

Lessons Learned in Plan Development and Implementation

Meeting Early to Set Plan Goals and Timelines

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City of Pewaukee

Where am I?

- Know which Community the development is located in.
- Determine if other entities (ie. County) oversees and enforces the ordinances for the Community.



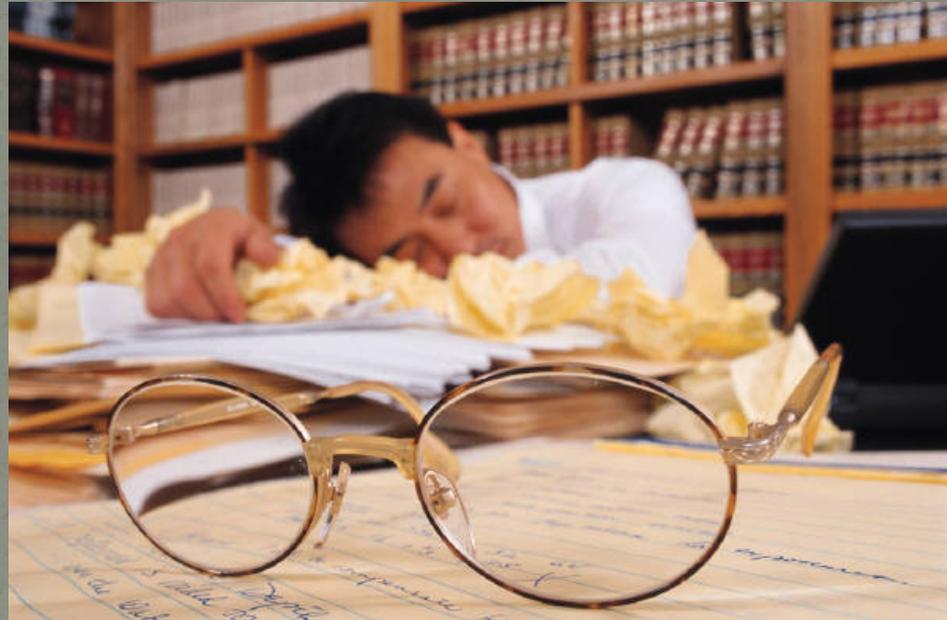
What are the rules?

- Federal Regulations
- State Regulations
- County Regulations
- City Regulations



Federal Regulations

- EPA
- USA COE
- CDBG
- HUD
- CFR
- ADA
- OSHA
- Etc....



State Regulations

- WisDNR
- DWD
- WisDOT
- State Statutes
- WI Administrative Code
- State Sewer & Water Specifications
- Dept of Safety and Professional Services
- Etc...



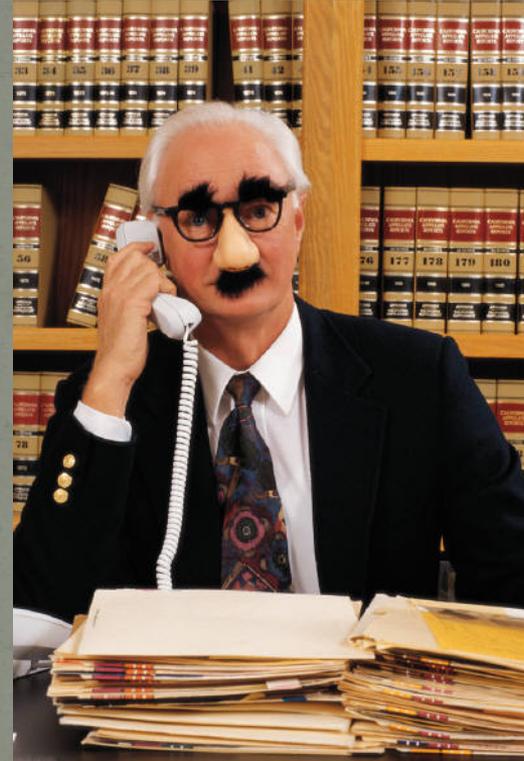
County Regulations

- Shoreland and Floodland Protection
- Land Division/Subdivision Control
- Access via County Roadways
- Etc...



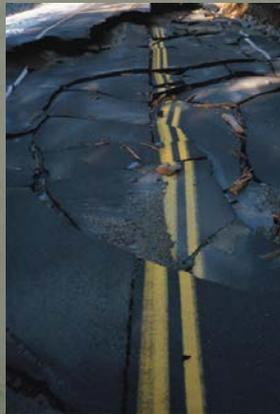
Local Regulations

- Land Division
- Zoning
- Sewer and Water Service
- Storm Water Management
- Erosion Control
- Technical Standards
- Etc...



Other Information to Consider

- Location of existing utilities (gas, watermain, sanitary sewer, storm sewer, electric, cable, telephone) for connection and conflicts
- Environmental aspects (wetland, navigability, soils)
- Evaluation of impacts to existing infrastructure
- Reaction from local residential or business community to development proposal



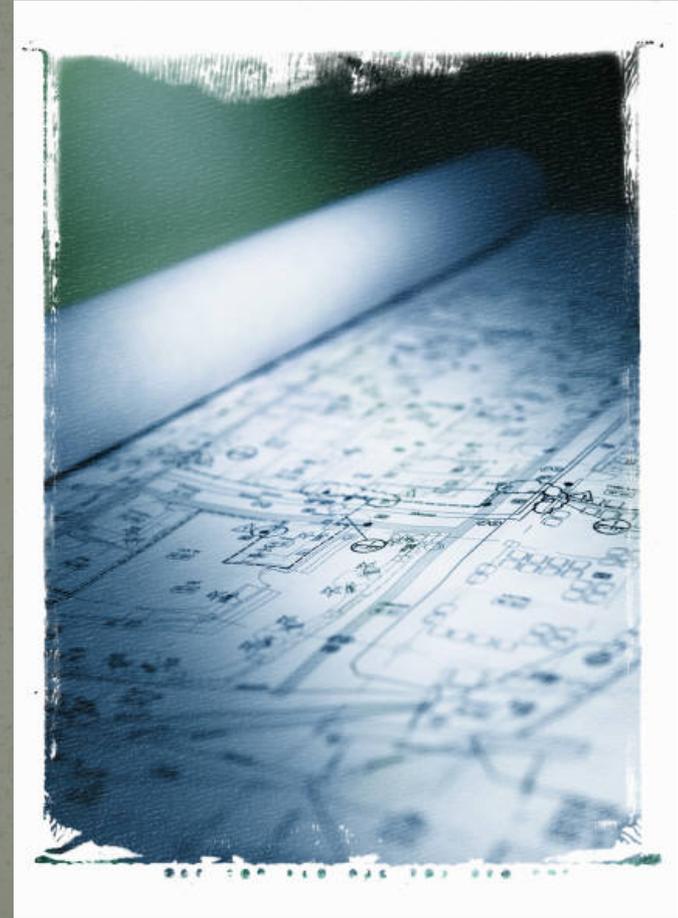
Develop the Plans

- Concept (Preliminary) Plans
 - Identifies challenges or unique issues
 - Great for identifying potential “offsite” components – runoff, road, utility service
 - Agreements drafted (Developers, Utility 10.10)
 - Rough estimates
 - Preliminary Plat
 - Just because you get a sign off on a concept plan does not mean you have approval!



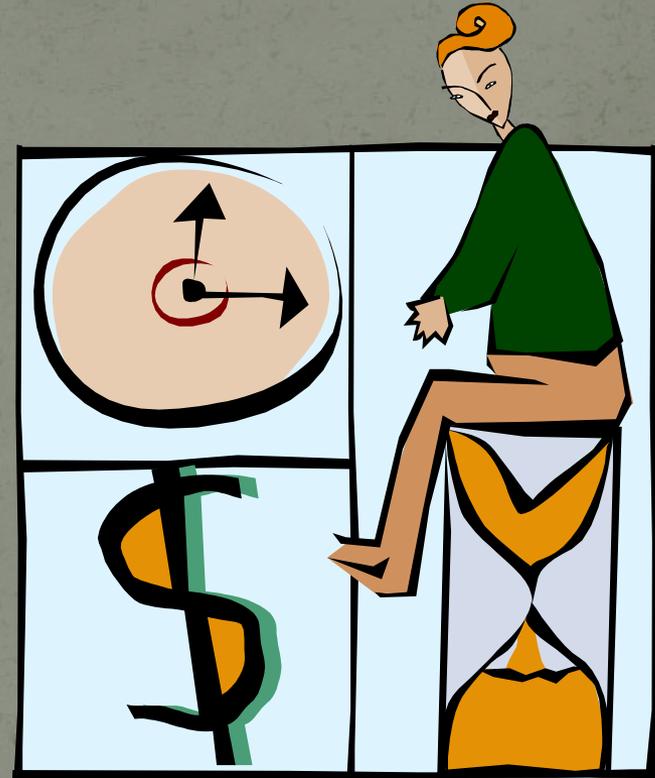
Develop the Plans

- Full Construction Plans
 - Stormwater Management
 - Roads
 - Sanitary Sewer
 - Watermain
 - Storm Sewer
 - Master Grading Plan
 - Interim Grading Plan
 - Final Plat
 - System Plans



Timelines

- Plan Development
- Review Agencies
- Resubmittals
- Final Approvals
 - WDNR
 - Local/State/Federal
 - County
- Other utilities
- Construction Start



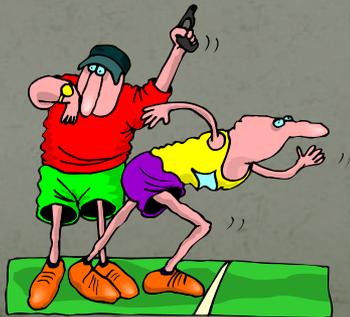
Timelines

- Expect more than 1 review on plans from your review agencies (especially with your stormwater management plans!)
- Allow plenty of time for this review (they have other things to do as well as reviewing your plans & many things trump the review in priority)



Early Starts before Full Approval

- Grading or Footing Foundations
- Typically in less than ideal weather conditions
- Expect additional costs in plan development (2 construction sequences)
- Temporary stabilization – how?
- Erosion control measures must be in place – they may not be your typical methods.
- DOES NOT MEAN YOUR FULL PLAN IS APPROVED!



Winter Construction



- Late season work still doesn't work
- Stabilization challenges – grass doesn't grow, PAM is not your savior
- Frozen ground prevents proper installation of erosion measures
- Matting is expensive and cannot be installed properly on frozen, chunky ground
- Winter rain/freezing
- Spring thaw mess





Winter Construction

Winter rain frozen in the diversion swale to sediment trap. Frozen conditions make repairs to ditch checks/erosion control practices difficult. Practices don't work as well.



Winter Construction

Winter construction still requires a dewatering plan. Snow melt, rain, and/or groundwater still need to be pumped from excavations and treated.



Winter Construction

No silt fence or other protection around stockpile.

Silt fence is difficult install in frozen ground.



Winter Construction

No tracking pad.

Ground may be frozen one day and thawing the next. Tracking pad maintenance is required as long as in use – regardless of the temperature.

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Winter Construction

Sediment trap
adjacent to
unprotected
stockpile.

Sediment trap is not
complete.

Diversion swale not
stabilized.



Winter Construction

Let's just pour the footings instead of doing our erosion control...it's easier.



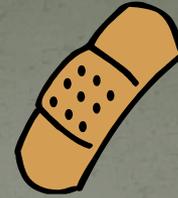
Winter Construction

Diversion berm
stabilized.

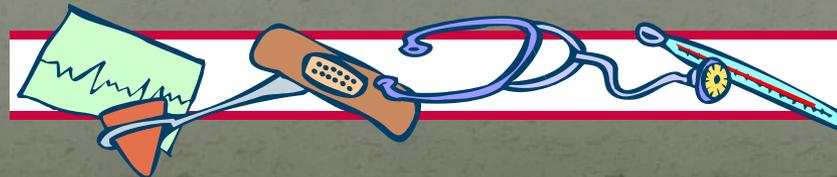
Diversion swale is
not!

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Winter Construction Fixes



- Don't do it! Plan for delays in your review to avoid this issue.
- Find alternative erosion controls that will work on frozen ground.
 - Waddles vs straw bales
 - Keep vegetative buffers
 - Matting and a fast growing, cold weather friendly seed
 - Plan for the dewatering/frozen conditions
- Work with someone local who can mobilize quickly to deal with issues when they arise.



Projects that go smoothly

- Developer keeps Engineer engaged during construction
- Developer/Contractor gets the erosion control issues
- Everyone COMMUNICATES
- Plan of attack for development is cohesive



Questions?

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