52,747	33%



Grant Type	Revenue Source	Fiscal End Date
Deliverable	Federal/State	06/30/22

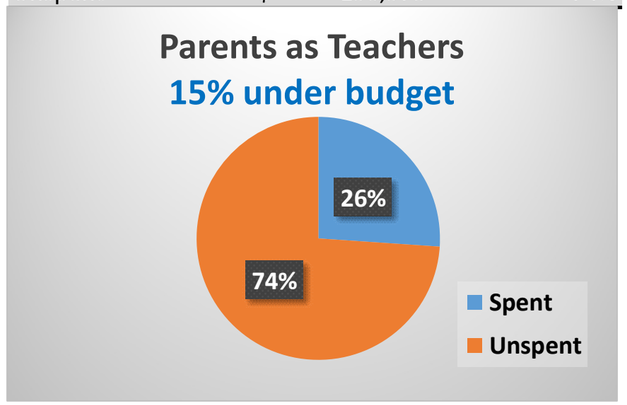
Community Health Programs FY'22
Expenditures as of 2/28/22

MATERNAL & CHILD HEALTH		$	%
Budget	$	88,803	100%
Spent	$	35,866	40%
Unspent	$	52,937	60%



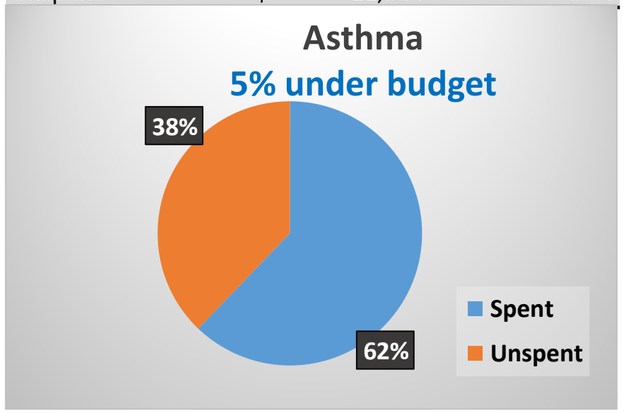
Grant Type	Revenue Source	Fiscal End Date
Deliverable	Federal	09/30/22

PAT		$	%
Budget	$	258,299	100%
Spent	$	67,326	26%
Unspent	$	190,973	74%



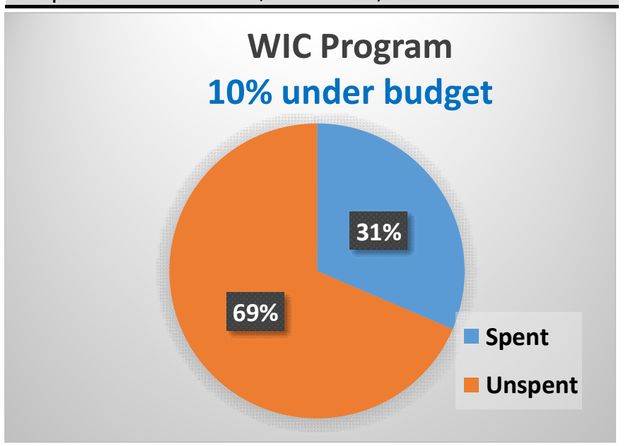
Grant Type	Revenue Source	Fiscal End Date
Reimbursement	State	09/30/22

ASTHMA		$	%
Budget	$	30,000	100%
Spent	$	18,656	62%
Unspent	$	11,344	38%



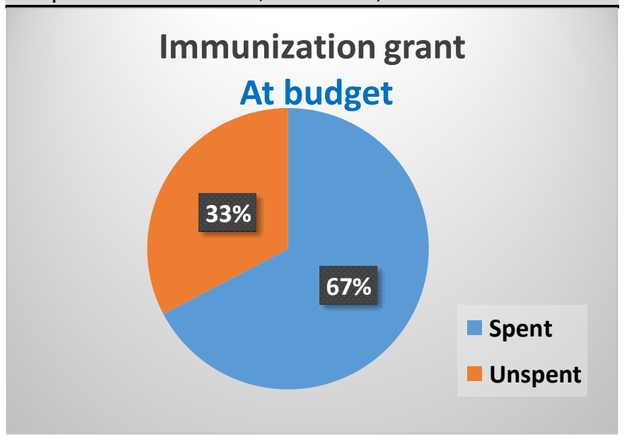
Grant Type	Revenue Source	Fiscal End Date
Reimbursement	State	06/30/22

WIC		$	%
Budget	$	350,000	100%
Spent	$	110,091	31%
Unspent	$	239,909	69%



Grant Type	Revenue Source	Fiscal End Date
Reimbursement	Federal	09/30/22

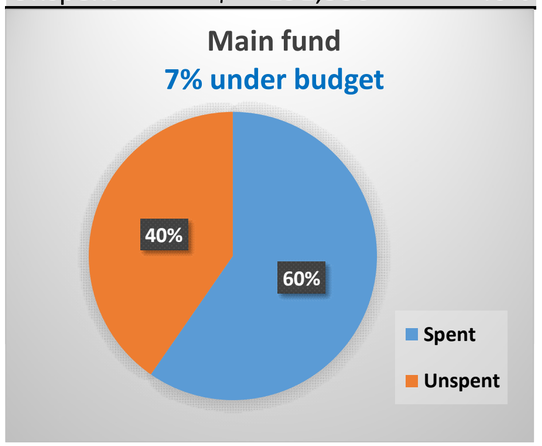
IMMUNIZATION GRANT		$	%
Budget	$	991,198	100%
Spent	$	667,166	67%
Unspent	$	324,032	33%



Grant Type	Revenue Source	Fiscal End Date
Deliverable	Federal	06/30/22

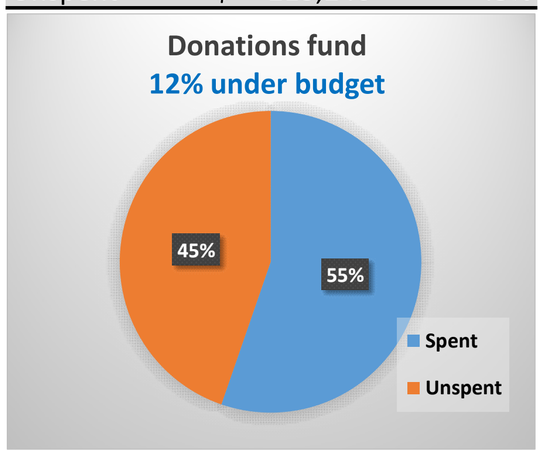
Animal Shelter FY'22
Expenditures as of 2/28/22

MAIN FUND		$	%
Budget	$	474,553	100%
Spent	$	283,017	60%
Unspent	$	191,536	40%



Health Dept	Revenue Source	Fiscal End Date
Animal Shelter	Tax Levy & Fees	06/30/22

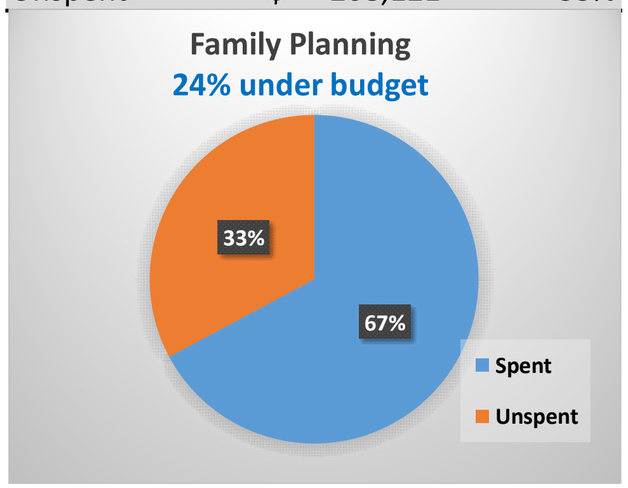
DONATIONS FUND		$	%
Budget	$	476,850	100%
Spent	$	263,604	55%
Unspent	$	213,246	45%



Health Dept	Revenue Source	Fiscal End Date
Animal Shelter	Donations	06/30/22

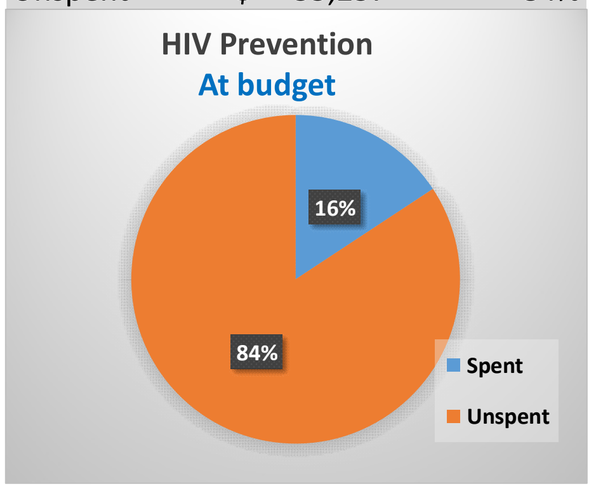
Family Planning FY'22
Expenditures as of 2/28/22

FP Main		$	%
Budget	$	633,974	100%
Spent	$	425,853	67%
Unspent	$	208,121	33%



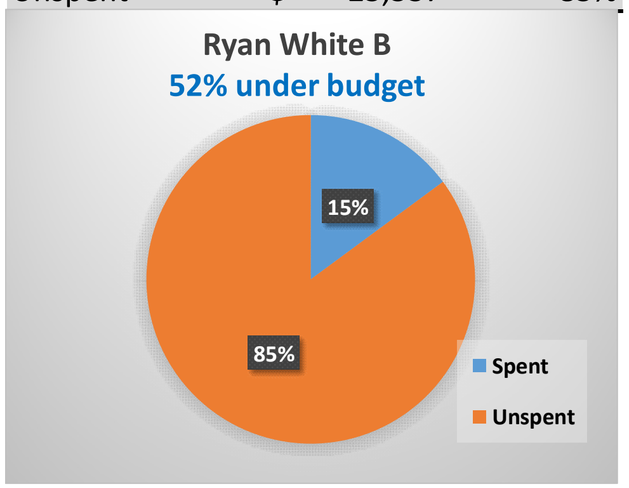
Grant Type	Revenue Source	Fiscal End Date
Reimbursent	Federal/State	03/31/22

HIV Prevention		$	%
Budget	$	65,574	100%
Spent	$	10,317	16%
Unspent	$	55,257	84%



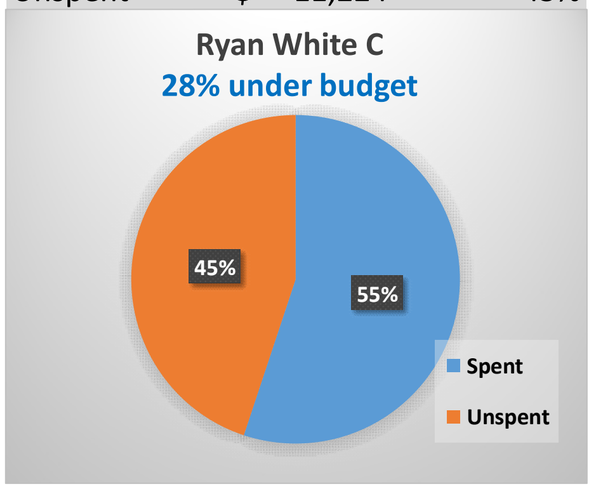
Grant Type	Revenue Source	Fiscal End Date
Reimbursement	Federal	12/31/22

Ryan White B		$	%
Budget	$	30,000	100%
Spent	$	4,463	15%
Unspent	$	25,537	85%



Grant Type	Revenue Source	Fiscal End Date
Reimbursent	State	06/30/22

Ryan White C		$	%
Budget	$	25,000	100%
Spent	$	13,776	55%
Unspent	$	11,224	45%



Grant Type	Revenue Source	Fiscal End Date
Reimbursement	Federal	04/30/22

Flathead City-County Health Department : Environmental Health Services for Feb. 2022

Food and Consumer Safety	Feb- 22	12 Month Running Average	12 Month Running Total	Jan-22	Dec-21	Nov-21	Oct-21	Sept-21	Aug-21	July-21	June-21	May-21	Apr-21	Mar-21
Food Service Inspections	128	114.6	1375	77	107	144	132	136	113	149	130	151	139	153
Trailer Courts/R V Parks	0	9.4	113	0	1	0	0	6	31	25	31	20	0	
Motels/Public Accomodations	38	34.8	418	30	22	27	38	28	33	41	80	69	31	33
Pools/Spas	12	14.0	168	16	12	6	26	21	10	29	25	6	9	24
Daycares/Group Homes	1	2.1	25	2	1	2	1	2	11	3	1	2	1	1
Plan Review	53	43.0	516	37	28	36	30	47	31	51	87	64	73	44
School Faciltiy Inspections	0	0.7	8	0	0	0	0	0	0	0	0	0	0	8
Misc FCSS Complaints	3	1.7	20	1	1	1	1	0	5	4	2	1	1	2
Septic System Activity														
Applications received	85	75.3	903	53	51	51	77	66	89	94	87	107	146	101
Permit Issued (sold)	29	56.3	675	25	44	59	77	83	102	72	80	79	49	45
Site Evaluations - OS	40	37.4	449	28	36	31	48	53	47	39	50	46	66	29
Site Reviews- SR	22	34.3	411	23	19	23	34	33	40	53	51	56	52	47
Septic Systems Inspected- Final	10	48.3	580	15	40	71	80	94	65	82	51	64	42	21
Subdivision Activity														
Applications Received Contract	32	17.3	207	20	36	12	17	17	18	21	22	26	24	18
Applications Received N/C	8	2.9	35	2	4	1	8	7	2	1	1	1	5	1
Applications Reviewed (FC)	0	2.1	25	6	2	4	0	1	1	0	0	7	0	12
All lots approved (DEQ & FC)	34	24.0	288	17	13	34	22	29	62	21	45	12	16	13
Site visits completed	0	14.2	170	5	11	10	18	13	16	22	31	19	27	14

Flathead City-County Environmental Health Services

Monthly Food Purveyors Inspection Report

114 Inspections February-22

Establishment	Facility	City	License	Date	Purpose	Grade	Inspector
Lucky Pick, The	Bar	Kalispell	FS44425 - 2	1-Feb-2022	Routine	A+	Darin Woeppel
Kalispell Mall Pretzel Maker	Food Service	Kalispell	FL8031 - 1	1-Feb-2022	Routine	A+	Darin Woeppel
Sundrop Health Foods	Store	Columbia Falls	FS15137 - 9	1-Feb-2022	Routine	A+	Jossolyn Becker
Smiths #168 Fuel	Store	Columbia Falls	FS315974 - 9	1-Feb-2022	Routine	A+	Jossolyn Becker
Classy N Sassy Coffee	Food Service	Columbia Falls	FS319149 - 1	1-Feb-2022	Routine	B	Jesse M Green
Eagles Club	Bar	Kalispell	FS2481 - 2	1-Feb-2022	Routine	A	Jesse M Green
Eagles Club	Food Service	Kalispell	FS2481 - 1	1-Feb-2022	Routine	N/A	Jesse M Green
Elk Creek Coffee	Food Service	Kalispell		2-Feb-2022	Pre-Operational	N/A	Jesse M Green
Pocketstone Cafe, The	Food Service	Bigfork	FL300343 - 1	2-Feb-2022	Routine	A+	Darin Woeppel
Muleys On the Mountain	Upper Grill	Lakeside	FL319248 - 1A	2-Feb-2022	Routine	A+	Jossolyn Becker
Muleys On the Mountain	Bar	Lakeside	FL319248 - 2	2-Feb-2022	Routine	A-	Jossolyn Becker
Muleys On the Mountain	Lower Kitchen	Lakeside	FL319248 - 1	2-Feb-2022	Routine	A	Jossolyn Becker
Lakeside Coffee Company	Food Service	Lakeside	FS308172 - 1	2-Feb-2022	Routine	B+	Jossolyn Becker
Hellroaring Saloon	Food Service	Big Mountain	FL43618 - 1	2-Feb-2022	Routine	A	Danielle Peirce
Hellroaring Saloon	Bar	Big Mountain	FL43618 - 2	2-Feb-2022	Routine	A+	Danielle Peirce
Snowline Coffee Co	Food Service	Kalispell	FL319074 - 1	3-Feb-2022	Routine	A+	Jossolyn Becker
Pizza Hut	Food Service	Columbia Falls	FL314258 - 1	3-Feb-2022	Routine	A	Darin Woeppel
Taqueria El Bronco	Mobile	Kalispell		3-Feb-2022	Ad-Hoc Routine	C	Danielle Peirce
Taco Del Sol	Food Service	Kalispell	FL44074 - 1	3-Feb-2022	Routine	A+	Jossolyn Becker
Blaine Mountain Salsa Works	Retail Mfg.	Kalispell	FM311233 - 6	4-Feb-2022	Routine	A+	Jesse M Green
Ceres Bakery	Bakery	Kalispell	FS32937 - 4	4-Feb-2022	Routine	A	Jesse M Green
Ceres Bakery	Wholesale Mfg.	Kalispell	FM310441 - 13	4-Feb-2022	Routine	A+	Jesse M Green
Kalispell Subway	Food Service	Kalispell	FL44940 - 1	4-Feb-2022	Routine	A	Darin Woeppel
Jimmy John's	Food Service	Kalispell	FL304520 - 1	4-Feb-2022	Routine	A+	Darin Woeppel
KM Montana Grassfed Beef	Meats	Kalispell	FS310635 - 3	4-Feb-2022	Routine	A	Darin Woeppel
KM Montana Grassfed Beef	Warehouse	Kalispell	FM311225 - 21	4-Feb-2022	Routine	A	Darin Woeppel
Sohi Food Store	Retail Food	Kalispell		4-Feb-2022	Pre-Operational	N/A	Danielle Peirce
Town Pump Of Columbia Falls #2 8910	Food Service	Columbia Falls	FL10770 - 1	4-Feb-2022	Pre-Operational	N/A	Jossolyn Becker
Taco Bell	Food Service	Kalispell	FL9661 - 1	4-Feb-2022	Routine	A+	Jossolyn Becker
Uptown Hearth	Wholesale	Columbia Falls		4-Feb-2022	Pre-Operational	N/A	Jossolyn Becker
Piroshki Palace	Mobile (Trailer)	Kalispell	FS314473 - 7	5-Feb-2022	Routine	A+	Jesse M Green
406 BBQ	Mobile (trailer)	Kalispell	FL319132 -7	5-Feb-2022	Routine	B+	Jesse M Green
Ferda Concessions (Donut Brothers)	Mobile (Trailer)	Columbia Falls	FS313918	5-Feb-2022	Routine	A+	Jesse M Green
Cowgirl Coffee South	Food Service	Kalispell	FS15803 - 7	7-Feb-2022	Routine	A+	Jesse M Green
Montana Lil's of Kalispell #5	Bar	Kalispell	FL44667 - 2	8-Feb-2022	Routine	A+	Danielle Peirce
Mabuhay Oriental Market	Store	Kalispell	FS306855 - 9	8-Feb-2022	Routine	B	Danielle Peirce
Costa Vida Kalispell	Food Service	Kalispell	FL314073 - 1	8-Feb-2022	Routine	A+	Jesse M Green
Montana Coffee Traders	Wholesale Mfg	Whitefish	FM32667	9-Feb-2022	Routine	A+	Jossolyn Becker
TARS Logan Health	Retail Food	Kalispell		9-Feb-2022	Pre-Operational	N/A	Jossolyn Becker
Montana Coffee Traders	Food Service	Whitefish	FL4570 - 1	9-Feb-2022	Routine	A+	Jossolyn Becker

Flathead City-County Environmental Health Services

Monthly Food Purveyors Inspection Report

Establishment	Facility	City	License	Date	Purpose	Grade	Inspector
Lucky Lils Casino of Whitefish	Casino	Whitefish	FL7410 - 2	9-Feb-2022	Routine	A+	Jossolyn Becker
Brian's Inc	Food Service	Kalispell	FL80787 - 1	9-Feb-2022	Routine	C+	Jesse M Green
Culligan Water Conditioning	Wholesale Mfg	Kalispell	FM9014 - 13	9-Feb-2022	Routine	A+	Jesse M Green
Bias Brewing	Food Service	Kalispell	FL312908 - 1	10-Feb-2022	Routine	B	Jesse M Green
Bias Brewing	Wholesale Mfg.	Kalispell	FM312907 - 16	10-Feb-2022	Routine	A+	Jesse M Green
Tupelo Grille	Food Service	Whitefish	FL6898 - 1	10-Feb-2022	Routine	A-	Darin Woeppel
Whitefish Lake Golf Club Restaurant	Bar	Whitefish	FL1602 - 2	10-Feb-2022	Routine	A+	Darin Woeppel
Whitefish Lake Golf Club Restaurant	Food Service	Whitefish	FL1602 - 1	10-Feb-2022	Routine	A-	Darin Woeppel
Stumptown Winebar	Food Service	Whitefish	FL318867 - 1	10-Feb-2022	Routine	B+	Darin Woeppel
Tupelo Grille	Tavern/Bar	Whitefish	FL6898 - 2	10-Feb-2022	Routine	A+	Darin Woeppel
Stumptown Winebar	Tavern	Whitefish	FL318867 - 2	10-Feb-2022	Routine	A+	Darin Woeppel
Taqueria El Bronco	Mobile	Kalispell		11-Feb-2022	Follow-Up	A+	Danielle Peirce
Plump & Sassy	Mobile (Trailer)	Kila	FL314830 - 7	11-Feb-2022	Routine	B	Jossolyn Becker
Back Porch Coffee	Mobile (Trailer)	Kalispell	FS317957	11-Feb-2022	Routine	A+	Jossolyn Becker
Montana Ed's Premium Chili	Mobile	Whitefish	FS318482 - 7	12-Feb-2022	Routine	A-	Danielle Peirce
D & T BBQ	Mobile (Trailer)	Bigfork	FS310136 - 7	12-Feb-2022	Routine	A+	Danielle Peirce
Wagyu Wagon	Mobile	Columbia Falls	FL316963 - 7	12-Feb-2022	Routine	A+	Danielle Peirce
Kalispell Brewing	Wholesale Mfg.	Kalispell	FM307779 - 16	15-Feb-2022	Routine	A+	Darin Woeppel
Kalispell Brewing	Bar	Kalispell	FS307108 - 1	15-Feb-2022	Routine	A+	Darin Woeppel
Glacier Handle Brews LLC	Mobile Trailer	Kalispell	FS314861 - 7	15-Feb-2022	Routine	A+	Darin Woeppel
Town Pump of Kalispell #7	Food Service	Kalispell	FL83678	15-Feb-2022	Routine	B+	Jossolyn Becker
Town Pump of Kalispell #7	Store	Kalispell	FL83678-9	15-Feb-2022	Routine	A+	Jossolyn Becker
Blue Moon	Food Service	Columbia Falls	FL302269 - 1	15-Feb-2022	Routine	B-	Jesse M Green
Blue Moon	Tavern/Bar	Columbia Falls	FL302269 - 2	15-Feb-2022	Routine	A+	Jesse M Green
Classy N Sassy Coffee	Food Service	Columbia Falls	FS319149 - 1	15-Feb-2022	Follow-Up	A+	Jesse M Green
Columbia Falls Food Bank	Store	Columbia Falls	NP5725475-9	15-Feb-2022	Routine	A+	Jesse M Green
Julie's Center Street Café	Food Service	Kalispell	FL303258 -1	16-Feb-2022	Routine	A-	Darin Woeppel
Bias Brewing	Food Service	Kalispell	FL312908 - 1	16-Feb-2022	Follow-Up	A+	Jesse M Green
Brian's Inc	Food Service	Kalispell	FL80787 - 1	16-Feb-2022	Follow-Up	B+	Jesse M Green
Chipotle Mexican Grill #4028	Food Service	Kalispell		16-Feb-2022	Pre-Operational	N/A	Jesse M Green
Flathead Flavor Espresso II	Food Service	Kalispell	FS319315	16-Feb-2022	Routine	A+	Jesse M Green
Bigfork Stage Stop Inc.	Store	Bigfork	FL11298 - 9	16-Feb-2022	Routine	A	Jossolyn Becker
Sunset Lockers	Warehouse	Kalispell	FM8358 - 21	16-Feb-2022	Routine	A+	Jossolyn Becker
Scottibelli's Ristorante Italiano	Food Service	Kalispell	FL312812 - 1	16-Feb-2022	Routine	A	Jossolyn Becker
Scottibelli's Ristorante Italiano	Tavern	Kalispell	FL312812	16-Feb-2022	Routine	A+	Jossolyn Becker
FLBC	Pubhouse Food Service	Bigfork	FL308505 - 1	17-Feb-2022	Routine	A+	Jesse M Green
FLBC	Cellar Food Service	Bigfork	FL308505-1	17-Feb-2022	Routine	N/A	Jesse M Green
FLBC	Pubhouse Bar	Bigfork	FL308505 - 2	17-Feb-2022	Routine	A+	Jesse M Green
FLBC	Cellar Bar	Bigfork	FL308505-2	17-Feb-2022	Routine	N/A	Jesse M Green

Flathead City-County Environmental Health Services

Monthly Food Purveyors Inspection Report

Establishment	Facility	City	License	Date	Purpose	Grade	Inspector
Flathead Lake Brewing	Wholesale Mfg.	Bigfork	FM308171 - 13	17-Feb-2022	Routine	A+	Jesse M Green
Salvation Army, The	Food Service	Kalispell	NP - 0020	18-Feb-2022	Routine	A	Jossolyn Becker
World Gym	World Gym	Kalispell	FS315814 - 1	18-Feb-2022	Routine	A+	Jossolyn Becker
Zip Trip #69	Store	Whitefish	FS7740 - 9	18-Feb-2022	Routine	A-	Darin Woeppel
Wrap & Roll Cafe	Food Service	Whitefish	FS15065 - 1	18-Feb-2022	Routine	A	Darin Woeppel
Smith's Food & Drug Center #172	Store	Kalispell	FL80030 - 9	22-Feb-2022	Routine	A-	Jossolyn Becker
Smith's Food & Drug Center #172	Deli	Kalispell	FL80030 - 1	22-Feb-2022	Routine	A+	Jossolyn Becker
Smith's Food & Drug Center #172	Produce	Kalispell	FL80030 - 12	22-Feb-2022	Routine	A+	Jossolyn Becker
Your Turn C-Stop	Store	Bigfork	FL5162 - 9	22-Feb-2022	Routine	A	Darin Woeppel
Your Turn C-Stop	Tavern/Bar	Bigfork	FL5162 - 2	22-Feb-2022	Routine	A+	Darin Woeppel
Your Turn C-Stop	Food Service	Bigfork	FL5162 - 1	22-Feb-2022	Routine	A+	Darin Woeppel
Spot, The	Spot, The	Kalispell		22-Feb-2022	Pre-Operational	N/A	Jossolyn Becker
Spot LLC, The	The Spot LLC	Kalispell	FS317210 - 1	22-Feb-2022	Closeout	N/A	Jossolyn Becker
Holiday Inn Express	Food Service	Kalispell	PAL16431 - 1	23-Feb-2022	Routine	A	Darin Woeppel
Woody's Country Store	Food Service	Kalispell	FL6994 - 1	23-Feb-2022	Routine	B	Jossolyn Becker
Romaji Espresso	Food Service	Columbia Falls	FS301766 - 1	23-Feb-2022	Routine	B-	Jossolyn Becker
Timber Creek Village	Food Service	Columbia Falls	FS306701 - 1	23-Feb-2022	Routine	A-	Jossolyn Becker
Vandevanter Meats Inc	Meat Market	Columbia Falls	FL7556 - 3	23-Feb-2022	Routine	A+	Jossolyn Becker
Kalispell Subway South	Food Service	Kalispell	FL305468 - 1	24-Feb-2022	Routine	A	Darin Woeppel
Knead Cafe	Food Service	Kalispell	FL304838 - 1	24-Feb-2022	Routine	N/A	Darin Woeppel
Red Poppy Gluten Free Bakery	Wholesale Mfg.	Kalispell	FM314032	24-Feb-2022	Routine	A+	Danielle Peirce
Red Poppy Gluten Free Bakery	Bakery	Kalispell	FS314030	24-Feb-2022	Routine	A+	Danielle Peirce
Smith's Food & Drug Center #168	Deli	Columbia Falls	FL80029 - 11	25-Feb-2022	Routine	A-	Jossolyn Becker
Smith's Food & Drug Center #168	Store	Columbia Falls	FL80029 - 9	25-Feb-2022	Routine	A	Jossolyn Becker
D & T BBQ	Temporary Food	Bigfork	FT026	25-Feb-2022	Ad-Hoc Routine	A-	Danielle Peirce
McDonald's (West)	Food Service	Kalispell	FL312783 - 1	25-Feb-2022	Routine	A+	Danielle Peirce
Applebee's North	Food Service	Kalispell	FL302906 - 1	25-Feb-2022	Routine	A+	Jesse M Green
ACE Sushi @ Super 1	Retail Mfg.	Kalispell	FS310385	28-Feb-2022	Routine	A+	Jesse M Green
ACE Sushi @ Rosauers	Retail Mfg.	Kalispell	FL309414	28-Feb-2022	Routine	A+	Jesse M Green
Smith Valley School Dist #89	Food Service	Kalispell	FL40029 - 1	28-Feb-2022	Routine	A+	Jossolyn Becker
Super 1 Foods	Store	Whitefish	FL80549 - 9	28-Feb-2022	Routine	A	Darin Woeppel
Super 1 Foods	Produce	Whitefish	FL80549 - 12	28-Feb-2022	Routine	A+	Darin Woeppel
Super 1 Foods	Deli	Whitefish	FL80549 - 11	28-Feb-2022	Routine	A	Darin Woeppel
Craggy Range Bar & Grill LLC	Food Service	Whitefish	FL44195 - 1	28-Feb-2022	Routine	B+	Danielle Peirce
Craggy Range Bar & Grill LLC	Bar	Whitefish	FL44195 - 2	28-Feb-2022	Routine	B	Danielle Peirce

Flathead City-County Environmental Health Services

Monthly High Risk Population Food Purveyors Inspection Report

14 Inspections **February-22**

Establishment	Facility	City	License	Date	Purpose	Grade	Inspector
Swan River School District	Food Service	Bigfork	FS15978 - 1	2-Feb-2022	Routine	A+	Darin Woeppel
Stillwater Christian School	Food Service	Kalispell	FL44169 - 1	3-Feb-2022	Routine	A+	Jossolyn Becker
Russell School	Food Service	Kalispell	FS16028 - 1	3-Feb-2022	Routine	A+	Danielle Peirce
NW MT Head Start (N Val Cntr)	Food Service	Columbia Falls	FS45629 - 1	3-Feb-2022	Routine	A+	Darin Woeppel
Glacier Gateway Elementary School	Food Service	Columbia Falls	FL18896 - 1	7-Feb-2022	Routine	A+	Darin Woeppel
Columbia Falls High School Lunch	Food Service	Columbia Falls	FL30001 - 1	7-Feb-2022	Routine	A+	Jesse M Green
Glacier High School - Foodcourt	Food Service	Kalispell	FL44150 - 1	8-Feb-2022	Routine	A+	Darin Woeppel
Flathead High School	Food Court	Kalispell	FL16017 - 1	8-Feb-2022	Routine	A+	Jesse M Green
Linderman School	Food Service	Kalispell	FL45433 - 1	16-Feb-2022	Routine	A+	Darin Woeppel
Bigfork High School	Food Service	Bigfork	FL312201 - 1	16-Feb-2022	Routine	A+	Jossolyn Becker
Bigfork School District Lunch Program	Food Service	Bigfork	FL19207 - 1	16-Feb-2022	Routine	A+	Jossolyn Becker
West Valley School Lunch	Food Service	Kalispell	FS32861 - 1	18-Feb-2022	Routine	A+	Jossolyn Becker
Whitefish Middle School	Food Service	Whitefish	FL16039 - 1	18-Feb-2022	Routine	A+	Darin Woeppel
N W Montana Head Start	Food Service	Kalispell	FL43490 - 1	24-Feb-2022	Routine	A+	Danielle Peirce

Summary of Low Grades (C+ or Lower) for February 2022

Establishment – Taqueria El Bronco Mobile (Kalispell)

Inspection Date: February 3, 2022
Inspection Type: Routine **Grade:** C
Follow-Up Date: February 11, 2022 **Grade:** A+
Enforcement Action: Follow Up Inspection
Inspection Deficiencies & Details:

(A) Inadequate hot holding of PHF/TCS food.
PRIORITY
RISK FACTOR / INTERVENTION
Recommended Resolution - Except for roasts, which can be held at 130°F after cooking, potentially hazardous/time-temperature control for safety food that is being held hot must be held at 135°F or above. This deficiency must be corrected within a maximum of 3 days
Observations and Corrective Actions - Cheese sauce held at 85 degrees.

(A & B) Cold time/temperature control for safety food not adequately temperature controlled.
PRIORITY
RISK FACTOR / INTERVENTION
Recommended Resolution - Except for raw shell eggs, which can be held at 45°F, potentially hazardous/time-temperature control for safety food that is being held cold must be held at 41°F or lower. This deficiency must be corrected within a maximum of 3 days
Observations and Corrective Actions - Pre portioned salsas were above 41.

(All) Sanitizer wiping cloth bucket not readily available during operation OR made at a weak concentration. (A-E) TCS foods not thawed by approved methods.
PRIORITY **Corrected on site**
RISK FACTOR / INTERVENTION
Recommended Resolution - Sanitizer at an effective concentration for sanitizing equipment in place and for wiping up food spills must be available at all times of operation. This deficiency must be corrected within a maximum of 3 days.
Observations and Corrective Actions - No sanitizer bucket was available/made at time of inspection. COS: Made up sanitizer bucket.

(A) Cross-contamination of raw animal products that require a lower cook temperature with those that require a higher cooking temperature not adequately prevented in storage, preparation, holding, and display.
PRIORITY
RISK FACTOR / INTERVENTION
Recommended Resolution - Raw animal products must be stored according to final minimum required cooking temperature with items requiring higher temperatures stored away from or below those requiring lower temperatures. This deficiency must be corrected within 3 days.
Observations and Corrective Actions - Chicken stored above items with lower cook temperature.

(A) Handwashing sink not adequately supplied with hot water.
PRIORITY FOUNDATION
Recommended Resolution - A handwashing sink shall be equipped to provide water at a temperature of at least 38°C (100°F) through a mixing valve or combination faucet. This deficiency must be corrected within a maximum of 10 days.
Observations and Corrective Actions - No water coming out of handwashing sink.

(A, C-O) PIC did not perform duties.
PRIORITY FOUNDATION
RISK FACTOR / INTERVENTION
Recommended Resolution - PIC shall perform duties defined in 2-103.11 (A, C- O). This deficiency must be corrected within a maximum of 10 days.
Observations and Corrective Actions - Need to have proper documentation available and processes.

Brian's Inc. – Food Service (Kalispell)

Inspection Date: February 9, 2022
Inspection Type: Routine (Advanced) **Grade:** C+
Follow-Up Date: February 16, 2022 **Grade:** B+
Enforcement Action: Follow Up Inspection; Advanced Inspection Schedule; Reinspection Fee

Inspection Deficiencies & Details:

(A & B) Manager and/or supervisory education requirements not met.

REPEAT

Recommended Resolution - At least one employee that has supervisory and management responsibility and the authority to direct and control food preparation and service shall be a certified food protection manager who has shown proficiency of required information through passing a test that is part of an accredited program. This deficiency must be corrected within a maximum of 90 days.
Observations and Corrective Actions - No certified food safety manager

(A) Inadequate hot holding of PHF/TCS food.

PRIORITY

Recommended Resolution - Except for roasts, which can be held at 130°F after cooking, potentially hazardous/time-temperature control for safety food that is being held hot must be held at 135°F or above. This deficiency must be corrected within a maximum of 3 days
Observations and Corrective Actions - Hot dog steamer not holding food at safe temperature

(A & B) Cold time/temperature control for safety food not adequately temperature controlled.

PRIORITY

Recommended Resolution - Except for raw shell eggs, which can be held at 45°F, potentially hazardous/time-temperature control for safety food that is being held cold must be held at 41°F or lower. This deficiency must be corrected within a maximum of 3 days
Observations and Corrective Actions - Three-door reach-in Pepsi cooler, pizza prep cooler - not maintaining safe food temperatures;

(A,B) Food stored in an improperly such as on the floor, next to a hand washing sink or in an uncovered container.

REPEAT

Recommended Resolution - Food shall be protected from contamination by storing the food: in a clean, dry location; where it is not exposed to splash, dust, or other contamination; and at least 15 cm (6 inches) above the floor. This deficiency must be corrected within a maximum of 90 days.
Observations and Corrective Actions - Boxes of food on the floor in the freezer outside

(A,B,D) Cleaned equipment and utensils not stored appropriately.

REPEAT

Recommended Resolution - Cleaned equipment and utensils, laundered linens, and single-service and single-use articles shall be stored: in a clean, dry location; where they are not exposed to splash, dust, or other contamination; and at least 15 cm (6 inches) above the floor. Clean equipment and utensils shall be stored as specified and shall be stored: in a self-draining position that allows air drying; and covered or inverted. This deficiency must be corrected within a maximum of 90 days.
Observations and Corrective Actions - Boxes of drinking cups and lids on the floor in storage room

(All) Toilet room not enclosed or provided with a tight-fitting, self-closing door.

REPEAT

Recommended Resolution - Except where a toilet room is located outside a food establishment and does not open directly into the food establishment such as a toilet room that is provided by the management of a shopping mall, a toilet room located on the premises shall be completely enclosed and provided with a tight- fitting and self-closing door. This deficiency must be corrected within a maximum of 90 days.
Observations and Corrective Actions - Bathroom door is not self-closing

(All) Physical facilities not maintained in good repair.

REPEAT

Recommended Resolution - Physical facilities shall be maintained in good repair. This deficiency must be corrected within a maximum of 90 days.
Observations and Corrective Actions - Some damage to floors and walls (i.e. tile damage under fryer/stove area)

Flathead City-County Environmental Health Services

Monthly Food & Consumer Plan Reviews
Feb-22

TH=Tourist home

	Establishment	City	Date	Inspector
1	Polebridge Condominium TH	Whitefish	2/1/2021	JB
2	Ptramigan Hideout TH	Whitefish	2/1/2021	JB
3	Destiny Cove TH	Kalispell	2/1/2022	JG
4	948 4th Ave E TH	Kalispell	2/1/2022	JG
5	4369 S Ashley Lake Rd TH	Kila	2/1/2022	DP
6	Alpine Glow Ski Haus TH	Whitefish	2/1/2022	DP
7	239 Oakmont Loop TH	Columbia Falls	2/3/2022	JG
8	950 Frontage Rd TH	Columbia Falls	2/4/2022	JG
9	Three Bears Basecamp TH	West Glacier	2/10/2022	JG
10	Pig Lebowski BBQ	Bigfork	2/10/2022	DW
11	Taper	Whitefish	2/11/2022	DW
12	2nd Street West TH	Hungry Horse	2/11/2022	DW
13	22 Terry Rd TH	Kalispell	2/11/2022	JG
14	801 Foxglove Dr TH	Kalispell	2/11/2022	JG
15	803 Foxglove Dr TH	Kalispell	2/11/2022	JG
16	405 5th Ave E TH	Kalispell	2/11/2022	JG
17	Deer Haven TH	Whitefish	2/11/2022	DP
18	475 West Valley Dr TH	Kalispell	2/11/2022	JG
19	Soaring Pines TH	Kalispell	2/11/2022	JB
20	612 3rd Ave E TH	Kalispell	2/11/2022	JB
21	West Mountain Gettaway TH	Columbia Falls	2/11/2022	JB
22	718 2nd Ave East TH	Kalispell	2/11/2022	JB
23	The Madison TH	Bigfork	2/14/2022	JG

24	Heaven on the Lake TH	Whitefish	2/14/2022	DP
25	Alpine Theatre Project FS	Whitefish	2/14/2022	DP
26	Glacier Center Casino	Coram	2/15/2022	DW
27	Kent Kastning TH	Kalispell	2/16/2022	DW
28	Marina Cay 163 TH	Bigfork	2/17/2022	JG
29	Marina Cay 136 TH	Bigfork	2/17/2022	JG
30	Marina Cay 142 TH	Bigfork	2/17/2022	JG
31	79 Windriver Dr. TH	Kalispell	2/17/2022	JB
32	221 6th Ave W TH	Kalispell	2/17/2022	JB
33	Marina Cay 104 TH	Bigfork	2/17/2022	JG
34	Marina Cay 134 TH	Bigfork	2/17/2022	JG
35	Lake Blaine Beauty TH	Kalispell	2/17/2022	DW
36	Fern Farmhouse on Grove TH	Columbia Falls	2/17/2022	JG
37	Little Blue House TH	Kalispell	2/17/2022	DW
38	Hights Convenience Store	Columbia Falls	2/22/2022	DW
39	Games & Taps	Kalispell	2/23/2022	DW
40	Lake Blaine Retreat TH	Kalispell	2/23/2022	DW
41	Mama B's Jubileee Cottage Food	Bigfork	2/23/2022	JG
42	Grizzly Bear BBQ (mobile)	Kalispell	2/24/2022	DW
43	Atomic Tacos (mobile)	Kalispell	2/24/2022	JG
44	406 Taco Nite (mobile)	Kalispell	2/24/2022	JG
45	6150 N Ashley Lake Rd TH	Kila	2/24/2022	DP- Denied
46	6152 N Ashley Lake Rd TH	Kila	2/24/2022	DP- Denied
47	93 Cedar Pointe Loop TH	Columbia Falls	2/24/2022	JG
48	93 Cedar Pointe Loop Apt. TH	Columbia Falls	2/24/2022	JG
49	110 Moes Run TH	Kalispell	2/25/2022	DP
50	La Casa Montana TH	Whitefish	2/28/2022	JB
51	Boon Road Cabin TH	Somers	2/28/2022	JB
52	Lakeside Lodge TH	Lakeside	2/28/2022	JB
53	Latitude Adjustment TH	Whitefish	2/1/2022	JB

March 11, 2022

To: Flathead City-County Board of Health

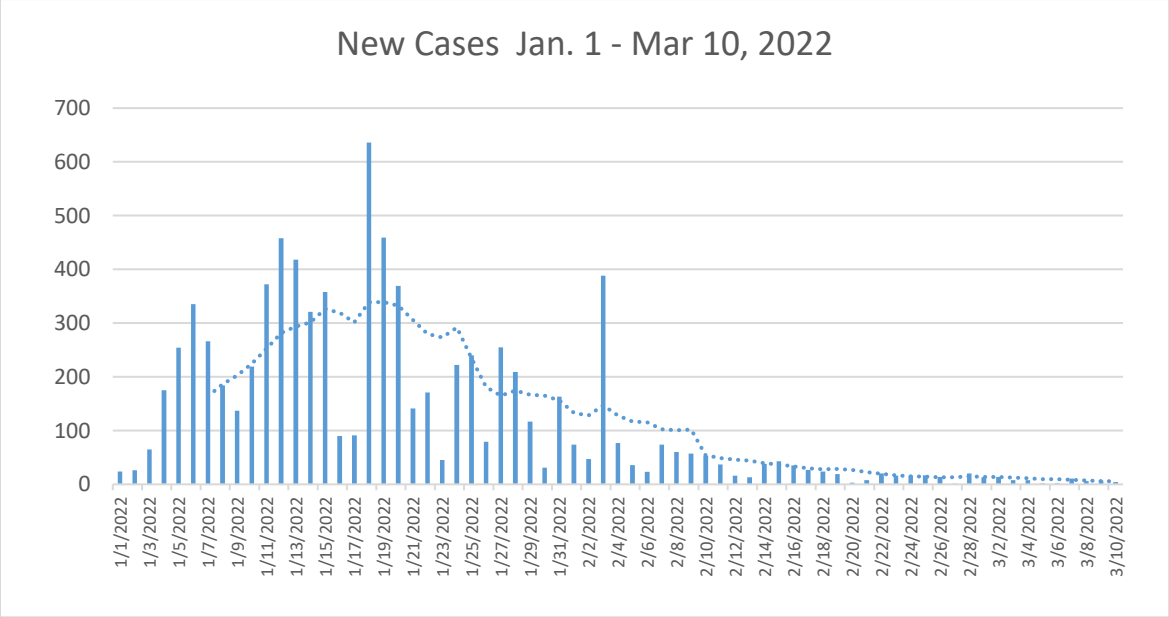
From: Joe Russell, Health Officer

Re: Health Officers Report

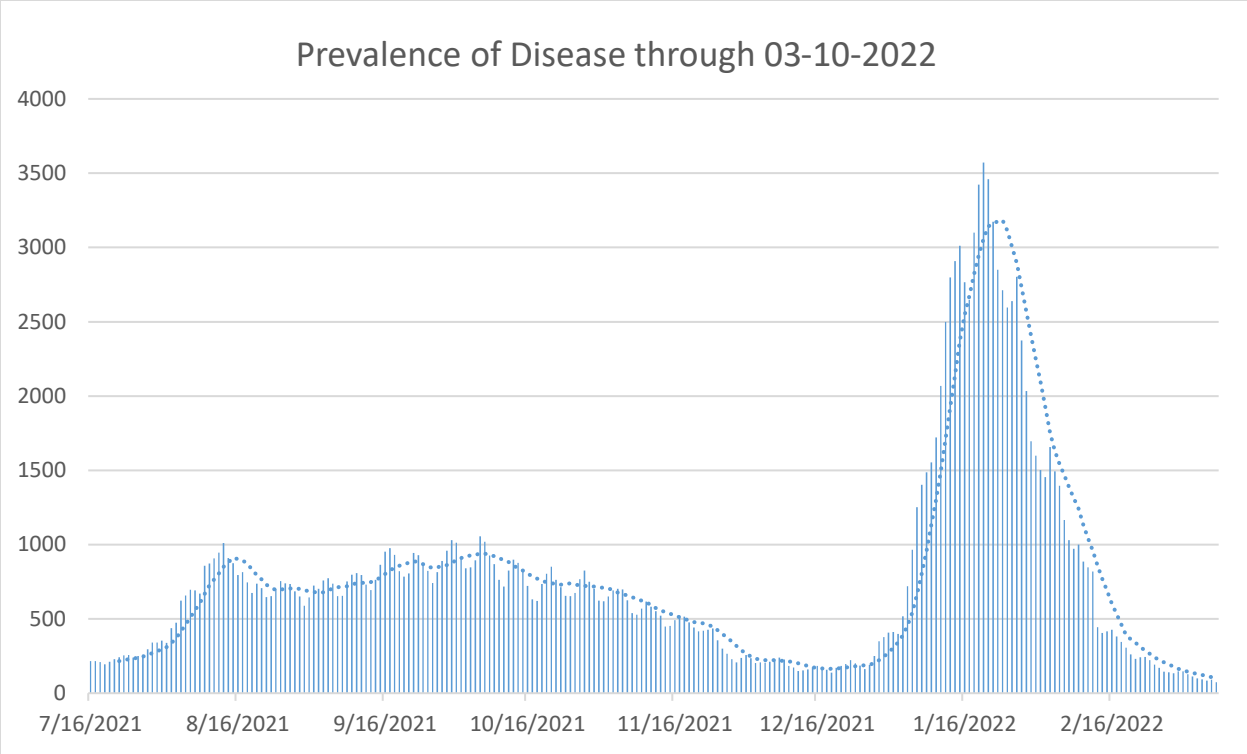
This will report matters of public health significance to the Board of Health for the period: February 11, 2022 through March 11, 2022.

COVID – 19 Response

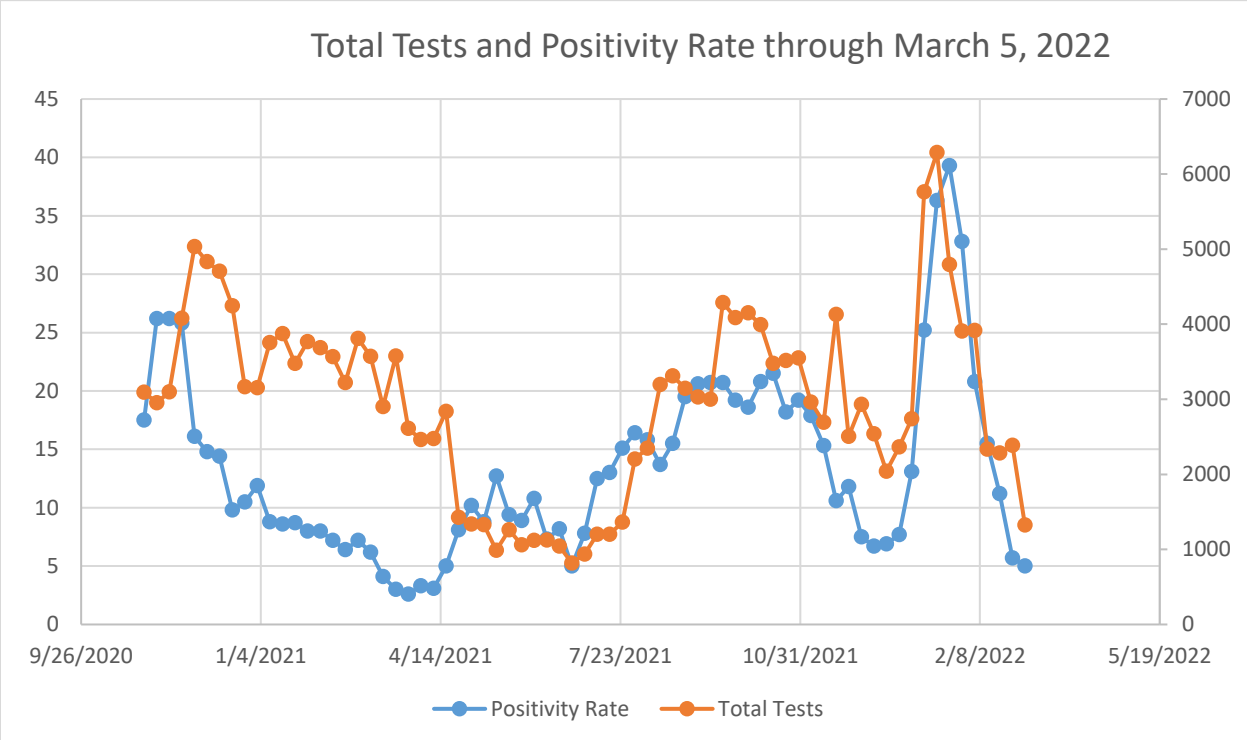
The following slides indicates the new cases from January 1 through March 10, 2022. A seven-day moving average has been applied to the chart. Our average number of new cases per day in January 2022 was 223.6, in February was 44.9, and so far in March is 7.5.



The next chart shows the 10-day prevalence of COVID-19 disease in Flathead County. Prevalence is the number of active cases for a specified time period. Even though the CDC has moved the isolation period to five days, we will continue to define active cases as a ten-day period for consistency.

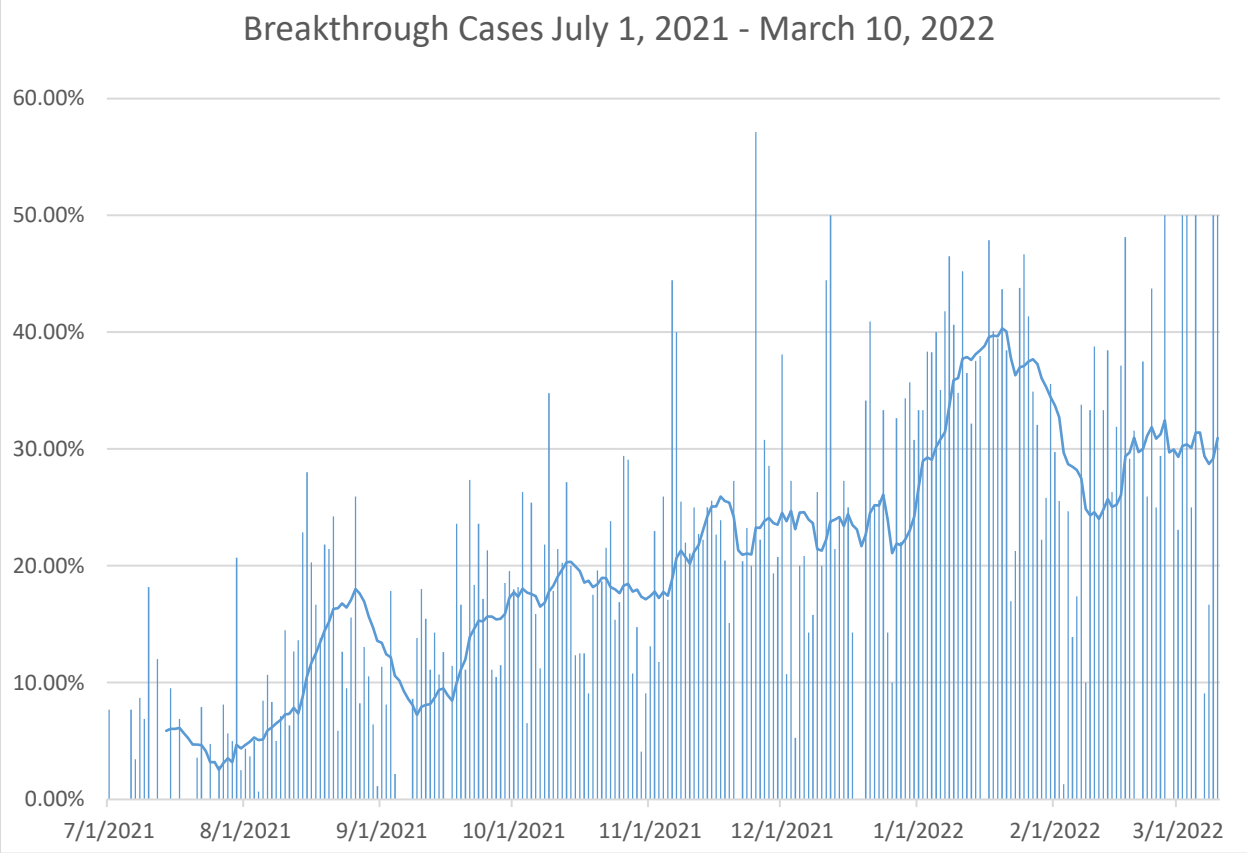


The graph below compares laboratory positivity test rates and total tests conducted in Flathead County.

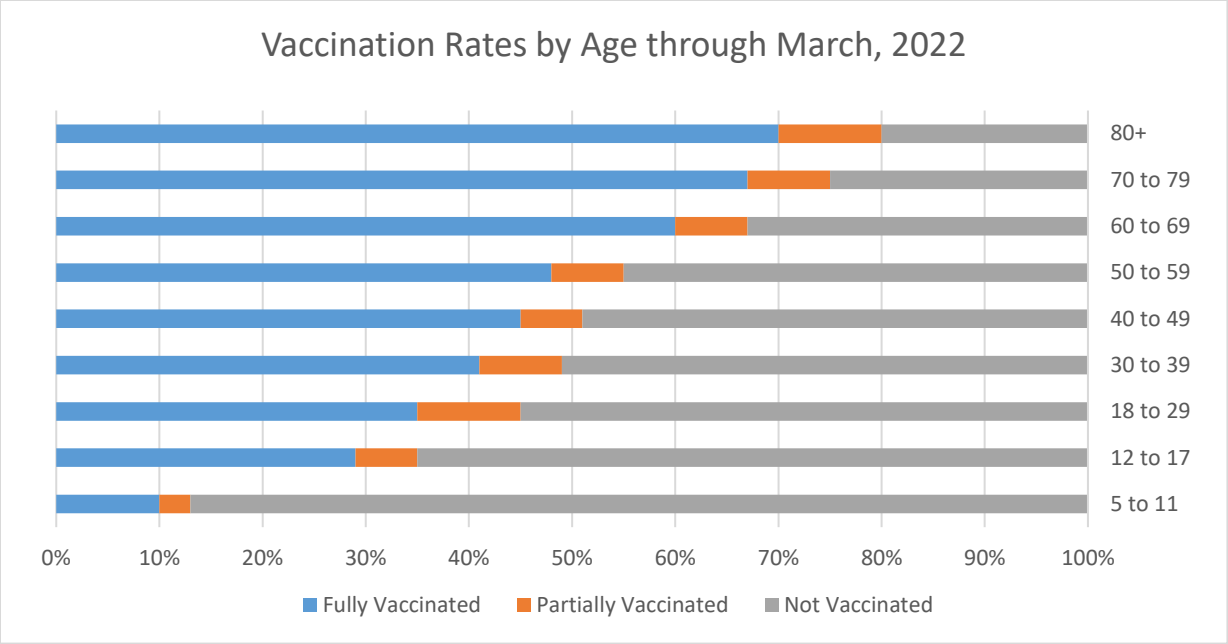


Our positivity rate peaked the week of January 22, 2022 at 39.3 % and is now at 5%.

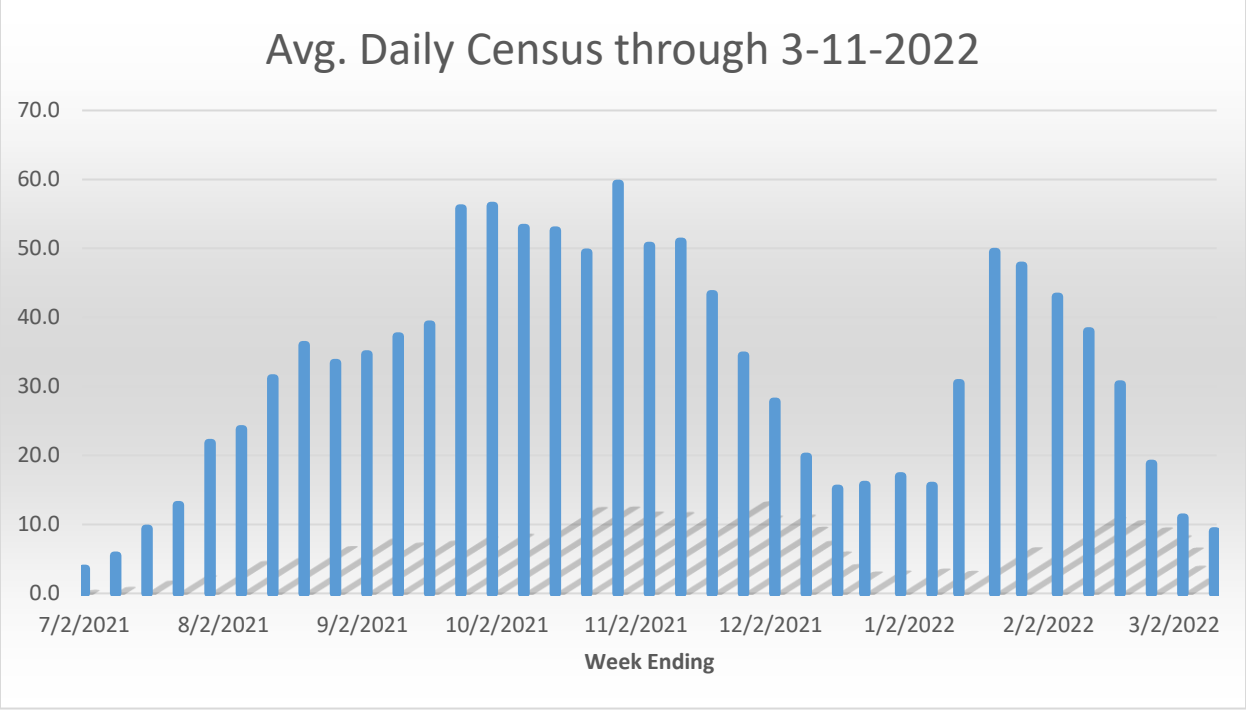
The following slide indicates the breakthrough cases observed from July 1, 2021 to January 9, 2022. Breakthrough cases in January and February averaged 36.9% and 27.5% respectively. So far in March our breakthrough rate is 32.38 and as you can observe from the graph is very erratic. This is most likely due to the reduction in new cases per day.



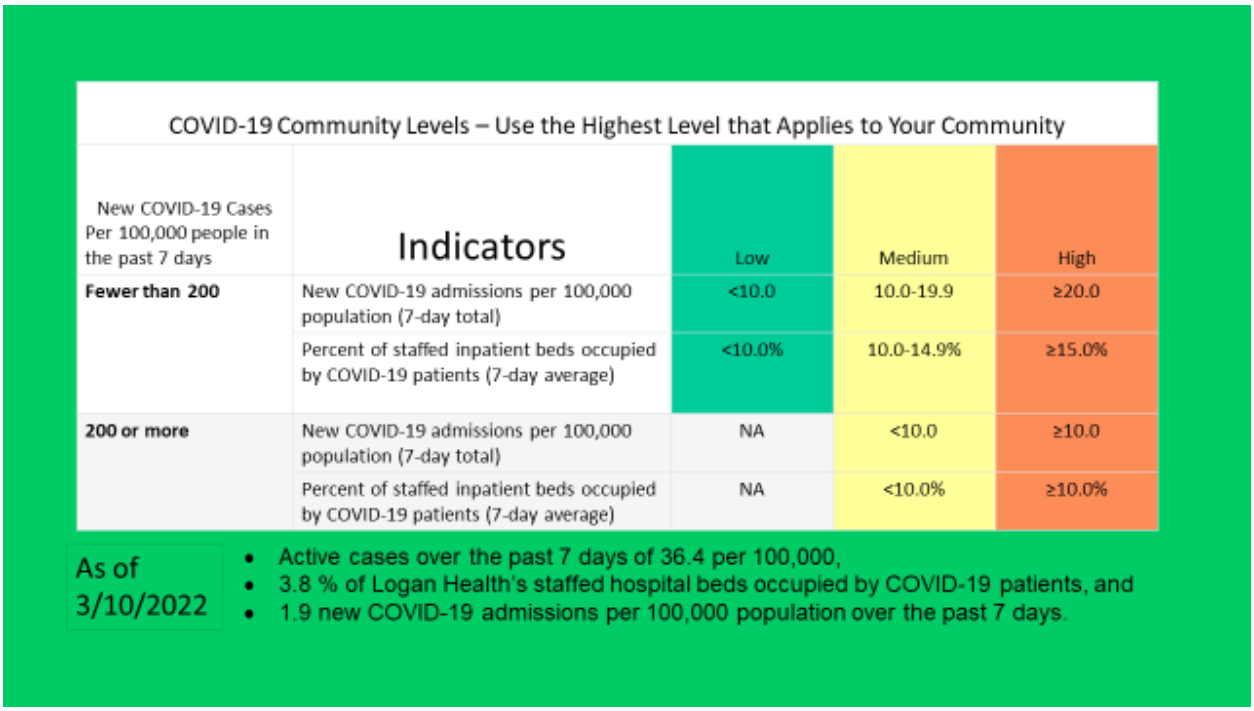
The following graph indicates all COVID-19 vaccination rates by age through February 4, 2022 administered in Flathead County through January 7, 2022. 45% of the population is fully vaccinated, 7% is partially vaccinated and 48% have received no vaccination. These rates do not include vaccinations received out of Montana and many individuals vaccinated through the VA.



The following slide is the average daily census reported on a weekly basis. Hospitalizations continue to go down. Today we have 7 hospitalized individuals, with one out-of-county patient on a ventilator. About 25% of our hospitalization are out-of-county residents.



As many of you know, based upon the new guidance from the CDC we are now reporting Community Level and related Indicators. The March 10 table is provided below.



This is a great snapshot of how we are doing as a community and are coupled with suggested precautions that may be found on the CDC web site. Our greatest challenge with reporting this information is that it does not comport with CDC data. At the time of this writing, the CDC has Flathead County as medium even though all local and state data indicate that we are low. The state health department continues to work with the CDC to try to find out where their data is derived.

Request for Qualifications – Veterinary Services

The Board of County Commissioners signed the contract with Calm Animal Care.

Bargaining Unit Negotiations

Yesterday, March 10, we had another negotiation session with the bargaining unit representing health department staff. These sessions are going as to be expected and we are getting close to finishing. Even though the contract is now between the Commissioners and the union, the fiscal impact to the Health Fund must be considered. If any board member would like to be updated on the process, please call me.

Health Officer Search Process

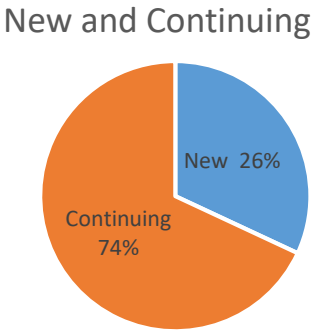
The initial closing on the position is March 13th. I believe Tammy has been or will be in contact with personnel committee member in preparation for the next step in the process. You will have received an email from me with the corrected solicitation from the firm.

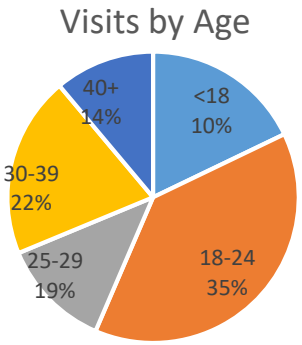
Flathead Family Planning

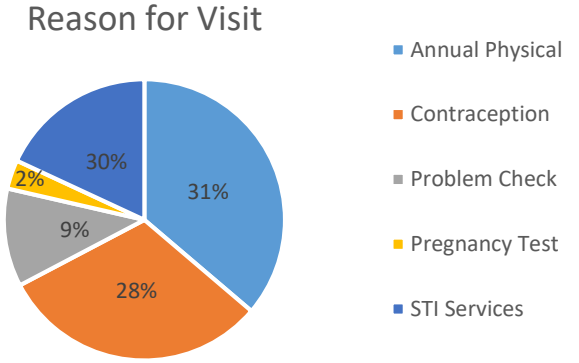
Board of Health Report - February 2022

Family Planning Patient Visits

	12 Mo. Total	12 Mo. Running Avg.	Feb-22	Jan-22	Dec-21	Nov-21	Oct-21	Sep-21	Aug-21	Jul-21	Jun-21	May-21	Apr-21	Mar-21	Feb-21
Total	2127	177	192	250	186	196	122	169	190	161	162	115	157	227	177







Individuals Reached Through Family Planning Community Presentations and Classes

	12 Mo. Total	12 Mo. Running Avg.	Feb-22	Jan-22	Dec-21	Nov-22	Oct-21	Sep-21	Aug-21	Jul-21	Jun-21	May-21	Apr-21	Mar-21	Feb-21
Total	2262	189	110	774	55	40	2	169	0	8	37	516	196	355	0

Syringe Exchange Collection and Distribution

	12 Mo. Total	12 Mo. Running Avg.	Feb-22	Jan-22	Dec-21	Nov-21	Oct. 21	Sep-21	Aug-21	Jul-21	Jun-21	May-21	Apr-21	Mar-21	Feb-21
Syringes Collected	57600	4800	7240	4081	4705	4251	3970	2840	3875	2255	5640	6721	6042	5980	2872
Syringes Distributed	112336	9362	9200	7570	10660	8810	9030	10580	9610	8700	9700	8900	9775	9815	7230

FCCHD Board of Health Report (3/17/2022)
Mosquito Control

Mosquito Control Personnel have begun monitoring snowmelt pools and other early-season larval habitats and are making final preparations for the season to ramp up to normal spring levels. We are currently screening applicants and conducting interviews to fill two seasonal mosquito control assistant positions. Heavy snowpack remains in the basins affecting Flathead County waterbodies, with snow water equivalent levels sitting at 104-110% of normal. This will likely result in a busy start to the season, given the relatively warm daily high temperatures and above-freezing low temperatures forecast.

Thank you,

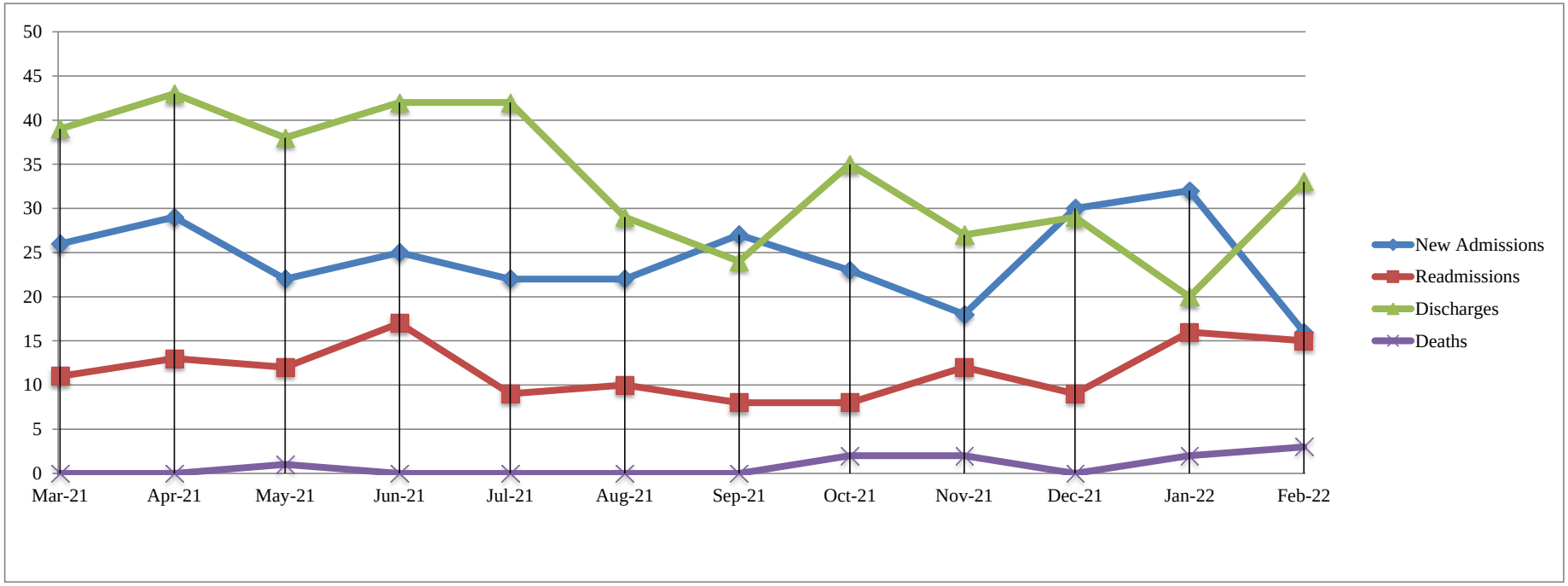
Jake Rubow

Flathead Choice Home Health
Admissions by Referral 12 Months

	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	*12 Month Totals*
Alpine Family Medicine												1	*1*
Bigfork Medical Clinic								1	1				*2*
Beehive Assisted Living CF			1	1	1	1							*4*
Beehive Assisted Living Kalispell	3		1	1	1		2	2	2	2	1	1	*16*
Big Sky Family Medicine	1												*1*
Big Sky IV													*0*
Brendan House	1				2	1							*4*
Buchele Plastic Surgery													*0*
Buffalo Hills Terrace				1		1							*2*
Coordicare													*0*
Echoview Assisted Living											1		*1*
Edgewood Vista	1												*1*
Evergreen Community Clinic									1				*1*
Family Healthcare		2	1			3		1					*7*
Flathead Community Clinic						1							*1*
Flathead Valley Orthopedics													*0*
Genesis Healthcare													*0*
Glacier Medical Associates	2		2	5	2	4	2	1	6	6	3	7	*40*
Glacier Neuroscience and Spine										1			*1*
Glacier Peak Medical													*0*
Greater Valley Health Care										1	1		*2*
Heaven's Peak		2		2	1	3		2		2			*12*
Heritage Place	1	1	4	3	1								*10*
Hidden Meadows ALF	3			1	1			1	1			1	*8*
Home Options / Logan Home Health				1					2	1	2	1	*7*
Hosanna Healthcare										1			*1*
Immanuel Lutheran		1		1				1					*3*
Kalispell Diagnostics													*0*
Kalispell Medical Offices			2		1	1	1						*5*
Kalispell Regional Medical Center / Logan Health	8	14	9	10	7	2	13	9	7	13	27	8	*127*
Kalispell Wound Care Clinic	1			1									*2*
Lakeview Care Center	1	1	3	1	1								*7*
North Valley Hospital / Logan Health Whitefish	5	5	3	6	7	8	9	6	8	8	9	7	*81*
Northwest Family Medicine						1	1						*2*
NW Orthopedic Sports and Medicine													*0*
Prestige Assisted Living										1			*1*
Renaissance													*0*
Rocky Mountain Heart & Lung													*0*
Sacred Heart Spokane													*0*
St. Patricks Hospital	1			1				1	1				*4*
St Luke's					1		1						*2*
The Professional Center	1	1	2	1	1	4		1	1				*12*
The Retreat	1	4	1	1		1	3		1	1	1	2	*16*
The Springs	3	3	1	1	3	3	3	3	2	1	1	3	*27*
Sullivan Park Care Center SNF													*0*
Timber Creek Village ALF	1												*1*
VA Primary Care	2	1	2	1		1							*7*
Veterans Medical Center				1	1						1		*3*
West Shore Medical Clinic				1	1								*2*
Whitefish Care and Rehab		2	1	1						1	1		*6*
Woodland Clinic	1		1			1							*3*
TOTALS	*37*	*37*	*34*	*42*	*32*	*36*	*35*	*29*	*33*	*39*	*48*	*31*	*433*

Flathead Choice Home Health
Census Statistics 12 Months

Patient Census	*Mar-21*	*Apr-21*	*May-21*	*Jun-21*	*Jul-21*	*Aug-21*	*Sep-21*	*Oct-21*	*Nov-21*	*Dec-21*	*Jan-22*	*Feb-22*	Monthly Averages
Beginning Census	57	55	54	49	49	38	41	52	46	47	48	74	51
New Admissions	26	29	22	25	22	22	27	23	18	30	32	16	24
Readmissions	11	13	12	17	9	10	8	8	12	9	16	15	12
Discharges	39	43	38	42	42	29	24	35	27	29	20	33	33
Deaths	0	0	1	0	0	0	0	2	2	0	2	3	1
Ending Census	55	54	49	49	38	41	52	46	47	48	74	66	52



Flathead Choice Home Health
Census and Visit Statistics 12 Months

Billable Skilled Visits	*Mar-21*	*Apr-21*	*May-21*	*Jun-21*	*Jul-21*	*Aug-21*	*Sep-21*	*Oct-21*	*Nov-21*	*Dec-21*	*Jan-22*	*Feb-22*	*Totals*
Skilled Nursing	202	214	183	142	111	122	153	207	186	121	169	158	1968
Physical Therapy	293	264	312	186	154	152	116	211	248	220	264	243	2663
Occupational Therapy	56	53	42	42	29	32	42	61	54	45	54	61	571
Speech Therapy	4	0	0	0	0	0	0	0	0	0	0	0	4
Social Worker	0	3	0	0	0	1	1	0	0	0	1	2	8
Totals	**555**	**534**	**537**	**370**	**294**	**307**	**312**	**479**	**488**	**386**	**488**	**464**	**5214**