

3/3/16

Sent to Ross and Shapiro for comments
and suggestions.

Earlier Comment / Response Letter

Contamination sampling results - OK

Wildlife habitat as secondary F&V – other impacts to F&V - Done

Review tree removal response from EPS - Done

Loss of watershed from Wet #2, #3 - Done

No capture of runoff from Wet #2 as for Wet #3? - Done

Downstream impacts from I-95 through Van Wie Pond - Done

Treatment of ledge esp for the basins and retaining walls near wetlands ????

Excavation in Creation Area #1 and effects on mitigation ratios – Done

Smart wall plantings appropriate? ????

3/3/2016

1. Feasible and Prudent Alternatives Analysis

MMI raised this topic under its review of direct wetland impacts from the proposed internal roadway and the selected box culvert crossing. At that time the applicant responded that the internal roadway was a requirement of the PDD approval and also presented a variety of box store and parking arrangements very similar in configuration to the existing submittal. The Commission may wish to refer this matter to its Counsel as to whether these responses are adequate to comply with the statutory requirement. For example, it is easy to envision many alternative layouts with less square footage of direct and indirect wetland impact that allow ample development of the three sites. For example:

- a. As the public commented – the gas kiosk is not critical to the proposed commercial use and there are an abundance of such amenities in close proximity to the site. The elimination of the gas kiosk, or its relocation (see next), eliminates the need for the box culvert crossing of the central watercourse (direct wetland impact).
- b. The gas kiosk can be relocated to pad 3, 4, 5, 6 or 7.
- c. The access road from East Industrial Road can be relocated through pad 6, 7 or the developed parcel in-between.
- d. Reduced building / parking footprint will lessen direct/indirect short-term and long-term wetland impacts and impacts to the riparian/wetland buffers.

Wetland #1, although heavily impacted over time, still provides significant wetland functions and values that are important locally and to the expansive wetland resources downstream. There is a diversity of wetland types on-site with overland links to other wetland and upland habitat, especially to the north and east. The removal of the existing buffer area along the west side of Wetland #1 is likely to negatively impact the wetland's functions and values. The proposed mitigation activities (especially the replanting program) will improve the quality and character of this buffer which will in turn benefit the wetland / watercourse. The Commission must weigh the short-term and long-term negative impacts to the wetland against the anticipated economic benefits of the project.

2. Regarding the drainage ditch directing runoff to the 24" RCP at wetland disturbance Area F (see photos below):

The ditch is in poor condition to serve as primary discharge conveyance for this much new, impervious surface. There are down trees/ shrubs, unstable slopes / berms, impedances within the channel especially near 24" RCP. We anticipate that the Applicant will clear the channel of debris that threatens to block the discharge pipe. The 4-8" PVC discharge pipe near the 24" RCP may be impacted by extended flow peaks; if it is still functional.

3. Riparian/wetland buffers serve in many ways to protect and preserve wetland functions and values, including the following, according to CT DEEP publications:

- Trapping sediment / pollutants
- Flood control / reducing runoff impacts
- Stabilizing streambanks
- Moderating water temperature
- Supplying woody debris
- Terrestrial wildlife habitat
- Aesthetic values
- Educational and recreational opportunities
- Others

The loss of riparian/wetland buffers results in negative impacts to wetlands and watercourses. Sometimes these impacts may be temporary as replanting buffers mature. On this site, it is clear that due to the impacts of prior land use over many, many years, the riparian zone is no longer completely effective at providing many of these functions in many places. However, we recommend the following for consideration:

3a Wet pocket / watercourse south of the proposed access drive box culvert will still be viable due to through flow from box culvert and discharge from the detention basin B despite being ringed by access roads and retaining wall. Many of the site's largest trees are found here on both sides of the watercourse. East of the stream, more of these trees are now protected since grading has been revised (wet 142-150). West of the stream however many trees in the 12-50" dbh are to be removed. Despite the proposed mitigation plantings in this area, the loss of the mature forest cover will negatively affect the wildlife habitat value of this remaining wetland pocket for decades. The grove nearest (approximately) wetland flags 100 – 105 seems to be at

great risk from the placement of the two-tiered wall and extensive grading around the terminus of the wall. Recommend eliminating first row of parking south of the proposed bridge – approx. 20 spaces, and/or angle the retaining wall away from the wetland boundary to protect these trees. This leaves some room to relocate walls away from wetland boundary and riparian corridor. Proposed mitigation plantings in the URA in this area will eventually improve buffer function.

3b North of the box culvert and west of the stream several large trees will be impacted by construction of the two-tiered wall. This area constitutes one of the closest approaches to the wetland boundary. Habitat will be improved by saving the two red maples here. These trees will better augment wetland functions and values here especially wildlife habitat if they are better protected by providing another 15-20 feet of riparian buffer. However, the catalpa tree at wet flag #89 is less valuable to the wetland. It can be removed.

3c North of this area, along the entire western boundary of Wetland #1 to the pond at East Main Street, the existing wetland buffer ranges from 40 feet to greater than 100 feet. This buffer, although comprised primarily of low habitat value invasive species, fulfills all of the physical measures attributed to buffers in the listing above and others. The loss of so much of this buffer, down to nothing at the proposed basin discharge to the pond and 5-10 feet in many places leaves the wetland/watercourse with little to no protection in the short term from normal construction impacts. Temporal losses in wetland functions and values will occur, especially to Wildlife Habitat.

And, despite the extensive replanting and monitoring program, it is very likely that long-term, negative impacts will occur to wetland functions and values including:

- Groundwater discharge/recharge (impervious surfaces and curbing)
- Fishery habitat (added discharges to the pond)
- Pollutant removal and renovation (added loading from development)
- Wildlife Habitat (proximity of disturbance, lighting)

3d Augment plantings in the URA near wet flag 81-82, especially trees / shrubs (see similar comment below). The watercourse is at the wetland limit in this location and will benefit from enhanced upland buffers.

3e The Existing Trees Survey (Sheet ET-1) does not extend to the western margin of the pond where there are many mid-sized maples. The proposed Limit of Disturbance approaches this area especially near Wetland Flags 56-58. Please confirm that these trees along the pond will not be removed or negatively impacted by the proposed grading / mitigation here.

3f Despite their relatively low functions and values, Wetland #2 / Wetland #3 will be the only remaining, substantial forested section on the site post-build out. The applicant has proposed enhancement plantings in this area. These wetland areas will continue to provide

modest wildlife habitat if sufficient hydrology is maintained. The reports indicate a reduction in contributory watershed to these areas which may have long term negative effects.

In addition, the large trees to be removed on the east side of Wetland #2, along the old stone wall, should be preserved to conserve Functions and Values of this wetland, especially Wildlife Habitat. This is one of the closest proposed approaches to the wetland boundary on site. We recommend relocating the curved section of retaining wall approximately 20' away from this area and preservation of the stone wall fragment / trees near wet flags 249/226-228.

3g There is no proposed method to capture and convey runoff from wetland area #2 at wet flag #248. Seasonal runoff and large storms may result in spill over onto the steep slope to the drainage ditch below. This is the same issue as was raised at the discharge of Wetland #3 atop the proposed retaining wall.

4. Mitigation Plan

Wetland Creation Area #1 – along the west side of the pond along East Main Street: Recommend avoiding regrading / excavation by heavy equipment along the berm of the pond – go ahead with invasive species removal with hand gear and proposed enhancement plantings (URA category if changed). Reduce number / density of plantings if need be. Applicant may need to re-calculate mitigation ratios due to change from creation to URA enhancement.

Add “Planted Grouping” of trees / shrubs in URA at wet flag #81-82. The watercourse is at the wetland limit in this location and will benefit from enhanced upland buffers.

Suggest heavier weighting of evergreen species in planted groupings especially in URA #1 for better winter wildlife cover (*Juniperus virginiana* – suitable).

Wetland Disturbance Area F: the small area around the existing 24” RCP discharge pipe would benefit from additional removal of invasive species with URA enhancement plantings. This effort might also relieve the threat of blockage to the discharge pipe.

We are not sure that the Mitigation Planting schedule on WM-4 is coordinated with the sheets WM-1 and WM-2. For example, look at Upland Review Area Enhancement Area #3 (URAE #3) southwest of the proposed box culvert crossing near Wetland flag #100. I was looking for trees to replace those to be removed (as discussed earlier). The planting schedule on WM-4 lists 20 trees that will grow to large size (red maple, hackberry, black gum and swamp white oak) but these species do not appear in the planted groupings on WM-1 and WM-2. Please clarify proposed plantings.

5. Downstream Issues

During my site walk after moderate rains and snowmelt (Feb. 17, 2016), there did not seem to be many areas likely to be negatively impacted by an extension of sub-peak flow rates due to possible volumetric increases in runoff.

After outletting under I-95, the watercourse meanders through the Zuwalick Farm / sawmill property which has several non-engineered, stream crossings as well as a silted in farm pond. Any increases in peak flow discharge would have negative impacts here due to the informal (and under-sized) nature of the stream crossings. Under existing conditions, these problems are ongoing and are dealt with as they occur by the property owner. He reports that since the construction of the detention basins upstream, flooding and erosion problems have lessened.

Downstream of the Zuwalick property, the terrain flattens and the stream meanders. There are many low-flow channels and off-line storage areas that mitigate higher volumes of flow. The stream banks are well stabilized by vegetation. Boulders add to the stabilization of the banks. In areas where the slope increases, the stream bottom is armored by gravel and cobbles. Near Van Wie Pond, there is a significant tributary that adds flow from the south of Red Hill Road. The increased flow then approaches the pond. The access drive to the Wanerka property crosses the stream via a non-engineered bridge that is well maintained and in good condition. Inspection showed recent high water marks approximating the through capacity of the crossing. Increases in peak flow are likely to negatively impact the stability and safety of this crossing. The effect of volumetric increases are unknown since the design capacity of the crossing is unknown.

The pond has a large sediment fan just downstream of the Wanerka bridge that has been colonized by aquatic plants and possibly the invasive *Phragmites* which occurs in shallow water around the pond margins. The owner was also of the opinion that sedimentation had lessened since installation of detention facilities upstream. Increases in peak flow might destabilize the sediment fan and extend it farther into the pond. Volumetric increases are unlikely to do so.

Once runoff enters the pond, it is our opinion that volumetric increases will be safely absorbed by the wetland /watercourse system. The Van Wie Pond dam is in good condition and recently re-designed. The outgoing watercourse channel appears stable and suited to offset volumetric increases in flow as stated in the Applicant's supplemental report on downstream impacts.