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WETLANDS FACT SHEET

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15

Topic: Wetland Mitigation

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MITIGATION BACKGROUND

Wetland mitigation is a term that refers to a series of steps to offset adverse impacts on wetlands from development. The steps include avoidance, minimization, restoration, enhancement and compensation and must be addressed sequentially. Compensation, or the replacement of wetland functions and acreage, involves a high level of risk and uncertainty. The compensation of wetlands is only considered when the applicant has shown that avoidance, minimization, restoration, and enhancement are not practicable alternatives, and when the applicant has shown that there will be no net loss of wetland functions, values, or acreage.

The federal Clean Water Act Section 404(b)(1) Guidelines provides mitigation regulations at the federal level. These regulations require that "mitigation sequencing" - a series of steps to protect existing wetland resources and compensate for unavoidable losses - be followed in the review of each project subject to Corps of Engineers jurisdiction under the Clean Water Act. The steps which must be followed in this "mitigation sequencing" are: (1) Impacts to the aquatic resource must first be avoided through the selection of the least environmentally damaging practicable alternative. This includes an examination of both on- and off-site alternatives; (2) Once the least environmentally damaging practicable alternative has been determined, appropriate and practicable steps must be taken to minimize on-site impacts to the aquatic resource; and (3) When on-site impacts have been minimized to the fullest extent, compensatory mitigation must be provided for any remaining unavoidable impacts to the extent appropriate and practicable.

Section 8.5 of the Vermont Wetland Rules specifies mitigation and compensation standards for significant wetlands. These standards are similar to the mitigation sequence outlined above. Any person considering a mitigation proposal should carefully review this section before proceeding further. Compensation will not be allowed for impacts to Class One wetlands except in rare cases of compelling public need. The rules create the presumption that the only wetland functions that are replicable with any degree of success are stormwater retention, sediment retention, waterfowl habitat, open space, and aesthetics.

COMPENSATION PROJECT CONSIDERATIONS

Project Goals

In rare instances where all other aspects of mitigation are fully explored, compensation may be considered. Compensation plans must have clearly stated goals. It is essential to know what functions are to be restored, enhanced, or created. In order to do this, adequate studies must be undertaken of the area of impact. The studies should include detailed inventories of vegetation, soils, and hydrology and an assessment of wetland functions. Wetlands Office staff must inspect both the impact sites and the proposed compensation sites before either are disturbed. The functions which are restored, enhanced, or created must, at a minimum, be those

performed by the impacted area. It may very well be possible to produce functions not served by the impacted wetland but this is viewed as an auxiliary result.

Project Planning

Wetland compensation cannot be haphazard. Detailed plans must be developed and approved prior to the commencement of the project. These plans must show property boundaries, streets, buildings, the delineated wetland boundaries, water bodies, elevation contours and other ground surface features at a scale no smaller than 1 inch = 50 feet. In addition, the following is a list of items that should generally be included in the plans.

A. Location and size of the compensation area.

No compensation plan will likely succeed unless the area has the proper hydrology, soil, and vegetation. To fully restore lost values, wetland replacement should be created as near the original wetland site as possible. It is important that the surrounding land uses are compatible with the project goals.

B. A demonstration that it will be possible to achieve the desired hydrologic regime.

Establishing the proper hydrology for the compensation site is of critical importance. The hydrology of the site should be such that it can be maintained with a minimum of tinkering once the project is completed.

C. Proposed excavation and grading methods.

Final grading must be done carefully to avoid ruts or water tracks which could result in undesirable hydrologic regimes. How the equipment will gain access to the site to perform the work and how the work will progress across the site should be discussed. In some situations, it may be necessary to use hand tools to achieve the desired final grade.

D. Source of soils to be used in the compensation area.

It may be very helpful to stockpile wetland soil from the impacted area for use at the compensation site. Regardless of the source of the wetland soil to be used on the compensation site, it should not be stockpiled for longer than two to four weeks in order to limit changes to the biota. The topsoil should be separated from the subsoils so that soils can be replaced at the new location in the order in which they were removed. Topsoil should remain as the surface layer. For organic soils, a more careful stockpiling and replacement plan may be necessary.

E. Location of any temporary stockpiles of soil.

Soils should be stockpiled outside any wetland or designated buffer zone, and away from other surface water. Erosion control measures may be necessary to prevent erosion of the stockpiled soil.

F. Timing of compensation work.

Because it often takes several years to determine if a compensation project will succeed, the wetland compensation should be started prior to, or at least concurrently with, the construction of the project. In this way, problems can be identified and resolved while the contractor is working on the project. By the

time construction of the project is complete the wetland compensation area should be performing the intended functions.

All work should be done after the spring wet season but early enough in the growing season so that vegetation can become well established before winter.

G. A planting plan.

The planting plan should include species to be used, planting schedule, density of planting for each species, and proposed hydrologic regime for each species. Plantings should be carefully selected so that they will be appropriate for the proposed hydrology. The sources of plant materials should be discussed (note: as a rule, transplanting of plant stock from other wetland areas will be discouraged). Only plant species native to the northeastern region should be considered. The Vermont Wetlands Office has information available on plant species and sources.

H. Erosion/sediment control plan.

Sediment control structures, such as silt fences or haybales, used to prevent sedimentation into wetlands and waterbodies, should be shown on the site plan. These barriers must be properly installed and regularly maintained to insure their effectiveness. Sediments need to be cleaned out when they have reached half the height of the fence or haybale, and before major predicted rainfall events. Erosion can be minimized by diverting off-site runoff around the work zone. Diversion should be accomplished with a stabilized ditch or berm. Exposed soils adjacent to the wetland should be seeded and mulched immediately following final grading. If vegetation cannot be quickly established, daily mulching is recommended. Jute mats, or similar devices, may be used on steep slopes until the vegetation has become established to prevent erosion. All temporary erosion control measures must be removed following the successful establishment of vegetation on the project.

I. Monitoring plan.

Long term monitoring of the compensation site will be necessary (at least five years following final construction). See Section 8.5c of the Vermont Wetland Rules regarding specific requirements for timing of compensation projects in Class One and Class Two wetlands. Quantitative measurement of wetland vegetation growth should be performed midway through and near the end of the first and second growing seasons, then annually near the end of each successive growing season for the duration of the required monitoring period. Criteria to measure success should be established.

Replanting or minor revisions of the compensation scheme may be necessary in order to achieve the goals. This may involve additional site work to fine tune the hydrologic regime. A report may be required to be submitted after each monitoring event which assesses relative success or failure of restoration efforts and appropriate corrective actions taken.

Disturbed soils and newly created wetlands are subject to colonization by nuisance plant species such as common reed (*Phragmites communis*) and purple loosestrife (*Lythrum salicaria*) which quickly respond to disturbances of soil or water level. The site should be monitored at least twice annually for five years following construction for the nuisance species. All nuisance plants found shall be pulled by hand and disposed of by burial or burning in a non-wetland location.

Contractors should be aware of the fact that they will be responsible for implementing the plans as designed. There should be a knowledgeable person on-site who can assure that grading, planting, etc.

are done properly. As-built surveys to determine compliance with contract provisions may be required. For large compensation projects, adequate financial surety will be necessary to carry out the proposed compensation including any remedial measures.

Project Review

To save time and money, the developer is encouraged to work with the Wetlands Office and Corps of Engineers Office as early in the planning process as possible. Request a site visit by sending a location map (preferably from a USGS quad or NWI map) and a copy of the site plan with contour information if available.

Both the Wetlands Office and the Corps of Engineers Office commonly recommend that wetlands be delineated and shown on the site plan. A list of consultants willing to delineate wetlands in Vermont is available from the Wetlands Office. **In all cases, projects should be designed to avoid impacts to wetlands and to maintain undisturbed buffer zones.** As a final note, compensation projects may be costly and may require lengthy review periods.

FOR MORE INFORMATION CONTACT:

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