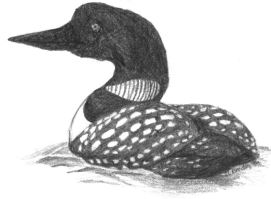


City of Ham Lake



Grading, Drainage and Erosion Control Plan Checklist

The following items are to be completed and approved by the City Engineer prior to placing the Grading, Drainage and Erosion Control Plan on the City Council Agenda for City Council Approval:

Grading, Drainage and Erosion Control Drawings:

All Sheets:

- Drawings to be on sheets no larger than 24 inch x 36 inches
- Graphic scale and north arrow
- Scale to be no larger than 1"=50'
- Name of subdivision
- Date of preparation
- Date of revision(s) (if any)
- Signed by a Professional Engineer

First Sheet Only:

- Vicinity map
- Legend

Existing conditions:

- Underground and overhead utilities including wells and septic fields within 150 feet of the Plat boundaries
- Indicate which existing well and septic fields within the Plat boundaries are to be abandoned
- Easements shown and labeled
- Easements to be vacated shown and labeled
- Streets and street right-of-way shown and labeled
- Topographic information, including trees, with maximum contour intervals of 2 feet within 150 feet of the Plat boundaries
- Buildings within the Plat boundaries
- Existing structure location and indication of demolition or relocation
- Wetlands shown on the Grading, Drainage and Erosion Control Plan match wetlands shown in wetland delineation report
- Wetland impacts and wetland mitigation areas shown as approved by Watershed District
- Ponds, lakes, ditches and storm drains
- NWL and HWL for pond, lakes and ditches
- Rim elevations, invert elevations, pipe size and type pipe to all drainage structures, storm

drains and culverts

- FEMA Zone A limits
- Snowmobile trail location
- Bike path location
- DNR or ACD identified natural areas, natural communities, rare species and/or natural resource inventory
- Anoka Conservation District land cover mapping
- MPCA remediation sites, including LUST, VIC, VPIC, superfund, landfill and dump sites

Proposed conditions:

- Wells and primary and secondary ISTS areas
- No grading within ISTS areas
- Label all proposed easements
- Temporary cul-de-sac easement for temporary dead-end streets
- Label proposed streets
- Street pavement sections
- Lot numbers and block numbers
- Label all setbacks
- Building pads and proposed contours
- Required filter fabric under riprap
- Details showing fabric wrap for manholes and catch basins
- Access to pond outlets
- 5% slope away from house for first 10 feet. (Not Required for CD-1)
- Maximum driveway slope of 10%.
- Centerline street slopes and spot grades identified on grading plans
- Street centerline, minimum 0.6% slope, maximum 6% slope
- 3% maximum street centerline slope within 25 feet of intersections
- Centerline profile of side street matches gutter of through street
- If using D312, the detail must use the Modified D312 version (9¾ inch rather than 10 inch)
- Ponds, pond bench, pond side slopes, pond depth
- Minimum pond permanent pool depth of three feet, maximum ten feet
- Pond must have a minimum permanent volume of 1,800 ft³ of storage per acre of drainage area
- ISTS system separation 200' from Transient non-community Inner Wellhead Management Zone.
- ISTS leach field or tank separation from an infiltration basin is 35 feet [MPCA Stormwater Manual/ Stormwater Infiltration and Setback Distances] 1/11/18
- Minimum 1-foot cover over top of pipe outlet
- Pond outlet details. EOF at 100-year per 2012 SWPPP Section V. A. Policies. Item 5
- 1% minimum swale grade
- Ditches designed to 100-year event
- Proposed cross section, contours, slope and spot grades of existing ditches to be cleaned
- Elevation and width of top of berms, six-foot minimum (NRCS Code 378); twelve-foot minimum for access routes.
- Baffle support post spacing, four foot maximum (see Revised HL Detail per CCWD 2017)
- The baffle extends two feet minimum from pond outlet into berm
- Emergency overflows
- HWL and NWL of ditches, ponds and delineated wetlands

- Storm drain, culverts and storm drain structures, rim, invert, size of pipe and catch basin, pipe slope, pipe length
- 27-inch structures, cast-in-place (poured) or masonry or concrete block structures are not permitted.
- Drain tile cleanout
- Catch basin rim elevation from one inch below gutter
- Storm manhole rim elevation ½ inch below bituminous
- Erosion control details
- Type III barricades at 4 feet from end of temporary cul-de-sacs bituminous
- Existing septic fields not to remain in use must be removed a minimum of 3 feet and replaced with clean fill per Mn Rule 7080.2500.
- Proposed contours do not direct drainage over proposed septic areas.
- Curb return radius to back of curb is 25 feet minimum for non-MSA streets and 30 feet for MSA streets
- Cul-de-sac radius to the back of curb of 42 feet for residential street, 47 feet for commercial street, 60 feet for entrance to cul-de-sac
- Rollover curb catch basins/manholes located within temporary cul-de-sacs. (ex. Neenah type 3508/3270)
- Sight triangle
- 4:1 maximum slopes on site (11-2000-53)
- Sawcut at pavement match points
- Existing curb removal at match points
- Positive drainage on lots
- Show all soil borings (one soil borings per building pad and four soil borings per ISTS area)

Required notes on Grading Plan:

- All match points and pavement patches to be sawcut at full depth
- Turf area to be seeded within 7 days after completion of rough grading or inactivity

Upper Rum River Watershed Management Organization

- All wetlands identified and match wetland delineation
- MnRAM provided for proper wetland setbacks
- No grading in wetland buffer

Tree Preservation Plan per City Ordinance No. 07-17

- Show lot lines, right of way lines, and easements lines
- Show areas of trees not to be disturbed by construction equipment
- Identify trees that will be not affected by severing of root structures located outside of not to be disturbed area.
- Custom graded lots may not have any trees removed except for roads or for overall drainage of the Plat
- Lot owner or builder of custom graded lots shall submit a Tree Preservation Plan at the time of application for the building permit

Drainage Calculations:

- Review for compliance with 2013-2018 NPDES permit requirements
- Silt fence is required at Pond NWL
- Calcs that prove that there is no net increase from pre-project conditions (on an annual

average basis) for discharges of Total Suspended Solids.

- NPDES Phase II and CCWD requires 80% TSS minimum load reduction unless other agreement is in place. NPDES P2 cautions about not breaking existing conditions such as perched water shelf, etc., refer to the document. SWPPP shore zoning ordinance points to technical field guide from soil and water conservation references.
- The Phosphorus removal requirement is 60%.
- Maximum infiltration rate of 8.3 inches/hour
- Time of concentration. City of Ham Lake SWPPP (2012) Section VIII.A.2. – no direct entry. “Method used will incorporate the time of concentration and land use for existing and proposed development...Time of concentration will be calculated, not estimated.”
- NPDES General Permit requires ½ inch of runoff to be infiltrated on site when possible.
- Calculations match Grading Plan including details, pond bench
- Pond baffle calculations, 0.5 cfs maximum for 1-year event
- Existing and proposed drainage area maps
- Drainage areas match topography and roof drainage
- Baffled weir calculations
- Walker calculations for dead storage
- Filtration Shelf calculations require the 1-inch storm event. See flood elevation for storage provided between NWL and the orifice elevations in the OCS for the 1-inch storm event. Note, the surface area should be considered when reviewing the minimal change in elevation—for example, a 1-inch storm event elevation with an elevation less than the outlet control structure vertical orifice. [9/25/17 per CCWD comments]
- Pipe size computations downstream of OCS with multiple sections need to have all pipes checked, not just the first leg (section) 10-3-2017 TC. Refer to 10-State Standards-minimum slopes for diameter to achieve self-cleaning velocity, maximum MH distance for pipe diameters < 24 inches.
- Peak rates when using infiltration above the NWL - ½ rate per Soil Survey or test results
- CN values reflect impervious area, pond and wetlands
- Landlocked ponds and wetland back to back storm calculations 8/23/2017 wetlands without outlet control structures (OCS) but with weir-like EOF do not count as landlocked. Ponds without OCS require 100-year B-B calculations. If conflict exists with EOF-2012 SWPPP Section V. A. Policies Item 5, Item 5 prevails.
- Outlet control structures minimum round opening is 4” diameter
- Storm drain sized for 10-year storm event
- Maximum velocity in storm drain of 8 fps for 10-year storm event
- Energy dissipation reducing storm drain outlet velocity to less than 4 fps for 10-year storm event
- Maximum water quality volume discharge of 5.66 cfs per acre of pond surface area
- Spread calculations in roadway from gutter, ½ street roadway width (bituminous width – bike lane) from gutter maximum for 10-year event
- Drainage calculations are to be signed by a Professional Engineer
- Certification from ISTS designer for ISTS areas
- Custom Graded Lots require a \$9,000/lot security
- NPDES phase II permit compliance and application. Special requirements if within 1 mile of impaired waters – see General Stormwater Permit for Construction Activity at <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>
- Copy of Storm Water Pollution Prevention Plan submitted to the MPCA for NPDES II

compliance. Per General Stormwater Permit, estimated quantity tabulation is to be included in the SWPPP. NPDES II is triggered for disturbed area 1 acre or more.

- Calculations are to be signed by a Professional Engineer

Review comments/approvals from:

- MnDOT for Grading, Drainage and Erosion Control Plans next to or draining to MnDOT right-of-way
- Anoka County for Grading, Drainage and Erosion Control Plans next to or draining to Anoka County right-of-way
- Watershed District

Review comments/approvals may be required from:

- U.S. Army Corps of Engineers if wetlands are involved
- DNR if wetlands are involved and/or for dewatering
- Owners of existing utilities

Note to Developer: This checklist is provided as a tool whereby to aid in determining whether any items have been excluded when reviewing a Grading, Drainage and Erosion Control Plan. This checklist is not to be construed as all-inclusive. Ordinance 10 provides the specific detail in regard to subdividing properties within the City of Ham Lake. Compliance with the MPCA General Permit (Authorization to Discharge Permit No. MN R100001), Stormwater Associated with Construction Activity under the NPDES/SDS Program, is required.