

Why ACM Engineering?

Expertise: Our Principal Engineer holds a Masters degree in Environmental Engineering and has nearly 20 years experience.

Environmental Experience: Background in working with EPA and State regulatory agencies including ODEQ on a variety of projects requiring UICs approval, Superfund CERCLA projects, and RCRA compliance requirements.

Creative Solutions: Years of experience designing grading and drainage solutions for sites in geographical areas with higher precipitation and more topographical relief than we see in Central Oregon means our team can offer creative solutions that work under tougher conditions than we face locally.

Efficiency: ACM Engineering offers the most current technology, a highly experienced staff, and low overhead to provide our clients the highest value.



Seahawks Stadium & Convention Center
Civil Design by George Franklet, PE
ACM Engineering Principal Engineer

During Monday Night Football November 2006 Fox Sports News featured drainage design features which prevent field flooding despite heavy rain and a high tide table.



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Stormwater Management Strategies for Central Oregon



*It doesn't rain in
Central Oregon...
much*



**Qualificentegritous
Civil Engineering**

www.acm-engineering.com

Stormwater Management: *Should I Care?*

Local development codes require property owners to adequately deal with stormwater. Excessive rainwater runoff damages property and may pick up contaminants as it travels over roofs and pavement. These contaminants can enter the clean water supply being used by our communities for drinking water, recreation or wildlife.

There are many design options for managing stormwater. Specific solutions may be limited by local codes and the relative expertise of the chosen design team, so



Exceptional grading design keeps parking lots dry even during the heaviest storms

finding a creative civil engineer experienced with a variety of stormwater management solutions can save you time and money.

Stormwater in Central Oregon

In Central Oregon, municipal stormwater management systems are limited or non-existent. Because the best available, and least expensive, technology to treat and clean ground water is Mother Nature herself, ACM Engineering recommends a comprehensive grading approach to allow the use of surface stormwater management systems such as:

- Bioswales
- Detention/Retention Ponds
- Planter/Filter strips
- Permeable pavements

UICs: A Four-Letter Word

We generally recommend owners avoid the use of Underground Injection Control Systems or UICs in designing site grading and drainage because of potential environmental compliance issues and long term liability costs. Examples of UIC systems include drywells, drill holes and trenches.



Retention ponds can be an effective option

Sometimes, site space or grading constraints mean a UICs is the only option. However, out of 29 local Commercial and Industrial sites recently designed by ACM Engineering, UIC Systems were ultimately needed at just three sites.

If UIC Systems are necessary, we help the owner complete the steps required to register the UIC system so it will be in compliance with state law, helping avoid long term costs. Some municipalities will not issue a Certificate of Occupancy without registration.

Potential Long Term UIC Costs:

- ODEQ fines for an unapproved UIC system can be retroactive back to 2001 at \$2500 per day, per UICs.
- EPA fines for UIC systems can be retroactive back to 1984, when the program administration was handed over to ODEQ.
- If a UICs fails future tests due to changes in runoff volume or increasing surface contaminants, costs for additional filtering equipment or the addition of surface retention after the fact. Both these options can be very expensive.

Life-Cycle Cost Philosophy

From first hand experience in the environmental industry, ACM team members have directly observed the *significant expense* of retroactive/reactive environmental compliance (RCRA, Superfund, and State mandated cleanups). ACM Engineering's team applies nearly 20 years of experience and a background in the environmental industry to evaluate long term effects of different stormwater management strategies for your project. ACM considers both immediate requirements – such as project completion schedule, code compliance, and design and construction costs – as well as long term cost implications like environmental considerations and potential liability concerns.



Landscape strips can be designed to help control runoff

Although as the client, you make the ultimate decision on the design solutions which work best for your goals, ACM Engineering takes a proactive, full disclosure approach to design by advising our clients of the potential long term implications of options which may initially appear cheaper or faster.



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