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COMMENTS ON INVASIVE SPECIES MANAGEMENT PLANS

I. Mitigation Site at River's End Park

1. EPA recommends that the Invasive Species Control Plan be developed in accordance with the U.S. Army Corps of Engineers New England District (NED) guidance regarding compensatory mitigation and invasive species control, which can be found at the links given below:

http://www.nae.usace.army.mil/Regulatory/Mitigation/CompensatoryMitigationGuidance.pdf

http://www.nae.usace.army.mil/Regulatory/ISP/ISCP_Guidance.pdf

2. Section 1.0 (page 3). The statement that "(i)n the upland brackish marshland new native species will be planted in numbers, precipitating a control and monitoring regimen of common invasive species…" needs to be clarified. It should be made clear that planting of native species and invasive species control shall take place throughout the entire compensatory mitigation area.

3. Section 2.0 (page 3). This section refers to "*Phragmites australis* and other known invasive species…dominant around the periphery of the drainage swale…." It is unclear which drainage swale is being referred to here. It is possible that this language was retained from the invasive species control plan for the facility, or refers to some other location containing a drainage swale. Please clarify.

4. Section 2.0 (page 4). The discussion of the scope of the invasive species removal beyond the "property boundaries of the restoration area" is also unclear. Reference is made to adjacent land not within the control of the Commonwealth. However, the River's End Park site adjacent to the compensatory mitigation area is under the control of the City of New Bedford (who will eventually be responsible for long term maintenance of the mitigation area), and lands within the park proximate to the compensatory mitigation area that may contain invasive species that could adversely impact the wetland creation and restoration area need to be included within the scope of the invasive species management plan.

EPA recommends that the Commonwealth provide a plan sheet showing the extent of the area proposed to be subject to the invasive species control plan, and describing the nature and extent of monitoring and control activities proposed for various areas within the overall invasive species control area.

5. Section 3.0 (page 4). The post-restoration monitoring section refers to the completed restoration of each phased area. Please clarify the term "phased area."

6. Section 3.0 (page 4). The post-restoration monitoring section proposes monitoring after the first growing season and then annually for thereafter for a minimum of five years. This schedule appears to differ from the proposed monitoring schedule in the Final Mitigation Plan, which calls for monthly monitoring for May through October for the first three years and in May and September only for the subsequent two years.

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EPA recommends that monitoring take place three times per year (May, July and September), for a minimum of five years. If the mitigation site is not meeting performance standards, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.

7. Section 3.1 (pages 4-6). The procedures for post-restoration vegetation monitoring include the random placement and monitoring of four 1.0 m vegetation sampling plots (again, within undefined "phased areas"), for the purposes of relative species dominance and frequency. "Spot checks of random areas" for the presence of invasive species is also proposed. We believe that these methodologies are inappropriate to address monitoring and assessment of the success of salt marsh vegetation establishment, and for monitoring and control of invasive species at this site. Given the relatively small size of the site, a more thorough general examination of the entire site seems reasonable to assess both the success of salt marsh establishment and the presence of invasive species.

It is also unclear, given the context of the project, why the methods cited were apparently derived from an Agronomy Journal article on corn yield (Cox, 1996). A more appropriate reference for a salt marsh monitoring protocol can be found at:

http://www.masgc.org/gulfhydrorestoration/documents/13MonitoringSaltMarshVegetationRomanetal2001.pdf

EPA believes that an estimate of percent cover of salt marsh vegetation (in accordance with the planting plan) for each planting zone over the entire site, as determined by the onsite wetland scientist, is adequate to determine success of salt marsh establishment. If more a more detailed monitoring and assessment program is necessary, it should be revised to reflect the more appropriate salt marsh monitoring protocols identified above.

8. Section 4.0 (pages 6-7). This section describing state restrictions on the use of herbicides should also require compliance with any applicable local restrictions on herbicide use.

9. Section 4.0 (page 7). The invasive species control plan should be more specific about the species being targeted for monitoring and control. Certainly *Phragmites australis* is a target species for this site, and there is discussion of its control. An extensive list (Appendix B) of non-native plant species evaluated for invasiveness in Massachusetts is attached to the plan, but no details are provided regarding how this list will be applied as part of the invasive species control plan. (We note that *Rosa rugosa* is listed as a plant not meeting the invasiveness criteria, but that this species is listed in the Corps List of Invasive and Undesirable Plant Species.) More detail is needed on the proposed timing of monitoring and control, as well as a more detailed and focused list of target species.

10. Section 4.0 (page 7). This section states that *Phragmites australis* and other known but unspecified invasive species (listed in Attachment B - see comment above) are the primary target species of concern "observed on the Marine Commerce Terminal Property." The plan for Rivers End Park should be based on site-specific target species with potential to impact the River's End Park mitigation site, rather than on species observed at the facility site.

II. Facility

1. EPA recommends that the Invasive Species Control Plan be developed in accordance with the U.S. Army Corps of Engineers New England District (NED) guidance regarding compensatory mitigation and invasive species control, which can be found at the links given below:

http://www.nae.usace.army.mil/Regulatory/Mitigation/CompensatoryMitigationGuidance.pdf

http://www.nae.usace.army.mil/Regulatory/ISP/ISCP_Guidance.pdf

2. As discussed above regarding the Rivers End Park site, the Invasive Species Control Plan for upland invasive plant species at the facility needs to be more specific about the species being targeted for monitoring and control. Certainly *Phragmites australis* is a target species for this site, and there is discussion of its control. An extensive list (Appendix B) of non-native plant species evaluated for invasiveness in Massachusetts is attached to the plan, but no details are provided regarding how this list will be applied as part of the invasive species control plan. (We note that *Rosa rugosa* is listed as a plant not meeting the invasiveness criteria, but that this species is listed in the Corps List of Invasive and Undesirable Plant Species.) More detail is needed on the proposed timing of monitoring and control, as well as a more detailed and focused list of target species.

3. See comments above regarding Rivers End Park mitigation site for recommendations on requirements regarding monitoring, reporting and standards of success.

COMMENTS ON PLAN SHEETS FOR SALT MARSH CREATION AT RIVER'S END PARK (revised 11/2/12)

1. In the Notes on Sheet 5 (Salt Marsh Construction Guideline, seventh note) EPA shall be notified regarding the need for corrective actions. The note indicates that only the Conservation Commission would be notified.

2. In the same note, the monitoring period is indicated to be two growing seasons. The Plan Sheets for River's End Park should comport with the schedules outlined in the Final Mitigation Plan, modified as detailed above.

3. The requirements, conditions, schedules, etc. specified in the Plan Sheets for Rivers End Park and the two Invasive Species Control Plans must comply and be consistent with the terms and conditions of the Final Mitigation Plan. For example, the Plan Sheets indicate a two year monitoring period, the Invasive Species Control Plans indicate annual monitoring and reporting, while the Final Mitigation Plan indicates monthly monitoring for three years and semiannual monitoring for the following two years.

All Plans, Appendices and other materials related to the Final Mitigation Plan should be reviewed for consistency, and all inconsistencies rectified.

4. In the Notes on Sheet 5 (Salt Marsh Construction Guideline, seventh note), states that at least 75% of the surface area shall be established with indigenous wetland species within two growing seasons. This language should be changed to "at least 75% of the surface area shall be established with indigenous **salt marsh** species within two growing seasons." In addition, plans

should specify that at least 95% of the surface area shall be established with indigenous salt marsh species by the end of the five year period, as extended by any required corrective actions.

5. All on-site work, including but not limited to grading, establishment and confirmation of tidal hydrology, erosion control, planting, and invasive species control should be overseen by a qualified wetland scientist with expertise in the establishment and restoration of salt marsh.

6. On Plan Sheets 2 and 3, fencing is noted "to be determined." EPA recommends use of split rail fencing rather than chain link or similar fencing. This results in a much more porous barrier to wildlife movement, and is less likely to catch trash and other debris. EPA further recommends that signage be placed on fencing to educate the public on the wetland restoration and creation area, and to warn the public to stay out of the area, and of the likelihood of the presence of ticks and poison ivy.

7. The erosion control and sedimentation notes (tenth note) indicate that straw mulch will be placed on denuded soils. Is straw mulch planned to be used in tidally active areas, and if so, is it likely to be effective? Please clarify.

8**.** The Notes on Sheet 5 (Salt Marsh Construction Guideline, eighth note), mentions the provisions of the "subject order of conditions issued by the Conservation Commission." Please clarify.

9. The Notes on Sheet 5 (Salt Marsh Construction Guideline, eighth note), should state that any specific terms and conditions regarding the River's End Park mitigation contained in EPA's Final Determination and Appendices are incorporated by reference.

10. Notes on Sheet 5 (Salt Marsh Construction Guideline, twenty-second note), state that herbaceous salt marsh plants and soils from existing salt marsh areas to be impacted by proposed work shall be transplanted/translocated to the mitigation area or reused to restore the temporarily impacted salt marsh area. The Note should state that impacts to existing salt marsh must be avoided, with the exception of areas of existing salt marsh impacted in accordance with the approved plans for the River's End Park mitigation.

11. The Final Mitigation Plan and accompanying Plan Sheets need to detail soil sampling, pollutant criteria and disposal protocols and methods, to address contaminated soils present on River's End Park site.

COMMENTS ON FINAL MITIGATION PLAN (revised 11/5/12)

1. The Final Mitigation Plan and accompanying Plan Sheets need to detail soil sampling, pollutant criteria and disposal protocols and methods, to address contaminated soils present on the River's End Park mitigation site.

2. Section 9.0 Performance Standards (pages 48-49).

a. Size of Area – (Erosion Minimization)

1. Performance Standard. Area retains **97%** of its land area over time. No justification is provided as to why the mitigation site should lose large areas of land, such as the proposed 10% of the total area of the site. Loss of more than 3% of land area should trigger consultation with EPA and evaluation of need for corrective measures.

2. Performance Period and Monitoring Frequency. EPA recommends that **monitoring take place three times per year (May, July and September), for a minimum of five years. If the mitigation site is not meeting performance standards, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.**

3. Remedial Action if Performance Standard Failure. **In consultation with EPA,** evaluate ecological benefit vs. impact of replacing eroded material. If beneficial, conduct remedial action by replacing eroded material and replanting.

b. Elevation of Planted Area (Subsidence and Accretion Minimization).

1. Performance Standard. Mitigation Area retains design elevation within tolerance of **0.5 foot.** No justification is provided as to why the mitigation site should exhibit such a large range of subsidence or accretion with no consideration of corrective action. The proposed allowable changes in elevation of 1.0 foot could result in profound alteration of tidal hydrology and adversely impact survival of salt marsh vegetation. Subsidence or accretion of greater than 0.5 foot should trigger consultation with EPA and evaluation of need for corrective measures.

2. Performance Period and Monitoring Frequency. EPA recommends that **monitoring take place three times per year (May, July and September), for a minimum of five years. If the mitigation site is not meeting performance standards, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.**

3. Remedial Action if Performance Standard Failure. **In consultation with EPA,** evaluate ecological benefit vs. impact of filling or cutting. If beneficial, conduct remedial action by establishing grade within the stated tolerance.

c. Channeling (Erosion Minimization).

1. Performance Period and Monitoring Frequency. EPA recommends that **monitoring take place three times per year (May, July and September), for a minimum of five years. If the mitigation site is not meeting performance standards, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.**

2. Remedial Action if Performance Standard Failure. **In consultation with EPA,** evaluate ecological benefit vs. impact of filling in channels. If beneficial, conduct remedial action by filling channels and re-seeding and fertilizing.

d. Salt Marsh and Wetland planting survival.

1. Performance Standard. Maintain **> 95% survival of salt marsh vegetation** within the planted plots. The proposed survival rate of only 80% after the full five year monitoring period is not justified. The mitigation site should exhibit a survival rate of 95% after 5 years (extended as necessary to account for corrective actions – see Item 2., below), or corrective actions should be taken.

2. Performance Period. **At the end of the five year monitoring period. If the mitigation site is not meeting performance standard, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.**

e. Invasive Species Control.

1. . Performance Period and Monitoring Frequency. EPA recommends that **monitoring take place three times per year (May, July and September), for a minimum of five years. If the mitigation site is not meeting performance standards, corrective action may be required to assure successful compensatory mitigation. After successful completion of corrective actions, monitoring shall continue for a minimum of an additional two years to assure ongoing success of compensatory mitigation. The five year monitoring period will be extended as needed to accommodate the required two year follow up monitoring period.**

3. The following language, through performance standards (specific to the project), should be included in the narrative portion of the mitigation plan:

MONITORING

Notification of Construction Completion

Within 60 days of completing the mitigation project, the Commonwealth will submit a signed letter to EPA specifying the date of completion of the mitigation work.

If mitigation construction is initiated in, or continues throughout the year, but is not completed by December 31 of any given year, the Commonwealth will submit a letter to EPA providing the date mitigation work began and a description of the work completed as of December 31. The letter will be sent no later than January 31 of the next year.

Monitoring Report Guidance

For each of the first five full growing seasons following construction of the mitigation site, the site will be monitored and annual monitoring reports submitted. Observations will occur at least three times during the growing season – in spring, summer and again in fall. Each annual monitoring report should follow the format provided in the Corps New England District Compensatory Mitigation Guidance, will be submitted to EPA no later than December 15 of the year being monitored. Failure to perform the monitoring and submit monitoring reports would constitute non-compliance with the conditions of the final determination. A self-certification form (see Appendix E of the Corps New England District Compensatory Mitigation Guidance) will be completed and signed as the transmittal coversheet for each annual monitoring report and will indicate the report number (Monitoring Report 1 of 5, for example). The reports will address the following performance standards in the summary data section and will address the additional items noted in the monitoring report requirements, in the appropriate section. The reports will also include the monitoring-report appendices. The first year of monitoring will be the first year that the site has been through a full growing season after completion of construction and planting. For these permit special conditions, a growing season starts no later than May 31. However, if there are problems that need to be addressed and if the measures to correct them require prior approval from EPA, the Commonwealth will contact EPA as soon as the need for corrective action is discovered.

Remedial measures will be implemented - at least two years prior to the completion of the monitoring period - to attain the success standards described below within five growing seasons after completion of construction of the mitigation site. Should measures be required within two years of the end of the original monitoring period, the monitoring period will be extended to ensure two years of monitoring after the remedial work is completed. Measures requiring earth movement or changes in hydrology will not be implemented without approval from the EPA.

At least one reference site adjacent to or near each mitigation site will be described and shown on a locus map.

Performance Standards

[Specific performance standards for the project should be included or referenced here.]