On-site Wastewater Training
For Tribal Environmental Programs

Site Assessment for New Installations

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What we will cover

• Review a design plan including the components of a site plan

• Compare a site plan with the existing conditions at the site

• How to perform a successful owner interview related to forming a bid
Introduction
An installer must have:

- basic knowledge in several aspects of general business
- be organized
- have some leadership capabilities in order to carry out the plan

A good construction plan is the basis for developing a bid, budget, and schedule of work.
What should be on a site plan?

- Site features
  - Existing
  - Proposed
- Topographic plan
- Bench mark
- Drainage plan
- 100-year flood plain
- Water wells
- Property lines
- Replacement areas?
- Location of soil evaluation

- Features needing horizontal separation
  - Water supply lines
    - Public and private
  - Water features
    - Streams, ponds, lakes, rivers, creeks, salt water, retention ponds
  - Surface improvements
  - Easements
    - Underground and overhead
  - Steep slopes & drainage
Site plan

- Graphical representation of site
  - Existing features
  - Proposed features
  - Horizontal setbacks
Topographic plan

- Map representing the changes in elevation on a site
- Contour lines are the representation, on the plan, of the variation in elevation
- Elevation in landscape is relative to a known point, (bench mark)
Designs and plans

- Site plans should not be viewed as perfect
- Relevant mistakes or omissions should be discussed with the designer or person developing the plan
Contents of detailed designs & planning materials
Detailed design

Reference

Details

Notes

Site plan

Title block
2. Site review
Site review

• The site review is conducted at the site, after the plan has been reviewed at the office. The main purpose is to compare what is on paper to what is on the property
2a. Site plan is accurate for site

- Correct location
- Accurate representation of site
  - Features that may limit construction
2b. Topographic evaluation

- Limitations for construction
  - Steepness of site
  - Ability to access construction area
  - Equipment selection
- Soil treatment area – land surface
  - Water shedding
  - Water gathering
2c. Drainage

- Identify natural drainage patterns on site
  - Flow
  - Floodplain and floodway
- Where does stormwater from improvements go?
  - Downspouts, impervious cover
- Treatment systems: runoff from fields
  - Water shedding
  - Multiple zones: drainage paths between zones
Flooding

Floodplain

Floodway

Flood fringe

1 foot above bank

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Floodplain considerations

• What part of floodplain?
  – Flood way
  – Flood fringe

• Restrictions on component installation

• Special considerations
  – Tank buoyancy
  – No change in surface elevation
  – Erosion during flooding
Poor storm water management
Soil treatment area landscape
Proper grade on soil treatment area
2c. Drainage

- Surface/gravity: swales
- Subsurface/gravity: interceptor drains
- Subsurface/pump: interceptor with pump, tank & controls
- Who will install these components?
Interceptor drains

- Capture subsurface water moving on site
- Water from upslope or around the system
- Typically sloped to convey water
- Pipe, sock?, media, barrier?
Interceptor drain

Limiting layer
Outlet is a must!
2d & 2e Water

- Monitoring well
- Drinking water
  - Water well
  - Public water supply
  - Water lines
2f. Existing improvements

• Existing improvements need to be removed & replaced
  – Accessibility to site
  – In the proposed construction area
  – Tight working locations

• Examples
  – Irrigation, roads, fences, landscaping, walls, buildings, etc.
2. Site review

g. Vegetation /obstruction management
   Yes_____ No____
   if yes, please describe:______________________

h. Tree/landscaping removal requirements
   Yes _____ No____
   if yes, please describe:______________________
2i. Soil condition limitations: bed rock

• Bed rock on site?
  – Soil and site evaluation report does not mention bedrock

• What do you do?
  – Rock saw
  – Hoe-ram

• Rock clause in your contract
2i Soil condition limitations: wet soils

- Careful:
  - Consider compaction
- Special considerations
  - Timing of installation
  - Protecting the soil
  - Maintaining separation
  - Floating tanks
  - Dewatering
2i Soil condition limitations: saturated sub-soils

- May have “dry” surface soils
- Considerations
  - Tank floatation
  - Dewatering
    - Soil type affects when dewatering is necessary
  - Interceptor drain
  - Separation
2j. Soil treatment area(s) clearly marked and protected

• Marked with flags or tape
• Protect the soil
• Educate the other contractors
  – Parking
  – Driveway for accessing storage
  – Concrete washout
2k. Plumbing stub-out elevation

- Existing during visit
  - Verify number of outlets
  - Verify location
  - Verify the elevation of stub-out & components

- Proposed on design
  - Location and elevation may be different when arrive at site for construction
21. Site layout allows

- Construction access
- Maintenance access
- Topography does not limit construction
- Horizontal separations match design
- Vertical separations match design
- Components or parts located in traffic areas
3. Owner interview

- Gives the installer a broad view of the owner's intentions
- This interview lets the installer discuss with the owner when and how the onsite wastewater treatment system is to be installed and if it meets the owner's needs
- The installer may also address any items not in the design plan that need to be handled in a special manner
3a. Preliminary meeting with homeowner

- Date conducted
- Goals
  - Introduce yourself
  - Determine promises
  - Remove shock factor: explain design by converting a two dimension drawing to three dimensional system on their property
  - Determine expectations
3b. Proposed surface improvements identified

- Driveways
- Buildings
- Garden
- Irrigation system
- Landscaping plan
- Stormwater plan
- Swimming pools
- Rainwater harvesting
- Livestock
- Other?
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