

*IN THE MATTER OF* : *APPLICATION NO. IW-2003-112*

*UNIVERSITY OF CONNECTICUT* : *APRIL 8, 2005*

***PROPOSED FINAL DECISION***

The parties in the above-referenced matter have reached an agreement and have proposed the attached *Agreed Draft Decision* for my consideration. Upon review of the facts and legal conclusions expressed in the *Agreed Draft Decision*<sup>1</sup>, I adopt it as my *Proposed Final Decision* and recommend that the Commissioner issue the permit that is the subject of this proceeding (Attachment A).

April 8, 2005  
Date

/s/ James Malcolm  
James Malcolm, Hearing Officer

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<sup>1</sup> Applicant's *Agreed Draft Decision* was reformatted in accordance with the standard format of the Office of Adjudications. The substance of the *Agreed Draft Decision* has not been changed.

## ***AGREED DRAFT DECISION***

### ***I***

#### ***SUMMARY***

In September 2003, the University of Connecticut (UConn or Applicant) filed an application for an Inland Wetlands and Watercourses Permit pursuant to General Statutes §22a-39 of the Inland Wetlands and Watercourses Act and General Statutes §22a – 36 through 22a-45. UConn has applied to the Department of Environmental Protection (DEP) for a permit to conduct regulated activities at the UConn landfill and former chemical pits, which are located between Hunting Lodge Road and North Hillside Road on the UConn campus in Storrs, Connecticut. The regulated activities are part of a remedial action plan that includes closing (capping) the UConn landfill and former chemical pits, remediating contaminated sediments, and constructing a parking lot and access road. The DEP required UConn to complete this work pursuant to Consent Order SRD-101, issued to UConn on 26 June 1998, and approved a January 2004 Closure Plan that describes the procedures and specifications to be followed in remediating the landfill and former chemical pits.

The proposed remedial action plan that is the subject of this permit application will have short term impacts on wetlands and watercourses; however, the project ultimately will enhance the wetlands' long-term productivity by improving water quality and sediment quality through the proposed remedial measures (capping, leachate interception, and removal of waste, debris, and contaminated sediments). The project will improve public safety, health, and reasonable use of the property by removing contaminants and improving access to wetland areas for recreation and education. To compensate for unavoidable loss of wetland by filling and/or hydrologic modification, the project includes a mitigation plan that will ultimately improve the resources by restoring disturbed wetland areas, controlling invasive species and preserving open space, and creating new wetland areas to compensate for the loss on a one-to-one basis. The proposed regulated activities will be conducted in accordance with the terms and conditions of the draft permit and consistent with applicable legal standards.

Thus, this permit should be issued in accordance with the terms and conditions of the draft permit. (Attachment A).

## **II**

### **DECISION**

#### **FINDINGS OF FACT**

##### **A**

##### ***Procedural Background***

1. UConn submitted an application to the DEP Inland Water Resources Division (IWRD) for an Inland Wetlands and Watercourses permit in September 2003 for UConn project number 900748. The project site is located between North Hillside Road, Hunting Lodge Road and North Eagleville Road in Storrs. DEP identified the permit application as IW-2003-112. (Exs. APP-1, 2, 12,13.)
2. On December 29, 2004, DEP issued a Notice of Tentative Determination and Opportunity to Comment, announcing its tentative determination to approve application IW-2003-112 and Section 401 Water Quality Certification WQC-200302988. (Ex. DEP-2.)
3. On January 6, 2005, DEP issued a Notice of Public Hearing to the chief executive officer of the Town of Mansfield, to each member of the legislature in whose district the project is located, to the U.S. Army Corps of Engineers (ACOE) and others. The notice was published in the Hartford Courant. (Ex. DEP-1.)
4. On January 11, 2005, a site visit was held.
5. On January 27, 2005, a public hearing was held at the Bishop Center on the Storrs' campus. No public comments pertinent to the application were received at the hearing.

##### **B**

##### ***Project Description***

6. UConn project number 900748 proposes to close the UConn landfill and former chemical pits, and then build a remote parking lot over it. The project is in accordance with DEP Solid Waste Regulations, Consent Order SRD-101 and a DEP-approved Closure Plan. (Exs. APP-1, 2, 7, 13; ex. DEP-9; test. 1/27/05, J. Kastrinos, R. Frigon.)
7. The objectives of the project are to: close the landfill by capping in accordance with current regulations; collect leachate-contaminated groundwater to prevent it from discharging into state waters; cap the former chemical pits to prevent infiltration of rainfall and snowmelt; remediate wetland areas by excavating contaminated sediments

and waste; and construct a parking lot and access roadway to provide UConn with additional parking. The proposed remediation activities are necessary and appropriate to protect human health and the environment. Details of the proposed remediation project are provided in a DEP-approved January 2004 Closure Plan. (Exs. APP-1,2,7; ex. DEP-9; test. 1/27/05, J. Kastrinos, R. Frigon.)

8. The project also will have the added benefit of improving the quality of surface water and sediments in wetland areas peripheral to the landfill, by preventing discharge of leachate-contaminated groundwater to the wetlands, and removing waste and contaminated sediment from the wetland areas. Impacts to inland wetlands and watercourses, with the proposed controls and mitigation measures in place, are minimal and should not adversely affect the functions and values and the long-term productivity of the remaining larger wetland systems at the site. (Ex. DEP-8; test. 1/27/05, J. Kastrinos, S. Yates.)

9. The landfill closure will result in the loss of 1.83 acres of wetlands by filling associated with the remedial actions and post-closure use (indirect hydrologic modification). An additional 2.97 acres of wetlands will be temporarily disturbed by the remedial actions of the excavation and removal of contaminated sediment and soil. The project is expected to impact a total of 4.8 acres of wetlands. (Ex. APP-6; ex. DEP-8; test. 1/27/05, C. Mason, S. Yates.)

## C

### *Site Description and Proposed Modifications*

10. The project site includes the UConn landfill and former chemical pits, which are located in the northwest corner of the Storrs campus. The area is bordered by North Hillside Road to the east/northeast, Cedar Swamp Brook to the north and west, and North Eagleville Road to the south. The landfill is located approximately 2,300 ft northwest of the intersection of Hunting Lodge Road and North Eagleville Road. (Exs. APP-11, 12; test. 1/27/05, J. Kastrinos.)

11. The landfill footprint covers approximately eleven acres with a developed height of approximately thirty feet. Ground surface elevations range from approximately elevation (El) 550 North American Vertical Datum at the northern perimeter of the landfill, to approximately El 603 at the maximum height. The landfill is bordered on the east by a steep hill (drumlin) and on the west by the former chemical pits and sparsely wooded upland areas comprised primarily of deciduous trees. The landfill is bordered to the north by large wetlands that drain northward to Cedar Swamp Brook. The landfill was originally constructed in a low-lying wet area, which included a stream that drained southward to Eagleville Brook. Prior to landfill construction, the drainage divide (between Cedar Swamp Brook and Eagleville Brook) was just north of the landfill's footprint. The landfill's topography has shifted this divide southward such that the divide now bisects the landfill at its highest point. (Exs. APP-1, 2, 6, 7, 12, 13; test. 1/27/05, J. Kastrinos.)

12. Vegetative cover, passive gas vents, drainage structures (including swales and plunge pools) and a gravel access road are present at the landfill. Landfill gases are vented through shallow stone-lined passive vents on the landfill's surface. UConn built gravel roads to reach monitoring wells installed along the flanks and top of the landfill. (Exs. APP-2, 7, 12, 13; test. 1/27/05 J. Kastrinos.)
13. Stormwater runoff flows as sheet flow radially from the center of the landfill outward until it either infiltrates into the existing cover or flows down the landfill's side slopes. Once stormwater runoff has traveled beyond the landfill, the flow either infiltrates into the surrounding natural areas (some of which are wetlands regulated by ACOE) or continues overland to the north and south. The north wetland area is drained by Cedar Swamp Brook, and the south wetland area is drained by tributaries to North Eagleville Brook. The project will cause changes in stormwater drainage. The project site is not located within a Federal Emergency Management Agency flood zone. (test. 1/27/05, J. Kastrinos, C. Mason, S. Yates, C. Chase.)
14. The former chemical pits are located approximately 60 to 80 feet west of the landfill. This is an open and grassy area bounded by a lightly forested knob of shallow bedrock and bedrock outcrop to the north, and lightly wooded forest to the west and south. In 2000, a gravel road was built through the former chemical pits area to improve access to site monitoring wells. (Exs. APP-1, 2, 6, 7, 12,13; test. 1/27/05, J. Kastrinos.)
15. Prior to placing a cap over the landfill and former chemical pits, the project calls for performing dynamic compaction in proposed paved areas to consolidate refuse. Leachate interceptor trenches (LIT) will be installed to the north and south of the landfill to collect leachate-contaminated groundwater and prevent it from discharging into wetlands and surface waters along the landfill's perimeter. (Exs. APP-1,2,7; test. 1/27/05, J. Kastrinos.)
16. The project also consists of building a paved parking lot over the capped landfill. Crushed stone will cover over the cap on the landfill's side slopes. Then, an access roadway will be built to route traffic west from North Hillside Road to the parking lot. No other access routes to the parking lot are proposed. (Exs. APP-1, 2, 7); test. 1/27/05, J. Kastrinos.)
17. A stormwater drainage system will be provided in the parking area to control surface water runoff. Surface runoff from the crushed stone side slopes will be collected by drainage swales at the toe of the slope. Water collected by these systems will be diverted to stormwater ponds that will provide detention storage. The proposed ponds will be located at the northern and southern ends of the landfill. The overall flow patterns for the area will remain generally the same as for existing conditions, and radial overland flow from the central part of the landfill will occur and culminate as overland flow to either the north or south, depending on local topography. (Exs. APP-1-5,7; ex. DEP-7.)
18. Major changes to the existing conditions include: addition of pavement for roads and parking lots; installation of a crushed stone cover on the landfill's side slopes; construction of catch basins; placement of stormwater piping and under drains at the

parking lot; placement of diversion swales near the toe of the landfill; installation of catch basins, storm drains and level spreaders to handle runoff from the access roadway; and construction of stormwater detention ponds at the north and south ends of the landfill. The access road was designed according to the State of Connecticut, Department of Transportation Standards (*Form 815*). (Exs. APP-1, 2, 3, 4, 5, 7; ex. DEP-7; test. 1/27/05, C. Chase.)

19. The proposed drainage systems will control surface water runoff but will not affect the ultimate destination of water discharged from the site. The overall site stormwater system, stormwater ponds and outlets were designed to manage runoff from the 25-year, 24-hour runoff, per Connecticut Solid Waste Regulations. If runoff from the 25-year, 24-hour storm exceeds the catch basin capacity, runoff will initially pond within the parking lot pavement area, then flow over the side slopes and be conveyed via the site surface drainage system to the north or south stormwater ponds. The crushed stone side slopes have been sized to adequately resist potentially erosive runoff velocities of the overland flow. The project's storm drainage system has been adequately designed and there are adequate capacity and appropriate sedimentation and erosion controls. The project will not adversely affect water quality. (Exs. APP-1, 2, 4, 5, 9; ex. DEP-7; test. 1/27/05, C. Chase.)

20. The catch basin system will be installed to manage the stormwater runoff from the parking area. The catch basin piping will discharge to either the north or the south stormwater pond. The catch basins will be fitted with inserts that will filter petroleum hydrocarbons (oils and greases) during low flow conditions ("first flush"). The catch basins will also be fitted with a high flow bypass for maximum design flow. (Exs. APP-1, 2, 3, 4, 5, 7.)

21. The stormwater ponds will be excavated below existing grade, eliminating the need for berms or dikes. Riprap pads for energy dissipation and erosion protection will be constructed at the pond inlets from the catch basin system and the discharge ends of the pond outlets. The north pond will be unlined because there is no need to limit infiltration to the existing soils in this area of the site. The south pond is also located downgradient of the LIT, but it will be lined to address concerns raised regarding the potential effects that local recharge from the pond may have on residual groundwater contamination from the former chemical pits. To address this concern, the south pond will be constructed with a 40-mil LLPE flexible membrane liner as shown on drawing C-7. (Exs. APP-1, 2, 3, 4, 5, 7.)

22. A perimeter drain will be constructed at the toe of the capped side slopes to collect surface runoff. The stone cover to be placed over the FML is coarse-grained and is not expected to be a significant source of sediment. Water collected by the drain will be discharged through multiple outlet points around the perimeter of the site. Temporary sediment and erosion control measures will be left in place for one year after construction to protect adjacent wetlands from the small amount of fines that may be washed from the stone during initial exposures to surface water. (Exs. APP-1, 2, 3, 4, 5, 7.)

23. The project will result in no adverse water quality impacts or increases in runoff. Further, the proposal contained adequate erosion and sedimentation controls, such as the stabilized stone slopes on the landfill's sides. Based on a review of the application materials and engineering drawings (including design revisions proposed by the applicant in its January 17, 2005 submission), staff recommends approval of the remediation project. (Exs. APP-1, 5, 7, 9; ex. DEP-7; test. 1/27/05 C. Chase.)

24. Capping the landfill in accordance with the state's Solid Waste Regulations will result in the loss of 1.83 acres of wetland by filling and/or hydrologic modification. The landfill closure configuration was developed based on a number of engineering considerations and needs, which include: excavation of contaminated sediments within the final cap; consolidation of excavated waste within the final cap; balancing of cuts and fills with respect to the subgrade elevation of the final cap; and maintaining stable exterior side slopes. (Exs. APP-1-7; test. 1/27/05, J. Kastrinos.)

25. Another consideration is the extent of the waste lying north and south of the landfill's topographic footprint that needs to be removed and consolidated within the landfill. (Exs. APP-1-7; test. 1/27/05, J. Kastrinos.)

26. Geometric constraints lying to the east of the site due to the swale, wetland areas and the steep slope upward from the toe of the landfill to North Hillside Road, present an additional engineering consideration. (Exs. APP-1-7; test. 1/27/05, J. Kastrinos.)

27. Another engineering consideration will be the need to manage stormwater runoff during and after construction. (Exs. APP-1-7; test. 1/27/05, J. Kastrinos.)

28. The proposed parking area constitutes a beneficial post-remedial closure use of the landfill. It also will add value to the remediation project-compared to closure with no future use-because it will help serve UConn's current and future parking needs. The proposed post-closure use will not substantially increase the area that will be impacted by the capped landfill. (test. 1/27/05, J. Kastrinos.)

29. A No Post-Closure Use alternative was rejected because the proposed parking area is a beneficial post-closure use, the alternate roadway alignment is impractical and A No Post-Closure Use policy would not substantially decrease the amount of wetland areas permanently lost due to landfill capping and regarding. (test. 1/27/05, J. Kastrinos.)

30. An additional alternative closure plan called for capping the waste in place (meaning within the wetlands) rather than excavating it. This plan was rejected because it would have increased the amount of wetlands permanently lost to project construction. Also, the amount of area temporarily disturbed to perform the remediation would be no less than that already anticipated for the proposed project. *See* June 2004 analysis. (test. 1/27/05, J. Kastrinos.)

31. An additional alternative closure plan called for reducing the landfill's footprint and creating new wetlands along the landfill's perimeter by increasing its height, and then regrading to the higher elevation. This alternative was rejected because it would disrupt landfill waste. Further, compared to the proposed closure plan, this plan was less likely

to improve the functions and values of the existing wetlands. *See* June 2004 analysis. Other alternatives, such as completely excavating and relocating waste or diverting groundwater flow around the landfill, were dismissed as impractical. (Ex. APP-2; test. 1/27/05, J. Kastrinos.)

32. Alternate stormwater pond locations were evaluated and rejected due to site constraints. Some areas were considered impractical for stormwater ponds because significant excavation and bedrock blasting would be required to allow for gravity drainage. Additionally, pumps would be required to transfer the stormwater. It would have required significant capital and energy consumption, as well as increased operational, maintenance and monitoring costs. Also, some of the alternative areas would have encroached on valuable upland habitat. (test. 1/27/05, J. Kastrinos.)

33. Further, an alternate location south of the landfill was rejected because it would not have substantially reduced the acreage of wetlands permanently impacted. It also would have eliminated an area proposed for wetlands creation. (*See* Area A1 of the Wetland Mitigation Plan, submitted June 30, 2004; exs. APP-6, 13, 15.)

34. On-site recharge of stormwater was evaluated as another alternative to the proposed stormwater ponds. This proposal was rejected because it could have increased the volume of leachate-contaminated groundwater without substantially reducing the acreage of wetlands permanently lost. Also, on-site recharge of stormwater would be impractical due to site constraints. Detention/retention structures would be needed. This plan also was rejected because of costs associated with energy consumption, operations, maintenance and monitoring. (test. 1/27/05, J. Kastrinos.)

35. An alternate roadway location was also proposed and rejected. Site constraints made it impractical. Also, it would not have substantially increased the amount of wetlands permanently lost due to landfill capping and regrading. *See* June 2004 analysis. (test. 1/27/05, J. Kastrinos.)

36. Ten wetland areas are located within the project's limits. Wetlands A, B, D, I and J are located within the southern watershed of Eagleville Brook. Wetlands C, F, H, K and L are located within the northern watershed of Cedar Swamp Brook. The wetland areas were accurately described, delineated and depicted. (Ex. APP-15; ex. DEP-7; test. 1/27/05, C. Mason, S. Yates.)

37. The project's potential impacts, functions and values indicate that capping the landfill and former chemical pits, grading the slopes around the landfill's perimeter, and building both the parking lot access road and stormwater ponds would result in permanent wetland losses. Portions of wetlands B, C, D, J, and I will be filled and permanently covered by the proposed project. But portions of wetlands that will be filled are mostly mowed wet meadows existing either on the slope of the landfill, or near the bottom of the landfill's base. These wetlands are largely degraded and of low wildlife habitat value because of past and present human disturbances. Contrastingly, most of the wetlands that will be disturbed during sediment remediation provide good wildlife habitat. (Ex. APP-6; test. 1/27/05, C. Mason.)



38. A majority of the vegetated wetland impact areas are represented by degraded wetlands associated with the landfill and/or wetlands containing invasive plant species, including reed canary grass (*Phalaris arundinacea*) and common reed (*Phragmites australis*). The total area of unavoidable wetlands loss is 1.83 acres, of which approximately 1.5 acres (82%) is disturbed and/or degraded. As a result, project-related wetland impacts (in terms of area and function) have been avoided or minimized to the maximum extent practicable. (Ex. APP-6; test. 1/27/05, C. Mason.)

39. Waste consolidation, landfill capping and grading comprise most of the expected wetland losses. As described in applicant's June 2004 revised Alternatives Analysis, efforts to preserve or restore wetlands at the toe of the existing landfill's slope (e.g., wetlands D, J, I and a portion of wetland C) were investigated. However, these areas are supported, in part, by runoff and groundwater discharge from the landfill. Hydrologic analysis suggests these wetlands will be affected by a reduction in groundwater baseflow and runoff due to capping and post-closure stormwater management. However, impacts to wetlands and watercourses from the proposed project have been avoided and minimized to the greatest extent possible and will be adequately mitigated, with implementation of the conditions in the Draft Permit. (Ex. DEP-8; test. 1/27/05, S. Yates, J. Kastrinos.)

40. The landfill cap, as well as the south and north LITs, will impact the wetlands. Specifically, LIT construction around the northern perimeter of the landfill will impact wetland C, whereas LIT construction around the southern perimeter of the landfill will impact wetlands B, D, and J. Importantly, however, pursuant to DEP Consent Order SRD-101, they will impact the wetlands by reducing discharge of leachate-contaminated groundwater. (Exs. APP-1, 6; test. 1/27/05, C. Mason, J. Kastrinos.)

41. Excavation of leachate-contaminated sediments exceeding the established ecological benchmarks will result in temporary disturbance to wetland area A and three separate areas of wetland C. Work will begin with the installation of a variety of erosion and sedimentation controls, including the installation of a silt fence, hay bales and filter berms made of clean bank-run gravel laid on top of filter fabric. Sediment excavation within wetlands A and C will require removal of herbaceous and woody vegetation within the excavation boundary. Sediment will be removed to a depth of approximately 2 feet below the ground surface using conventional excavation equipment. Sediment quality will be tested during the remediation to confirm that remaining sediments are of acceptable quality. A temporary roadway will be constructed of clean mineral fill or swamp mats within wetland restoration area C North to assist heavy equipment operation and transportation of trucks carrying loads of contaminated sediments. The finished excavation perimeter will be sloped and supplemental soil material will be placed within the excavated areas to restore pre-existing grades. (Exs. APP-6, 17; test. 1/27/05, C. Mason, J. Kastrinos.)

42. The land areas containing wetland restoration areas A, C North, and C West have streams located within the limits of the proposed sediment removal areas. Additionally, several streams are located in wetland F and in other sections of wetland C-areas that are to be filled by landfill regrading. As a result, the streams will be impacted but the

impacts will be mitigated on a one-to-one basis (i.e., length of streambed and bank). (Ex. APP-6; test. 1/27/05, C. Mason.)

43. Wetland A contains a small intermittent stream that begins to flow from an outlet of a culvert located on the southern side of the existing paved walkway. The small stream channel will be altered to perform sediment removal and excavation within portions of wetland A. Stream impacts will be mitigated on a one-to-one basis (i.e., length of streambed and bank). In summary, 180 linear feet of stream within wetland A will be altered, and approximately 180 linear feet of stream mitigation will be provided. (Ex. APP-6; test. 1/27/05, C. Mason.)

44. Wetland C contains two man-made intermittent drainage channels. One of the channels is located within the eastern portion of wetland C, near the overhead electrical transmission line and beaver dam/causeway (the former cart path that led to the gravel borrow area northeast of the landfill). The other channel is located within the western portion of wetland C. The two channels will be altered to remove contaminated sediments from wetland C. In summary, 290 linear feet of stream within wetland C will be altered, and approximately 290 linear feet of stream mitigation will be provided. (Ex. APP-6; test. 1/27/05, C. Mason.)

45. The southern portion of wetland C contains a small man-made intermittent drainage channel that will be filled as a result of capping the landfill and grading the slope. In summary, 130 linear feet of stream leading into wetland C will be altered and approximately 130 linear feet of stream mitigation will be provided. (Ex. APP-6; test. 1/27/05, C. Mason.)

46. Small intermittent streams in the proposed Wetland Creation Area C3 (a former borrow pit) will be affected by proposed construction of the new wetland. In summary, 590 linear feet of stream in Wetland Creation Area C3 will be altered, and approximately 590 linear feet of stream mitigation will be provided. (Ex. APP-6; test. 1/27/05, C. Mason.)

47. The mitigation of wetland C3 should increase the functions and values of that area by creating a better diversity of vegetation and having a connected wetlands system to the existing adjacent wetland C. (Ex. DEP-8; test. 1/27/05, S. Yates.)

48. As described in the mitigation plan, indirect impacts (i.e., temporal impacts due to reduced hydrologic inputs) to wetland areas B, C, D, F and H were evaluated because of leachate interception and stormwater collection. Although there is very little direct impact to wetland B, the entire area was assumed to have indirect hydrologic impacts resulting from the project because the majority of groundwater and surface water inputs to the wetland are from the landfill. Thus, the entire area of wetland B has been counted as a wetland loss and a corresponding acreage of wetland will be created to compensate for this loss. (Ex. APP-6; test. 1/27/05, C. Mason.)

49. Based on a project water balance analysis, the north LIT will capture less than 20% of the estimated total baseflow to wetland C. The large hill (i.e., drumlin) located

east of the landfill contributes the majority of groundwater baseflow and surface water runoff to wetland C. Wetland C's surface water runoff will be maintained by the proposed storm- water management system. Together, surface water and groundwater inputs to wetland C are expected to maintain existing wetland hydroperiods such that no significant impact to the wetland functions, values or area is expected to result from the LIT or stormwater drainage system. (Ex. APP-6; test. 1/27/05, C. Mason, J. Kastrinos.)

50. A small area at the southern edge of wetland D will remain untouched by the proposed project. However, the majority of water supporting wetland D hydrology comes from groundwater discharge or runoff from the landfill. Therefore, the entire area of wetland D has been counted as a wetland loss. Wetlands will be created to compensate for this loss. (Ex. APP-6.)

51. The north LIT ends adjacent to the northern portion of wetland F. Wetland F is located within a low-lying area at the base of the landfill and a small hill located to the west. It receives groundwater discharge from the sloping topography and surrounding uplands to the west. The northern portion of wetland F is located within the lowest topographic elevation of the wetland and therefore receives upgradient groundwater and surface water drainage from the southern portion of the wetland. Surface water runoff and groundwater discharge from the landfill support wetland F hydrology on the east side of the intermittent stream. Thus, this portion of wetland F has been characterized as a permanent wetland loss. An equivalent area of new wetlands will be created to compensate for this loss. (test. 1/27/05, C. Mason.)

52. Wetland H is a small depression located more than 100 feet west of the north LIT. It is primarily driven by precipitation and also receives groundwater discharge from the surrounding uplands to the west associated with Celeron Square. Wetland H is unlikely to be impacted. (Ex. APP-6; test. 1/27/05, C. Mason.)

53. The proposed impacts to inland wetlands and watercourses are minimal and should not adversely affect the functions and values as well as the long-term productivity of the remaining larger wetland systems at the site. (Ex. DEP-8; test. 1/27/05, S. Yates.)

54. DEP and ACOE guided applicant in developing the wetlands mitigation plan. As a result, alternative wetlands mitigation sites were evaluated. Principal criteria used in evaluating the mitigation areas include: (1) protecting valuable wildlife habitat; (2) supporting the desired wetland hydro-period through site hydrology; (3) mitigating invasive and exotic species; and (4) promoting native, local and ubiquitous species proximate to the proposed wetland areas. Some of the native species include autumn olive and common reed (with some multi-flora rose). (test. 1/27/05, C. Mason.)

55. The wetlands mitigation plan proposes creating 1.83 acres of new wetlands and preserving an additional 27.0 acres of wetlands and 33.3 acres of forested uplands, in a 60.3-acre proposed open space preservation area. The proposed mitigation areas meet the basic criteria previously identified. These areas were selected with the benefit of agency input during several on-site reviews. The comprehensive compensatory wetlands

mitigation plan for the project includes a combination of wetlands restoration, creation, enhancement and preservation including: 0.12 acres in wetlands creation area A1; 0.12 acres in wetlands creation area C1 (C1b, C1c, C1d); and 1.59 acres in wetlands creation area C3. (Ex. APP-6.)

56. Together, these creation areas compensate for the 1.83 acres of wetlands that will be lost by filling or hydrologic modification. (Ex. APP-8; test. 1/27/05, C. Mason, S. Yates.)

57. Wetland areas that will be temporarily disturbed by sediment remediation comprise 2.97 acres. The mitigation plan proposes to restore the 2.97 acres in a way that enhances the wetland type, functions and values to the maximum practicable extent. One way to enhance the wetlands is to design open space buffer areas that will be accessible to the public and the university for wildlife viewing and education. (Exs. APP-6, 8.)

58. Even temporarily disturbed wetlands will also receive enhancements. For example, the plan calls for the removal of wastes, fill materials and debris from these wetlands. Additionally, control methods will be used to eliminate and/or reduce the growth of invasive and exotic plant species. Public access to designated open space buffer areas for wildlife viewing and education will be added. (Exs. APP-6, 8; test. 1/27/05, C. Mason.)

59. Mr. Mason testified that the mitigation plan proposes to create new wetlands to compensate for the wetland acreage lost by filling and/or hydrologic modification. Excavating areas adjacent to existing wetlands will create new wetlands. The total acreage of wetlands created will equal the wetland areas lost due to elements of the project such as the stormwater ponds and the closed landfill footprint. Some areas will be slightly larger because of regrading. Additionally, in the wetlands creation areas, soil will be excavated to just below the water table to create an environment that expands existing wetlands. The newly created wetlands will be replanted with native vegetation and monitored to ensure that groundwater flow and runoff are sufficient to sustain a wet environment. The wetlands will be monitored for invasive species posing a threat to native vegetation, and measures will be taken to eradicate invasive species on an as-needed basis. (Exs. APP-6, 8; test. 1/27/05, C. Mason.)

60. In response to a request from the U.S. Fish and Wildlife Service (USFWS), the plan calls for the construction of a vernal pool adjacent to open space located north/northwest of the wetlands, which lay north of the landfill. The vernal pool will be surrounded by a substantial open space buffer zone comprising both wetlands and upland habitat. (Ex. APP-8; test. 1/27/05, C. Mason.)

61. In addition to wetlands creation, enhancement, and restoration, the mitigation plan calls for procedures that will be used to minimize effects on wetlands during the implementation of the remedial action plan. These procedures include installing hay bales and silt fences as well as constructing filter berms (of clean bank-run gravel laid on top of filter fabric) to minimize erosion and siltation of wetlands. Streams will have to be

re-routed around the proposed work areas to minimize entrainment of turbid waters in the excavations during remedial activities. (Ex. APP-6; test.1/27/05, C. Mason.)

62. The plan proposes to monitor mitigation areas, including the proposed constructed vernal pool, for at least ten years to ensure success. ACOE's guidelines and regulations have a five-year monitoring requirement, whereas, DEP guidelines and regulations have a ten-year monitoring requirement. Mitigation areas will be monitored monthly for vegetation, soil and hydrology, effectiveness of erosion and siltation controls, wildlife activity and control of invasive species. Monitoring will be conducted pursuant to the mitigation plan as well as general permit compliance. Remedial actions will be proposed and implemented to correct violations of permit conditions. (Ex. APP-6; test. 1/27/05, C. Mason.)

63. The mitigation plan calls for the preparation and distribution of post-construction and monitoring reports. The reports will provide the following information: (1.) the original or modified mitigation goals and how each has been achieved or not achieved; (2.) significant problems encountered during construction and maintenance of the mitigation site as well as solutions implemented to correct them; (3.) regulatory agency policies and procedures that encumbered implementation of the mitigation plan; (4.) policies and procedures that contribute to less success or less effectiveness than anticipated in the mitigation plan; and (5.) recommended measures to improve efficiency, reduce costs, and/or improve the effectiveness of similar projects in the future. (Ex. APP-6.)

64. In support of this proposal, a letter was received from the USFWS, dated April 15, 2004, stating there were no federally listed, proposed, threatened and/or endangered species-as well as critical habitat-known to occur in the project area. Also, Ken Metzler, DEP's Natural Diversity Data Base, raised no issues and/or concerns. (Ex. APP-6.)

65. Finally, a letter received from the Deputy State Historic Preservation Officer, dated May 7, 2004, indicates the proposed undertaking will have no effect on historic, architectural or archaeological resources listed on or eligible for the National Register of Historic Places. (Ex. APP-6.)

### **III**

## **CONCLUSIONS OF LAW**

### **A**

#### ***Statutory and Regulatory Standard for Permit Issuance***

The purposes and policies set forth in the Inland Wetlands and Watercourses Act are outlined in §22a-41 of the General Statutes. Section 22a-41(b)(1) provides that, where a permit application has been the subject of a hearing, the commissioner must find that there is no feasible and prudent alternative to the proposed action before issuing a permit. In determining whether such an alternative exists, the commissioner must consider all relevant facts and circumstances, including but not limited to, the six statutory factors outlined in §22a-41 (a).

The six factors set out in § 22a-41 (a) are:

- (1) The environmental impact of the proposed regulated activity on wetlands or watercourses;
- (2) The applicant's purpose for, and any feasible and prudent alternatives to, the proposed regulated activity, alternatives to which would cause less or no environmental impact to wetlands and watercourses;
- (3) The relationship between the short-term and long-term impacts of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of long-term productivity of such wetlands or watercourses;
- (4) Irreversible and irretrievable loss of wetland or watercourse resources that would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance or restore such resources, and any mitigation measures that may be considered as a condition of issuing a permit for such activity including, but not limited to, measures to (A) prevent or minimize pollution or other environmental damage, (B) maintain or enhance existing environmental quality, or (C) in the following order of priority: Restore, enhance and create productive wetland or watercourse resources;
- (5) The character and degree of injury to, or interference with, safety, health or the reasonable use of property which is caused or threatened by the proposed regulated activity; and
- (6) Impacts of the proposed regulated activity on wetlands or watercourses outside the area for which the activity is proposed and future activities associated with, or reasonably related to, the proposed regulated activity which are made

inevitable by the proposed activity and which may have an impact on wetlands or watercourses.

## **B**

### ***Application of Findings of Fact to the Statutory and Regulatory Standard for Permit Issuance***

Applying these factors to this permit application, the following conclusions are made:

#### ***1. Environmental Impacts***

The proposed project will result in loss of 1.83 acres of wetlands and disturbance to 2.97 acres of wetlands during the construction/remediation phase.

The project has been designed and planned to reduce short-term impacts on wetlands to the greatest extent possible. Proper erosion and siltation controls are proposed, as are temporary stormwater management structures, all of which will serve to minimize impacts to wetlands and surface waters near the proposed construction and remediation areas to the greatest extent possible.

Short-term impacts will be controlled through the use of sedimentation and erosion controls during construction and control of stormwater. Given the currently degraded state of the wetland areas that will be lost to filling/hydrologic modification, long-term impacts to the surrounding wetland system as a habitat for wildlife and fish will be minimal.

#### ***2. Alternatives***

There are no feasible or prudent alternatives to the proposed project. The “no build alternative” for the parking lot and roadway would not meet the applicant’s goal of increased parking areas, a beneficial post-closure use, and would not substantially reduce the impacts of the project on wetlands. The applicant has adequately demonstrated that the proposed plan is a feasible and prudent choice. The project has been designed to minimize environmental impacts to the greatest extent possible.

#### ***3. Short and Long-term Impacts /Maintenance and Enhancement of Long-Term Productivity***

The record demonstrates that the short-term impacts of the project, primarily due to the construction activities that will be necessary, will be minimized through erosion and sedimentation control measures proposed by the applicant. Proper application of the proposed measures will minimize the temporary impacts to the environment.

The project will improve the functions and values of the existing wetland systems through various enhancement measures, including removal of contaminated sediment and waste from wetland areas, removing rubble fill and trash present at the surface, preventing discharge of leachate-contaminated groundwater, controlling invasive species, and setting aside open space preservation areas contiguous with wetland areas near the project. As a result, water quality and sediment quality in the wetlands will be improved by intercepting leachate-contaminated groundwater, and removing waste and contaminated sediment and replacing those materials with clean fill and topsoil.

This project will impact the environment, both in the short and long-term; however, the short-term impacts during construction will be controlled by the proposed erosion, sedimentation, and stormwater controls and the long-term impacts will be minimal due to the proposed mitigation measures. Ultimately, the project will enhance the functions and values of the wetlands.

#### ***4. Irreversible/Irretrievable Loss of Wetlands and Watercourses Resources and Mitigation Measures***

The proposed project keeps to a minimum the irreversible and irretrievable commitment of wetlands resources. In recognition of wetlands as an indispensable, irreplaceable fragile natural resource, the project is designed to protect existing wetland areas to the greatest extent possible.

The project will improve and enhance some of the functions of the existing wetlands through removal of contaminated sediment, waste and fill/debris. The project will also ultimately improve water quality through interception of leachate-contaminated groundwater. The degraded nature of much of the existing wetlands that will be lost, combined with the proposed creation of additional wetland resources to the proposed project through the Mitigation Plan, assures that the project will not result in an unacceptable loss of irretrievable or irreplaceable wetland resources. In addition, the applicant proposes to further improve the resources by controlling invasive species and preserving open space as outlined in the Mitigation Plan.



***5. Impact on Safety and Health or Reasonable Use of Property***

The project ultimately will enhance the safety, health, and reasonable use of the property by removing contaminants, waste, and fill/debris and improving access to the wetland areas for recreation and education. The temporary impacts to the wetlands do not pose a threat of injury or interference with the public health or safety or the reasonable use of property.

***6. Impacts on Wetlands Outside the Area and Inevitable Future Activities***

The proposed project will not have a negative impact on wetlands outside of the project area. The measures that will be taken during construction will prevent erosion and sedimentation that could encroach upon surrounding wetlands. The proposed wetland enhancement measures, including controlling invasive species, will offset the temporary impacts to wetlands. The proposed wetland creation area and open space areas will benefit the wetland systems that surround the project areas by expanding valuable wetland and upland habitat.

**V**

***Conclusion Recommendation***

The requirements of General Statutes §22a-41(b) have been met by this permit application. The record presented and consideration of all the relevant facts and circumstances pursuant to the six factors outlined in §22a-41(a) demonstrate that there is no feasible and prudent alternative to the proposed project that meets the purpose of the project and that would cause substantially fewer impacts to the natural resources.

The proposed closure of the UConn landfill and former chemical pits will improve water quality and sediment quality in the wetlands and enhance the value of surrounding wetlands as well. The principal objective of the project, to close the UConn landfill and former chemical pits, is also consistent with DEP's mission to protect the environment. The permit that is the subject of this application should be issued.

/s/ Richard A. Miller  
Applicant, University of Connecticut

March 18, 2005  
Date

