



Name: _____

Date: _____

Installer Exam No. _____
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Installer Examination

This is an open-book, take-home examination that is divided into two parts:

Part 1 is comprised of questions with answers that are generally found in the Ordinance and Manual. The purpose of these questions is to assure those taking the exam have a basic familiarity with the Butte County's new On-Site Wastewater Ordinance and On-Site Wastewater Manual.

Part 2 is a request for submission of two complete designs for standard gravity systems. The purpose of this is to assure Certified Installers can demonstrate ability to submit complete gravity system designs.

Part One

1. What is the difference between the Ordinance and the Manual?
2. What are the four parts of the Manual?
3. What is the difference between "vertical separation" and "total effective (or useable) soil?" (Ordinance definitions)
4. What is the importance of vertical separation?
5. Why are drainfields now required to be shallow?
6. Give three conditions in the soil that would make it be considered a "restrictive layer." (Ordinance definitions)
7. A 2-acre parcel has an approved site evaluation for a 4-bedroom residence. There is 48 inches of effective soil that is known to be a silt loam. The parcel does not have a slope.

Determine: # sq. ft. of drainfield needed (Manual Pt 3)

Determine: Minimum vertical separation required for a gravity system (Ordinance)



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Determine: Maximum trench depth

8. Why is sidewall area not considered in the Ordinance and Manual for reducing the length of a standard gravity system?
9. Why is serial distribution no longer used to distribute effluent on a sloping site?
10. When is a certified designer required to design a system? (Ordinance and Manual Pt. 3)
11. Where are the requirements found for 5+ acre parcels that only require 18 inches of vertical separation?
12. What can my customer do if we disagree with the way staff is interpreting the Ordinance or if we have an alternative proposal that is not found in the Manual? (Ordinance)
13. Where can I find setback requirements for septic tanks and drainfields?
14. Where can I find what type of pipe to use in a wastewater system?
15. What type of pipe should I use: (Manual Pt. 2)
 - a) From septic tank to d-box
 - b) For first 5 ft out of the d-box
 - c) For the drainfield laterals
16. Where in the Manual can I read how to test a septic tank for water tightness once it is installed?
17. Where in the Ordinance can I find a list of corrections I can make to a wastewater system after notifying the health department but without having to obtain a repair permit?



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18. List 3 examples where notification, but not permitting, is required.
 - a)
 - b)
 - c)
19. Where are observation ports required for a standard gravity system? (Manual Pt. 2 and 3)
20. What is the maximum length of a drainfield lateral and how much slope is allowed? (Manual Pt. 3)

Part Two

Submit a design for a standard gravity system for Design Problem One and for Design Problem Two. The designs should contain the information included on the checklist for the Standard Gravity System Design Form (DG) and the summary information on the first page of the design form should be completed for the design.

Installer Problem A

Refer to the site drawing on Page 3 of the design form identified as Installer Problem A.

The property has had 5 test holes indicating that the soil is a silt loam with a restrictive layer at 48 inches. There is 3 inches of mottling present above the restrictive layer, indicating the presence of a seasonal, perched watertable.

Design a standard gravity system for a 4-bedroom residence, sizing the dispersal field based on the soil texture.

Installer Problem B

Refer to the site drawing on Page 3 of the design form identified as Installer Problem B.

The property has had 7 test holes indicating the soil is a silty clay loam with a restrictive layer at 45 inches. There is 8 inches of mottling present above the restrictive layer, indicating the presence of a seasonal, perched watertable.

Design a standard gravity system for a 3-bedroom residence, sizing the dispersal field based on soil texture, and incorporating a curtain drain.

Design forms can be downloaded from Environmental Health's On-Site Wastewater website located at: <http://www.buttecounty.net/publichealth/EnvironmentalHealth.aspx>



STANDARD GRAVITY SYSTEM
DESIGN FORM

Date Received:
Staff:

A design will be reviewed when this form and the design drawings are submitted with an On-Site Wastewater System Construction Permit application and fees are paid.

Parcel Identification

Form DG

APN #:
Traklt #:
Applicant Name
Designer Name
Parcel Address
Designer Mailing Address
City State Zip
City State Zip
Subdivision Name/Division/Block/Lot
Designer Telephone Number

Design Parameters

Dispersal Type: Drainrock Chamber Polystyrene
Number of Bedrooms
Daily Flow (gpd)
Septic Tank Capacity
Application Rate
Designed Vertical Separation
Ground Slope in Drainfield Area
Drainfield Square Footage
Trench Width
Total Lineal Trench Length
Trench Depth
Depth of Fill over Drainfield (if applicable)
Curtain Drain Depth (if applicable)

Certification of Design

The undersigned Certified Installer or Certified Designer (circle one) has submitted this design based observed site conditions as shown on this design form and the drawings attached thereto.

System Designer Date

The undersigned has reviewed this design on behalf of Butte County Public Health Department and determined it to be in compliance with state and local on-site regulations and ordinances.

Environmental Health Specialist Date

- Caution: This design approval is only valid when all the following conditions are met:
The design is stamped "Approved" by Butte County Public Health Department
The Wastewater Construction Permit has not expired; the Permit Expiration Date is 2 years from the date of issuance
The system is installed by a certified installer or homeowner authorized by the Butte County Public Health Department
Drainfield site conditions have not been altered to adversely affect conditions of design approval

Updated: September 9, 2010

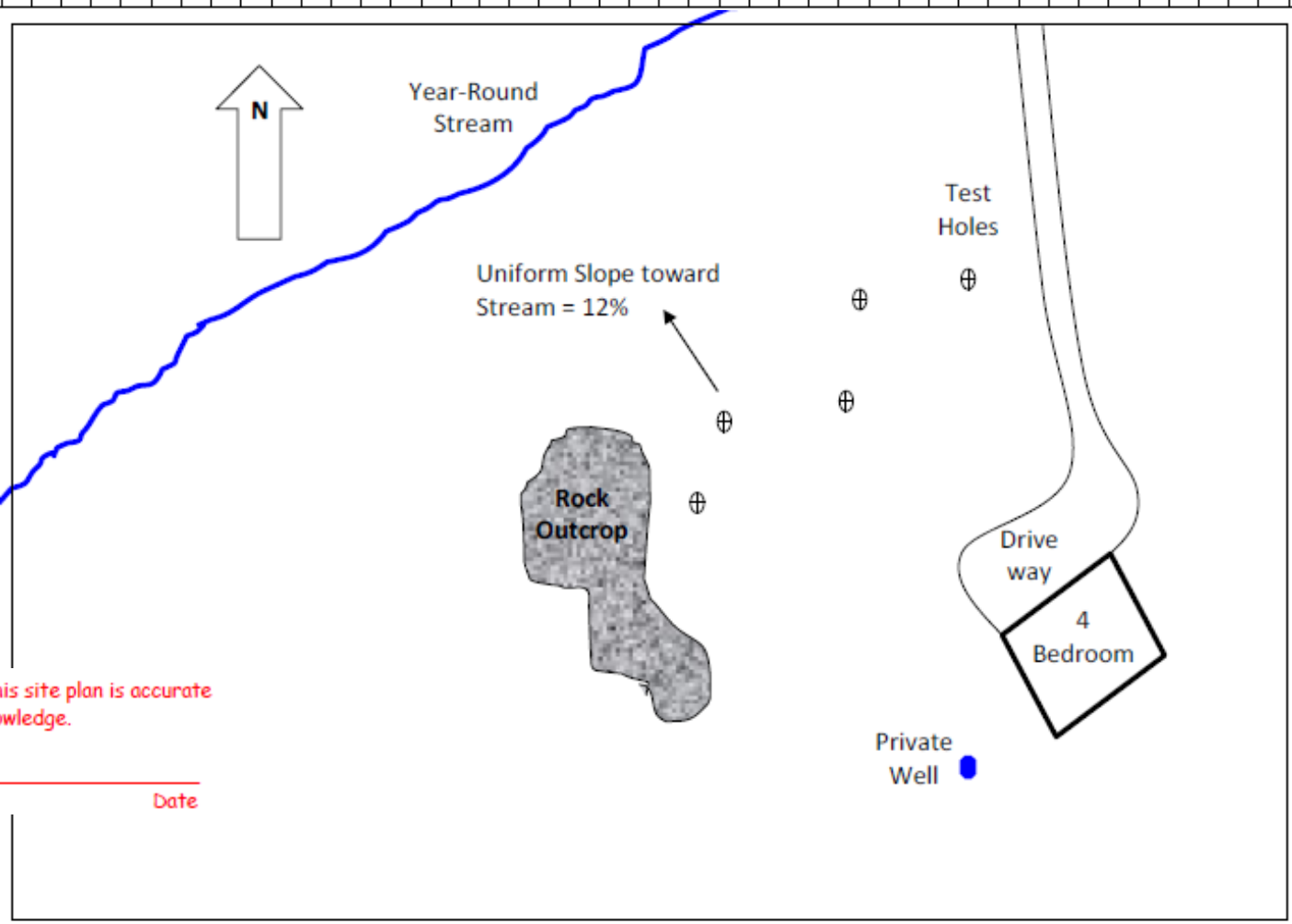
This section completed by Certified Installer or Designer
This section completed by EH

WASTEWATER SYSTEM DESIGN CHECKLIST

- Owner's name
- Assessor's Parcel Number
- North arrow
- Property lines
- Any relevant site features such as cliffs, cut banks, irrigation canals, springs, rock outcrop, landslide areas, drainage ways, etc. within 200 ft of the primary and repair dispersal areas
- Any existing and/or proposed site improvements, such as buildings, pools, driveways, parking areas, easements, waterlines, etc. (please specify whether existing or proposed)
- Existing wastewater dispersal areas, if present
- Location and dimensions of designated primary and repair wastewater dispersal areas
- Test hole locations from Site Evaluation
- Existing and proposed wells within 200 ft of the primary and repair dispersal areas and neighboring wells within 100 ft of property lines
- Location and orientation of curtain drain
- Direction of slope in primary and repair dispersal areas
- Dispersal field orientation and layout
- Trench/bed dimensions and critical distances within layout
- D-Box/"T"/"L" locations
- Septic tank/pump chamber location
- Observation port location
- Scale of drawing shown on scale bar
- Cross Section Drawings:
 - Dispersal trench
 - Observation port
 - D-box
 - Capping fill, if applicable
 - Curtain drain, if applicable

Note: Designer may use form attached for design drawing or may attached drawing on separate page, provided the elements identified in this checklist are included.

Installer Problem A



I certify that the information in this site plan is accurate and complete to the best of my knowledge.

Signature

Date

SCALE 1" = 100

Owner Name: _____ Scale 1" = _____

Address / Phone: _____

Site Location: _____

Contact Name: _____ Phone: _____



STANDARD GRAVITY SYSTEM
DESIGN FORM

Date Received:
Staff:

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Form DG

Parcel Identification

APN #:
Traklt #:
Applicant Name
Designer Name
Parcel Address
Designer Mailing Address
City State Zip
City State Zip
Subdivision Name/Division/Block/Lot
Designer Telephone Number

Design Parameters

Dispersal Type: Drainrock Chamber Polystyrene
Number of Bedrooms
Daily Flow (gpd)
Septic Tank Capacity
Application Rate
Designed Vertical Separation
Ground Slope in Drainfield Area
Drainfield Square Footage
Trench Width
Total Lineal Trench Length
Trench Depth
Depth of Fill over Drainfield (if applicable)
Curtain Drain Depth (if applicable)

Certification of Design

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System Designer Date

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Updated: September 9, 2010

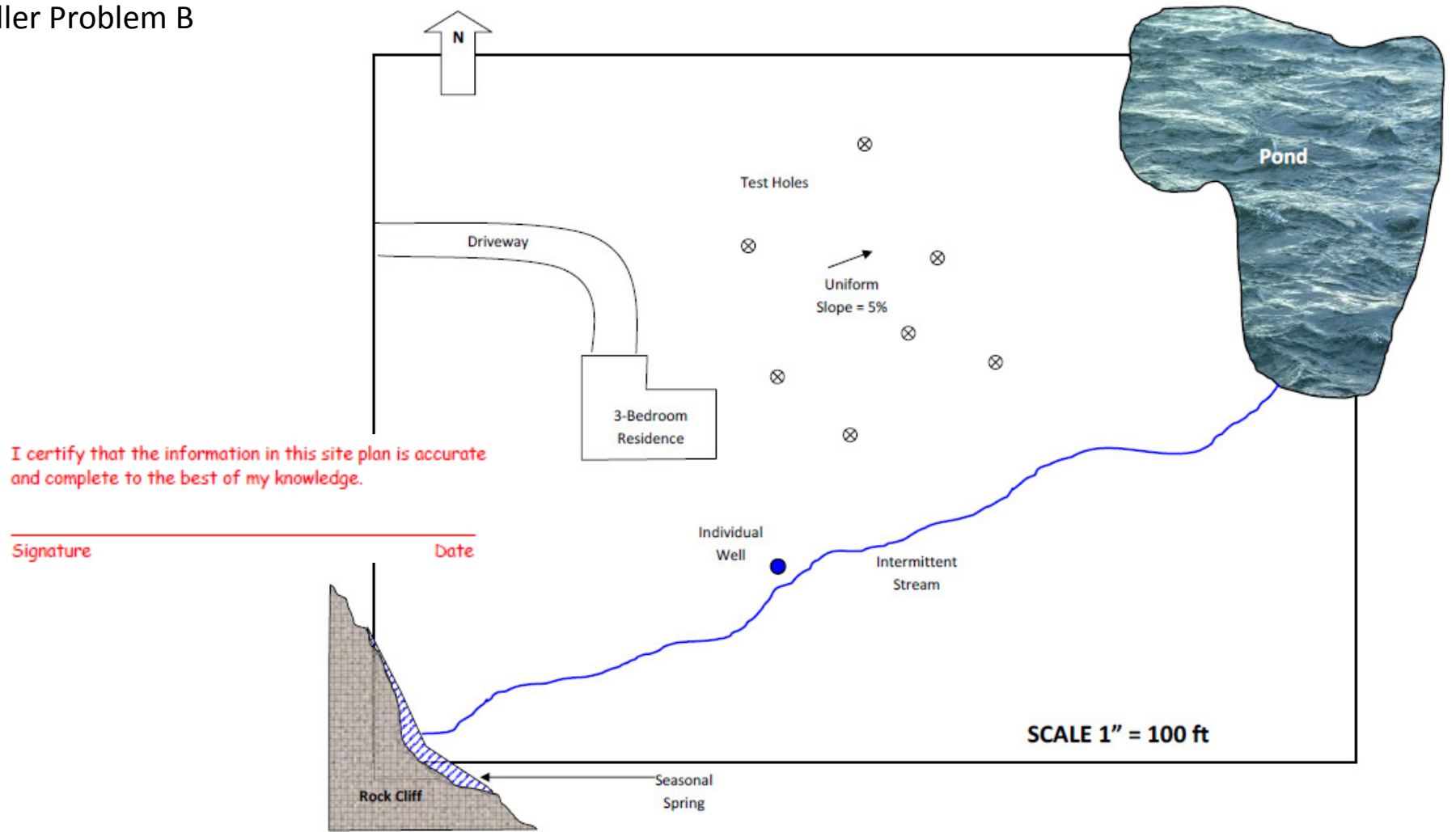
This section completed by Certified Installer or Designer
This section completed by EH

WASTEWATER SYSTEM DESIGN CHECKLIST

- Owner's name
- Assessor's Parcel Number
- North arrow
- Property lines
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- Any existing and/or proposed site improvements, such as buildings, pools, driveways, parking areas, easements, waterlines, etc. (please specify whether existing or proposed)
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- D-Box/"T"/"L" locations
- Septic tank/pump chamber location
- Observation port location
- Scale of drawing shown on scale bar
- Cross Section Drawings:
 - Dispersal trench
 - Observation port
 - D-box
 - Capping fill, if applicable
 - Curtain drain, if applicable

This section completed by Certified Installer or Designer

Installer Problem B



I certify that the information in this site plan is accurate and complete to the best of my knowledge.

Signature _____

Date _____

Owner Name: _____ Scale 1" = _____

Address / Phone: _____

Site Location: _____

Contact Name: _____ Phone: _____