

14.0 Wetlands Criteria

14.1 Introduction

Wetlands provide multiple important functions in a stormwater management system. A wetland can reduce peak flood discharges and improve the water quality of storm runoff. Wetlands also provide wildlife habitat and have become an integral part of the City of Greenwood Village's (Village) park and recreation assets.

The Village will review all drainage studies for potential adverse impacts to a wetland. The Village strongly encourages drainage management proposals that will enhance the wetlands resources within the Village. This includes the construction of new artificial wetlands, which are designed to attenuate flood discharges and provide water quality enhancement.

The Village will not approve a drainage study for a new development or redevelopment, which relies upon existing wetland systems for flood attenuation or water quality enhancement. The Village will approve only those drainage studies which meet the flood attenuation and water quality requirements of this Drainage Criteria Manual prior to the discharge of stormwater into an existing wetland. Furthermore, the Village will not approve any land development project which diminishes the total area or functional values of any existing wetland. These combined requirements are referred to as the “no net loss of wetlands goal.”

14.2 Federal Regulations

The applicant must also demonstrate compliance with federal regulations on wetlands found in 33 CFR Parts 320 through 330 and 40 CFR Part 230. In general, these regulations prohibit the discharge of dredged or fill material into the waters of the United States, which includes wetlands and a permit to discharge dredged or fill material into a wetland can be obtained from the U.S. Army Corps of Engineers (COE). These permits are often referred to as 404 permits.

The COE has limited the scope of the regulatory program somewhat by issuing nationwide permits for some dredge and fill activities. If certain conditions are met, the specific action can take place without the need for an individual or regional permit. The nationwide permit has all the restrictions and conditions set forth, and little or no paperwork is involved. It takes a relatively short time to initiate an individual project. For example, a nationwide permit authorizes discharges into waters that are located above the headwaters. The term “headwaters” is that point on a perennial stream above which the average annual flow is less than 5 cfs. On an intermittent stream the “headwaters” is that point where 5 cfs is equaled or exceeded 50% of the time. Maps of the headwaters have been published and copies may be obtained from the COE. The use of this nationwide permit is limited; however, and is subject to future modification. In

many cases, written coordination with the COE is required. Other nationwide permits address storm drain lines, utility lines, and bank stabilization, and maintenance activities. It is incorrect to assume that a COE permit is not required if the disturbance is small. Prior to any disturbance to a wetland, the COE should be contacted to determine the current permit requirements of the COE.

Regional permits are a type of general permit and can be issued by a division or district engineer. A regional permit may require a case-by-case reporting and acknowledgement system. The regional permit will state what fill actions are allowed, what mitigation is necessary, how to get an individual project authorized, and how long it will take. The time required to initiate an individual project under a regional permit should be less than that for an individual permit. Regional permits may be issued from time to time to the Village, the County, or the UDFCD. Projects that come under a regional permit must have minimal environmental impact.

An individual permit is for one action and the restrictions and conditions are tailored to the individual project. Extensive paperwork is involved and it usually takes a few months to obtain. If there are any environmentally sensitive issues involved, or any objections to the work, it can take several months or even years to obtain an individual 404 permit.

14.3 Wetlands Maintenance

Disturbing or cutting wetland vegetation within designated wetland areas is prohibited except as follows:

- 1) Hand cutting or removal by hand of noxious weeds,
- 2) Thinning of wetland vegetation to minimize mosquito habitat, provided that a thinning plan prepared by an environmental specialist has been approved by the City Manager or designee, and
- 3) Work performed to protect the public health, safety, and welfare.

Designated wetland areas include both naturally occurring wetlands and artificial wetlands constructed for flood attenuation or water quality treatment.

14.4 Wetlands Impact Report

A Wetlands Impact Report (WIR) shall be prepared as an initial step to any land development or redevelopment. The WIR shall be submitted with the drainage study for any proposed land development project. The purpose of the WIR is to identify any impacts or potential impacts to wetlands on-site or down gradient of the project.

The applicant is responsible for demonstrating no impact to on-site and off-site wetlands. The WIR shall contain a wetlands mitigation plan, if the proposed activities will cause any damage,

loss, or change in the functional values of a wetland in the Village.

14.3.1 Wetlands Inventory

The Village has prepared a map of existing wetlands along the Major Drainageways. Figure 2.3 is a regional map showing known wetlands areas. This map is not intended to be a final delineation of all wetlands and is provided only as an initial guidance showing probable wetland areas. For information on the types of plant communities within each wetland boundary, refer to Volume I of the Village's Major Drainageway Master Management Plan. The nonexistence of a designated wetland on the Village's wetlands map does not relieve the applicant from inventorying wetlands on-site or hydraulically down-gradient of the project.

A formal site investigation shall be conducted to evaluate vegetation, soils, and hydrology using the most recent guidance from the COE. If wetlands are found to occur within the project boundary or will be impacted by the project, the applicant shall accurately delineate the applicable existing wetland boundaries.

The wetland delineation shall identify wetland plant communities and the dominant plant species for each type of community. Boundaries and acreage of each plant community shall be provided as part of the wetlands map. The wetlands delineation shall also include an assessment of the wildlife habitat and water quality enhancement functions of the wetland.

14.3.2 Evaluation of Grading Plans

To preserve existing wetlands, care should be taken not to encroach on a wetland with either fill or excavation. Overlot grading should minimize the amount of cut and fill in order to preserve original ground contours in the vicinity of wetlands and natural drainage patterns shall not be altered significantly. Culvert configurations and road and overpass embankments shall be designed to minimize impacts to existing wetlands and to provide drainage as nearly "natural" as possible.

14.3.3 Evaluation of Water Sources

Water sources in and around wetlands shall be preserved to the maximum extent possible. Potential changes in water sources shall be identified and considerations shall be made for replacement of surface and subsurface flow locations, both in number and location, as near as practicable to the previous conditions.

Groundwater flow to wetlands shall be evaluated and preserved to the maximum extent practicable by limiting the amount of impervious area, increasing infiltration within the development to pre-development rates, and preserving the original groundwater flow directions. The WIR shall evaluate groundwater flow patterns and identify mitigation measures to minimize the adverse impacts of the proposal.

14.3.4 Evaluation of Utility Line Locations

Utility lines (water, sewer, gas and electricity) may have to cross drainage channels and wetland areas. When excavation is required through or near a wetland area, no excavated material shall be deposited or stockpiled within the delineated wetland boundary. All materials shall be located outside of the normal high water line of the wetlands. Site restoration shall include the replacement at least of the upper one-foot of material excavated from the wetlands with wetland type soils and stabilization of the material to prevent erosion. To the extent possible, no utility lines shall be located in wetlands.

14.3.5 Evaluation of Detention Facilities

No stormwater runoff shall be discharged directly into wetlands without first being detained on-site in accordance with Chapters 13.0 and 16.0.

14.3.6 Evaluation of Recreational Access to Wetlands

A common use of low areas that may contain drainageways or wetlands is to incorporate hiking and biking trails or linear parks along the route. This is a desirable function of the area but the functions and values of the wetland shall not be compromised.

Trails shall be located along the wetlands edge and outside of the delineated wetland boundary. At regular intervals, trails shall depart from the wetlands to leave significant areas of “safe havens” for the wildlife from human and domestic pet intrusion.

14.3.7 Mitigation

Mitigation includes the efforts to avoid and minimize impacts repair, rehabilitate or restore the affected wetlands, reduce or eliminate the impact, or to compensate for impacts by replacing or substituting resources or environment. When mitigating wetland impacts, the impacted wetlands must be replaced with created wetlands that equal the acreage and functional values of the impacted wetlands. In some cases, the replacement acreage may have to be greater than the impacted wetland to achieve the same function and value.

The mitigation plan shall include a preliminary design of proposed mitigation measures and shall be submitted as part of the WIR. Mitigation of the Village’s wetlands shall proceed in the following order with the most desirable condition listed first and the least desirable listed last:

- 1) Impact Avoidance – The most desirable mitigation technique is to avoid impacts to wetlands.
- 2) Impact Minimization – Where impact avoidance is not practicable and no alternatives exist for the project; on-site minimization shall be utilized. Minimization involves maintaining the functions and values of the existing wetland.

- 3) On-site Compensation – Mitigation efforts shall strive for on-site compensation of disrupted wetlands within the limits of the project when minimization of impacts is not sufficient. Compensation shall be used to offset the unavoidable loss of wetlands communities, wetland functions, and wetland values that existed prior to the project. Compensation may include in-kind replacement or enhancement replacement of wetlands within the project boundary.
- 4) Off-site Compensation – If a project will disturb a larger area of wetlands than can be mitigated on the site (i.e. road fill displacing some wetlands), it may be necessary to mitigate off the project site. This type of mitigation is used when there is insufficient area for on-site compensation or when restoration of the original wetland communities is not desirable (i.e., drainageway development in restricted urban corridors where reestablishment of tree-dominated communities could be detrimental to the success of the project.) Off-site compensation shall occur at a minimum ratio of 2:1 of new to existing wetland area. The off-site compensation shall be located within the Village, preferably within the same major drainage basin.

14.3.8 Wetlands Impact Report Checklist

Table 14-1 is a checklist provided to help the applicant and reviewer make sure that the necessary elements have been included in the WIR. The checklist must be completed and submitted with the WIR.

Table 14-1 Wetlands Impact Report Checklist

Item
1) General Location and Description
a. Location
i. Local streets within and adjacent to the development.
ii. Township, range, section, and ¼ section.
iii. Major Drainageways, drainage facilities, and wetlands near the development.
iv. Names of surrounding developments.
b. Description of Property
i. Area in acres.
ii. Ground cover (type of trees, shrubs, and vegetation).
iii. Major Drainageways and drainage facilities within the development.
iv. General project description.
v. Inventory of wetlands within the development that may be affected by the development.

Item
2) Wetland Mitigation Criteria
a. Regulations
i. Discussion of compliance with or deviation from this Drainage Criteria Manual.
b. Development Criteria Reference and Constraints.
i. Discussion of previous WIR for the property.
ii. Discussion and justification of other criteria or methods used that are not presented in or referenced by this Drainage Criteria Manual.
3) Mitigation Plan
a. General Concept
i. Discussion of impact avoidance and minimization.
ii. Discussion of on-site and off-site compensation.
iii. Discussion of the content of all tables, charts, figures, or drawings.
b. Specific Details
i. Discussion of each measure used to meet the requirements of this Drainage Criteria Manual.
ii. Discussion of mitigation design.
4) Conclusions
a. Compliance with Standards
i. Drainage Criteria Manual.
ii. Compliance with Federal Regulations in 30 CFR Parts 320 through 330 and 40 CFR Part 230, including all consultations with U.S. Army Corps of Engineers.
b. No Net Loss Goal
i. Effectiveness of plan to meet the No Net Loss Goal.
5) References
a. Reference all criteria and technical information used.
6) Appendices
a. Wetlands Inventory
i. Definition of areas.
ii. Vegetation communities.
iii. Function and value of wetland areas.
b. Calculations
c. Assumptions

Item
7) Maps
a. General Location Map
i. A general location map showing the general drainage patterns around the property. The map should be at a scale of 1" = 1000' or 2000' and show the path of all drainage to and from any wetlands. The map shall identify any wetlands or facilities (i.e., irrigation ditches, existing drainage facilities, and storm sewers) along the entire path of the off-site and on-site drainage.
b. Wetland Plan
i. Plan of the proposed development shall be provided at a scale of 1" = 10' to 1" = 200' on 24" x 36" sheets.
ii. A topographic map shall be provided with two-foot existing and proposed contours tied to the Greenwood Village "Control Diagram" (Figure 2-1). The topographic map shall extend a minimum of 50-feet beyond the property lines.
iii. Property lines, easements, and purposes of easements.
iv. Streets.
v. Existing drainage facilities and structures, irrigation ditches, Major Drainageways, and existing wetlands. All pertinent information such as materials, size, shape, slope and location shall also be included.
vi. Overall drainage area boundary and drainage sub-area boundaries.
vii. Proposed storm sewers and open channels, including inlets, manholes, culverts, and other appurtenances.
viii. Water source for wetlands.
ix. Impacted wetlands.
x. Mitigation details.
xi. Location and elevations of all floodplains affecting the property.

14.0	WETLANDS CRITERIA	1
14.1	INTRODUCTION.....	1
14.2	FEDERAL REGULATIONS.....	1
14.3	WETLANDS MAINTENANCE.....	2
14.4	WETLANDS IMPACT REPORT	2
14.3.1	<i>Wetlands Inventory</i>	<i>3</i>
14.3.2	<i>Evaluation of Grading Plans.....</i>	<i>3</i>
14.3.3	<i>Evaluation of Water Sources.....</i>	<i>3</i>
14.3.4	<i>Evaluation of Utility Line Locations</i>	<i>4</i>
14.3.5	<i>Evaluation of Detention Facilities</i>	<i>4</i>
14.3.6	<i>Evaluation of Recreational Access to Wetlands</i>	<i>4</i>
14.3.7	<i>Mitigation.....</i>	<i>4</i>
14.3.8	<i>Wetlands Impact Report Checklist</i>	<i>5</i>