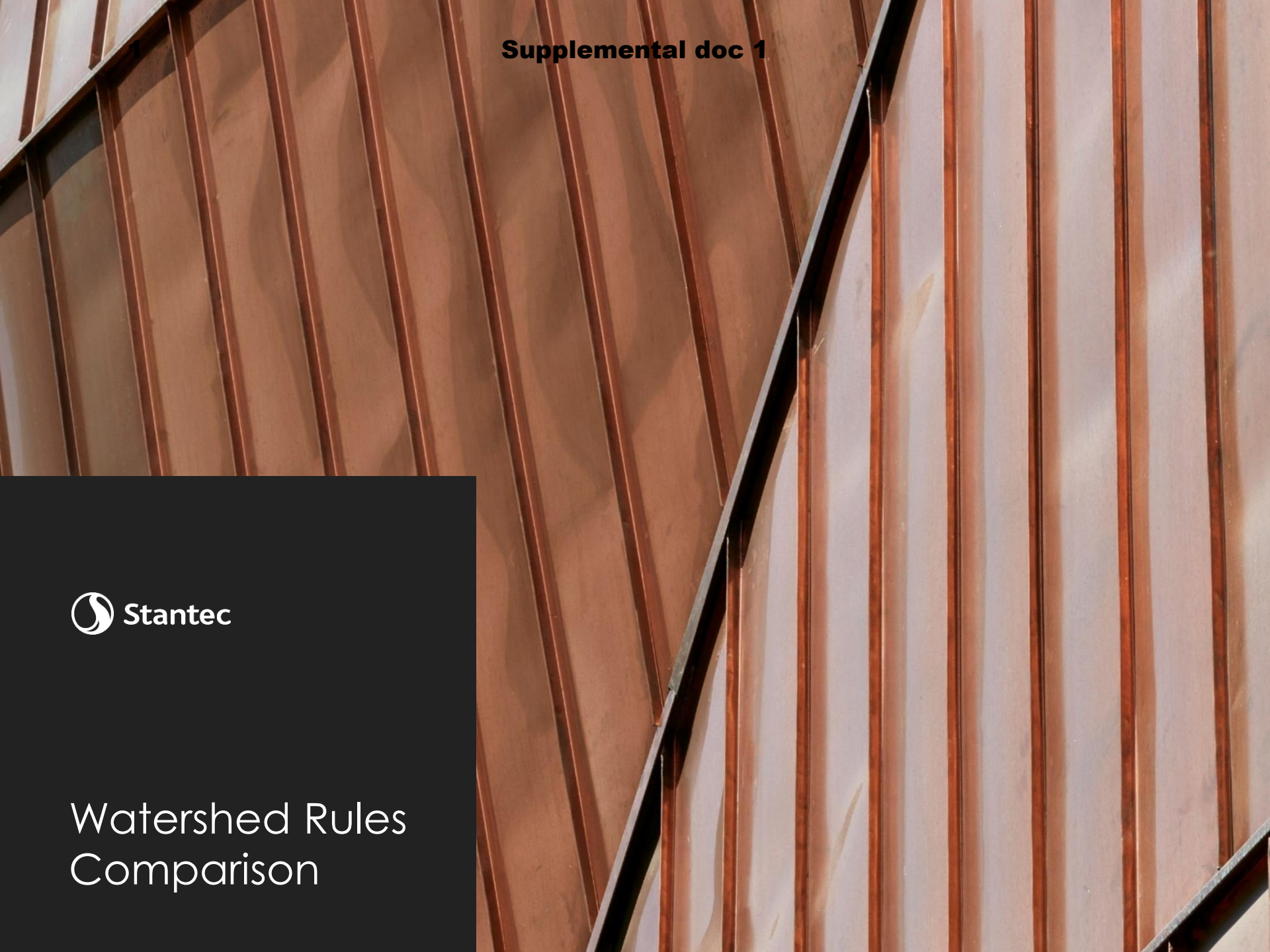


Stantec

Watershed Rules Comparison

Supplemental doc 2

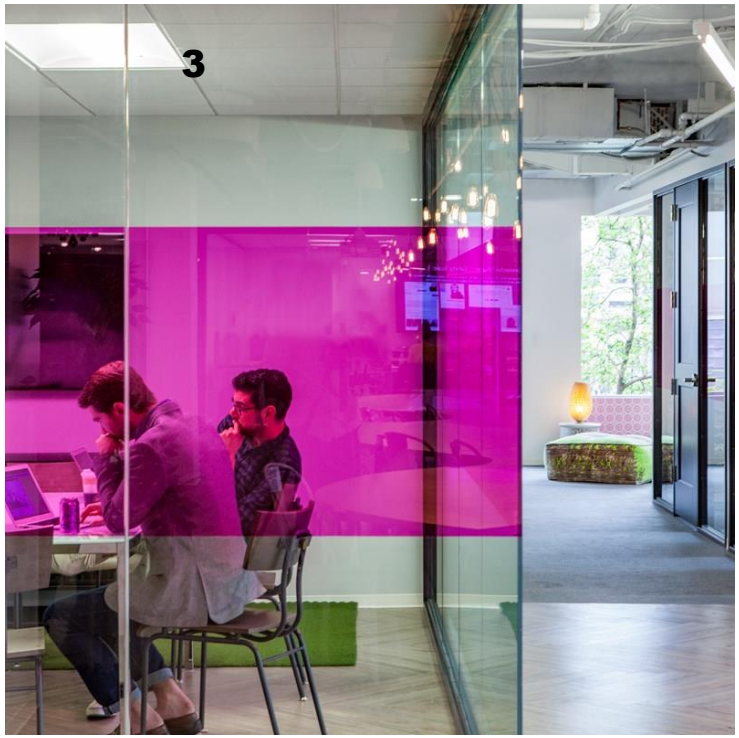
Comparing Watershed Rules

Comparing rules for cities associated with the Elm Creek WMC

- Plymouth
- Maple Grove
- Medina
- Rogers
- Corcoran
- Dayton
- Champlin

Comparing rules for other watersheds to the Elm Creek WMC

- Coon Creek WD
- Shingle Creek WMC
- Minnehaha Creek WD



Supplemental doc 3

Freeboard or Regulatory Flood Protection Elevation (RFPE)

Definition: The distance between the (HWL, OWL, or 100-year flood plain elevation) of adjacent water bodies and the (low floor, low opening, or low grade) elevation plus floodway surcharge (0.5 feet MN/1.0 feet Federal)

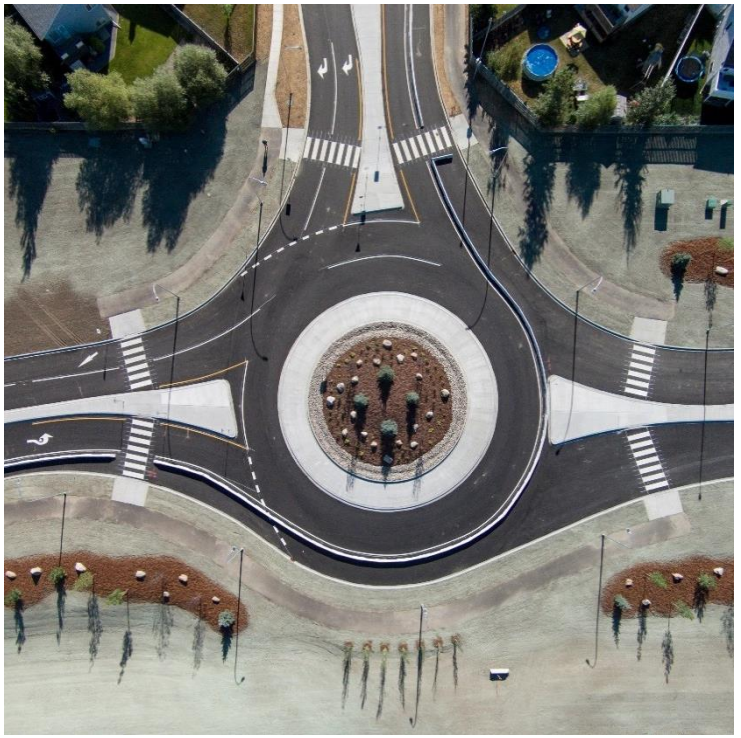
Elm Creek WMC	Plymouth	Maple Grove	Medina	Rogers	Corcoran	Dayton	Champlin
Low floor ≥ 2' above 100-year elevation **AND 1'** above EOF of nearby waterbodies	**Low floor ≥ 2'** above 100-year flood plain	**Low floor ≥ 1'** above regional flood plus floodway surcharge (RFPE)	**Low floor ≥ 1'** above regional flood plus floodway surcharge (RFPE)	**Low floor ≥ 1'** above regional flood plus floodway surcharge (RFPE)	**Low floor ≥ 2'** above regional flood plus floodway surcharge (RFPE) OR 3' above OWH	**Low floor ≥ 2'** above 100-year elevation **AND 1'** above as-built EOF of nearby waterbodies	**Low floor ≥ 2'** above regional flood plus floodway surcharge (RFPE)

Discussion Items

- Low Floor References
  - Rule D.3.b.i.7 *"The low floor shall be at minimum two feet above the critical event 100-year elevation and a minimum one foot above the emergency overflow elevation of nearby waterbodies and stormwater ponds"*
  - Rule F.3.b *"All new structures shall be constructed with the low floor at the elevations required in the municipality's ordinance, however, in no case shall the low floor be less than two feet above the regulatory elevation"*
- What are the Policy Goals with the Low Floor rule? Limit:
  - Limit surficial flooding?
  - Groundwater-induced flooding/transmissivity (seepage through foundation walls)?
  - Structural failure of foundation walls from hydrostatic pressure due to groundwater?
  - Structural failure due to soil saturation of footings (buoyancy forces)?

Freeboard or Regulatory Flood Protection Elevation (RFPE)

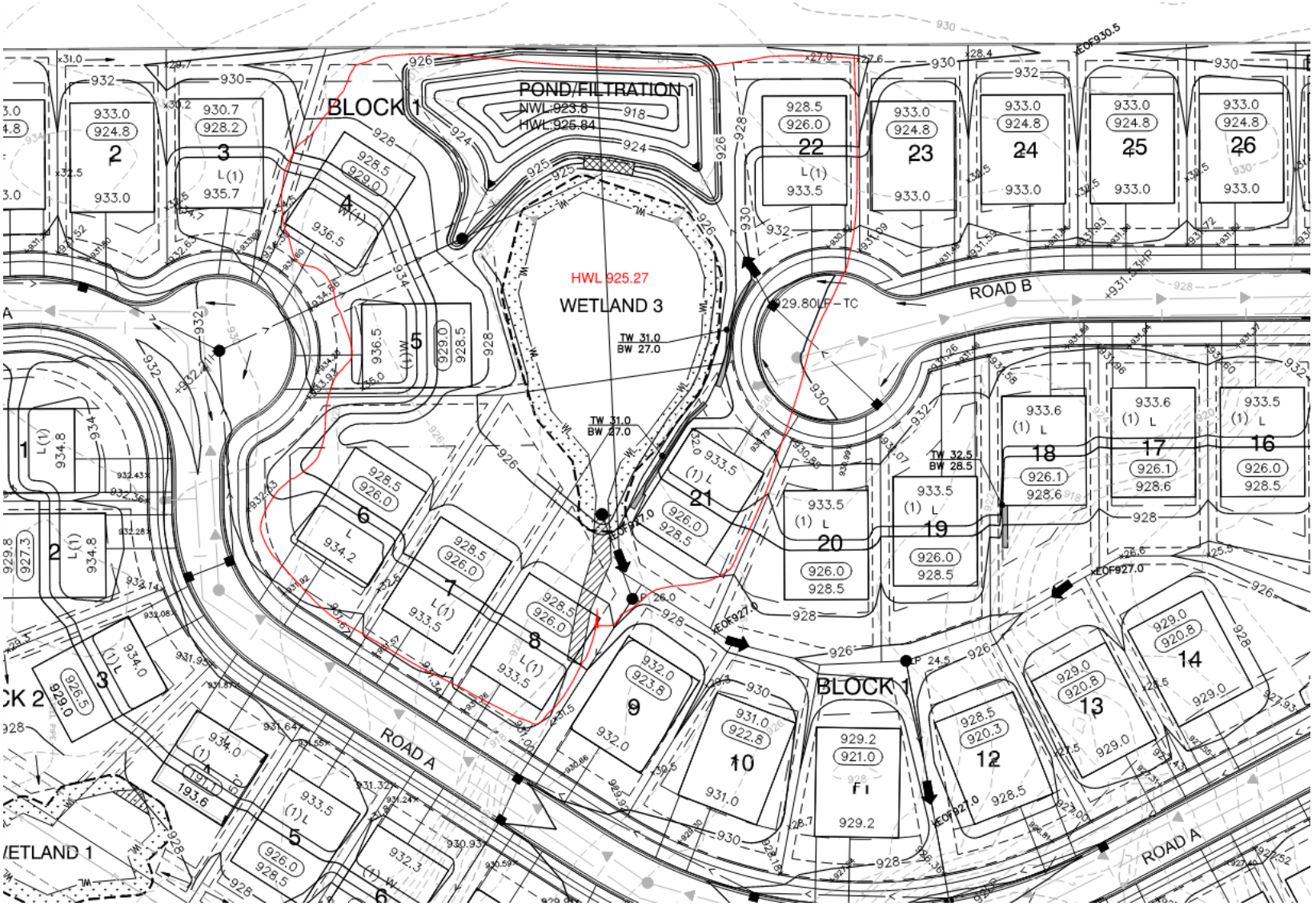
Supplemental doc 5



Definition: The distance between the (HWL, OWL, or 100-year flood plain elevation) of adjacent water bodies and the (low floor, low opening, or low grade) elevation plus floodway surcharge (0.5 feet MN/1.0 feet Federal)

Elm Creek WMC	Coon Creek WD	Shingle Creek WMC	Minnehaha Creek WD
Low floor ≥ 2' above 100-year elevation **AND 1'** above EOF of nearby waterbodies	**Low floor ≥ 2'** above high water table or mottled soils, which ever is higher	**Defers to member cities**	**Low opening ≥ 2'** above 100-year flood plain

Case Study


POND/FILTRATION 1
NWL 923.8
HWL 925.84
BLOCK 1
HWL 925.27
WETLAND 3
ROAD B
ROAD A
BLOCK 1
ETLAND 1

Discussion Items

- Low Floor References
  - Rule D.3.b.i.7 *"The low floor shall be at minimum two feet above the critical event 10-year elevation and a minimum one foot above the emergency overflow elevation of nearby waterbodies and stormwater ponds"*
  - Rule F.3.b *"All new structures shall be constructed with the low floor at the elevations required in the municipality's ordinance, however, in no case shall the low floor be less than two feet above the regulatory elevation"*
- Under the low floor rule, what constitutes a "*stormwater pond or waterbody*"?
  - For example, do the low homes (lots 9-20) in the Croques development that are along the catch basin collection system also need to meet the freeboard standard?
  - Are only 'large' waterbodies included under this rule?
- What constitutes "*nearby*" (which is the word used in the rule)?
  - For example, does lot #23 need to meet the standard? Most would agree that lot #22 needs to meet the standard, but there is fill between the wetland and lot #22 so surficial flooding isn't going to be a problem based on the provided 100-year
- Jurisdictional considerations (i.e. who has final say)?

Discussion Items

- MNDNR Floodplain Rules Brochure
  - https://files.dnr.state.mn.us/publications/waters/floodplain_management_fact_sheet_4.pdf

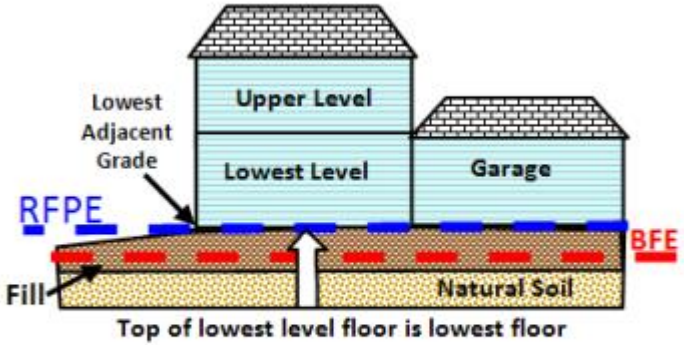


Figure 1. A concrete slab on grade is permitted for a home in a floodplain if the top (walking surface) of the lowest level floor is above the RFPE.

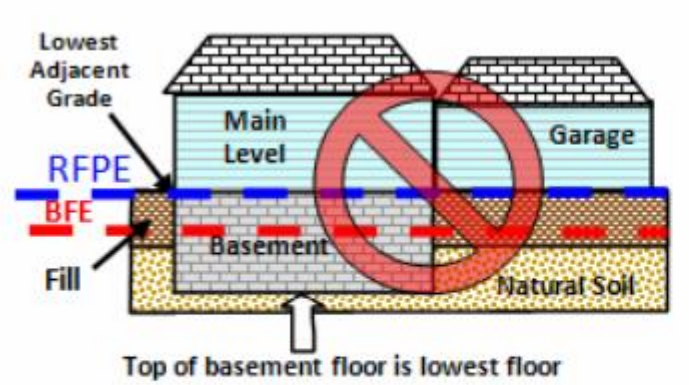


Figure 2. This example is not permitted for a home in a floodplain because the basement is the lowest level of the home and it is below the RFPE.

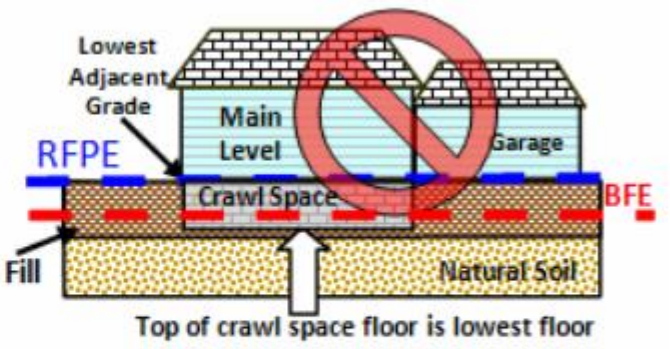


Figure 3. A below grade crawl space or utility space is considered a basement and it is the lowest floor. It is not permitted for a home in a floodplain because it is below the RFPE.

Discussion Items

- MNDNR Floodplain Rules

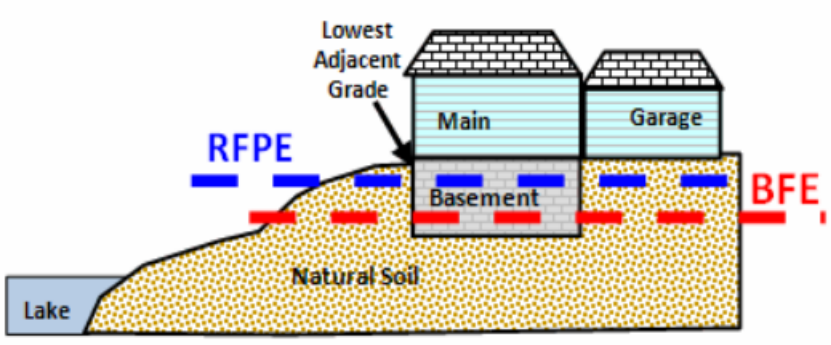


Figure 6. Lowest Adjacent Grade is above Base Flood Elevation (BFE) or the 1% annual chance flood elevation, so site is not in Zone A or AE. Minimum floodplain regulations do not apply.
NOTE: The community may have higher standards. For example, if the site is in shoreland district, there are still minimum elevations.

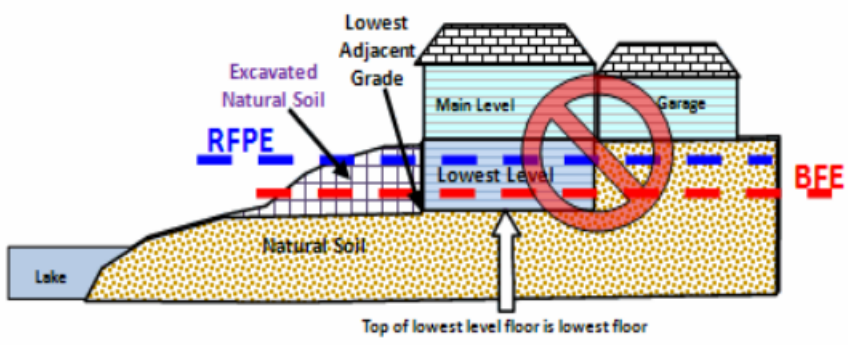


Figure 7. Same situation as in Figure 6, but they excavated to make a walkout basement. They have put themselves into the high flood risk area (Zone A or AE) and must meet the floodplain regulations, so now have a violation.

Other Rules Discussion Items

- Phased Projects and Regional Systems– how long do Commission approvals last? What if Commission rules change in the interim (Hamel/Medina discussion)
  - Consideration of temporary impacts for these projects
- New MS4 permit requirements (fully reconstructed impervious) https://www.pca.state.mn.us/sites/default/files/wq-strm4-94.pdf

- Would like to see future rules state that runoff rates need to be tabulated by direction
- Water Reuse
- Typos: Rule D.4.B and Wet Pond Design Standards Permanent Pool Depth requirements
- Stormwater ponds as Compensatory storage