

City of Ham Lake



Commercial 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 inch
- Graphic scale and north arrow
- Scale to be no larger than 1"=50'
- Signature of engineer
- Date of Preparation
- Date of revision(s) (if any)

First Sheet Only:

- Vicinity map
- Legend

Existing conditions:

- Underground and overhead utilities including wells and septic fields within 150 feet of the site boundaries
- Indicate which existing well and septic fields within the site boundaries are to be abandoned and which are to remain
- 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 site boundary
- Spot grades along proposed site entrance gutter
- Buildings within the site boundary
- 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/Watershed
- Management Organization
- 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

Proposed conditions:

- Wells and ISTS area. Wells must not be within 50' of ISTS areas and septic tanks (unless shallow <50 feet deep, then 100' of ISTS), within 20' of storm water drain pipe, within 35' of HWL of a stream, river, pond, lake or wetland and 50' from an unused, unsealed well or boring. Refer to MN Dept. Of Health Chapter 4725.
- ISTS areas are subject to the Building Department's approval. References: City Code 11-450 and MPCA Statute 7080.
- Label all proposed easements
- Located with "overlay district" and conforming with Ordinance 05-11?
- Pavement sections - parking and truck and indicate where apply
- Label all setbacks. Setbacks to meet Table 10-1 standards for structure, parking and access drives from residential or PUD zoning of 20', 30' building setback for recreational facilities, entertainment facilities, motels, all business uses and all industrial uses, and 40' building setback for churches, schools, and public or semi public functions.
- Building pad
- Access to pond outlets
- Contours, spot elevations along buildings, entrances, etc.
- Site not to drain to street right-of-way
- Grading within site, right-of-way and easements
- 1% minimum swale grade
- Fire access to building 150' from any point a fire truck is allowed to traverse or sprinkler required. Min lane is 20' wide, min turn radius 20' CDS radius is 35', Drive T min 60'
- Ditches designed to 100-year event
- Manhole rim elevation 1/2" and catch basin rim elevations 1" below pavement/gutter grade
- 4 foot minimum sump depth is required to prevent resuspension (CCWD)
- Grading is not blocking off-site drainage and/or flooding adjacent property
- Topography on Grading Plan matches survey
- Maximum entrance slope within right-of-way does not exceed 3%
- Maximum bituminous slope within the site does not exceed 6%
- 4:1 maximum slopes
- Ponds, pond bench, pond side slopes and pond depth. Reference the City SWPPP Section VIIC12.
- Minimum pond permanent pool depth of four feet, maximum 10 feet (if permanent pool volume of 0.1 acre-feet or less then pond slopes and depth may be modified to City Engineer approval)
- HWL of ponds and wetlands below finished grade of parking areas
- Pond outlet details
- Elevation and width of top of berm, four foot minimum (twelve foot minimum for access routes)
- Baffle support post spacing, four foot maximum
- Baffle extends two feet minimum into berm
- Emergency overflows
- HWL and NWL of ditches, ponds and delineated wetlands
- Storm drain, culverts and storm drain structures including rims, inverts, size of catch basin, pipe material, length, and slope

- RCP in right-of-way
- Minimum pipe size of 15 inches
- No 21 or 27 inch CPP
- One foot minimum pipe cover
- Erosion control details
- Details showing fabric wrap for manholes and catch basins
- Back of curb return entrance radius of 30 foot for truck entrance, 25 foot otherwise. Non-entrance back of curb radius of 3 foot minimum.
- Sight triangle
- Sawcut at pavement match points
- Positive drainage on the site
- Retaining wall detail
- Dimensions of parking, drive isles, sidewalk, etc.
- Dumpster location
- Concrete pad and fencing/screening for dumpster location
- Driveway entrance/catch basin conflict
- Finished floor elevation (1 foot above mottles or 100-year HWL)
- Changes from Plat Grading Plan (if applicable)
- Curb and gutter shown and labeled
- Detail of curb and gutter
- Sidewalk/curb and details
- Proper separation from entrance to intersection
- Fire lane
- Turning radius inside site
- Handicap ramp detail
- All soil borings shown (one soil borings per building pad and 4 soil borings per ISTS)

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
- All pipe aprons provided with trash guards
- Provide class III riprap with filter fabric for all pipe outlets

Drainage Calculations:

- Time of concentration
- 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 maps match topography and building roofs
- Baffle weir calculations
- Outlet control structures minimum round opening is 4" diameter
- Walker calculations for dead storage calculations
- Perk 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 storms calculations
- Storm drain sized for 10-year storm event
- Maximum velocity in storm drain of 8 fps for 10-year storm event (minimum 2 fps)
- Starting hydraulic model elevation should be NWL for wet basins/wetlands

- Calculations (SHSAM) indicating sumps are sized to meet district removal rates of 80% TSS.
- Energy dissipation reducing storm drain outlet velocity to less than 4 fps for 10-year storm event
- Copy of Storm Water Pollution Prevention Plan submitted to MPCA for NPDES phase 1 or II
- compliance if grading one acre or more

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 if increased runoff to Anoka County right-of-way
- Watershed District - this may include onsite and offsite stockpile disposal site approval.

Review comments/approvals may be required from:

- Army Corps of Engineer if wetlands are involved
- DNR if wetlands are involved and/or for dewatering (the Watershed District approves wetlands)
- Owners of existing easements

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 commercial site development within the City of Ham Lake.