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LETTER AND COMMENTS FROM U S EPA REGION I REGARDING 30% REMEDIAL DESIGN SUBMISSION FOR SITE 1 WEST GATE LANDFILL NAS SOUTH WEYMOUTH MA
12/09/2009
U S EPA REGION I

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I
5 Post Office Square, Suite 100
Boston, MA 02109-3912

December 9, 2009

Brian J. Helland, P.E.
BRAC Program Management Office NE
4911 South Broad Street
Philadelphia, PA 19112-1303

Re: 30% Remedial Design Submission for Site 1, West Gate Landfill

Dear Mr. Helland:

Thank you for the opportunity to review the "30% Remedial Design Submission" for Site 1, West Gate Landfill at the Naval Air Station South Weymouth, dated November 2009. The submission includes the preliminary design drawings and calculations supporting the preliminary design. Detailed comments are provided in Attachment A.

Please include an outline of the specifications anticipated to be used for the design in the revised 30% submission.

Information obtained during the pre-design investigation (PDI) was expected to be included and considered in developing the 30% submission but this does not appear to be the case. EPA therefore questions why the 30% design was submitted so late. The Notes on Sheet C-1 do not reference the PDI report and Section 1.5 only references the Record of Decision. Does any information in the PDI Report change what was presented in the 30% design submittal?
In Appendix C the relative sizes of the sub-watershed (SWS) areas as depicted in the figures and as identified in the calculation tables are not consistent. If the areas have been calculated incorrectly the calculations in Appendix C will have to be redone. Please correct as appropriate.
It appears that most if not all the trees on the western bank of French Stream will have to be removed to construct the proposed landfill cap. Please clarify if that is correct and explain why there is no viable alternative to removal of the trees if that is correct.

Please specify what measures will be undertaken to ensure that French Stream is not contaminated when removing stumps or trees from the bank or installing riprap during construction.

As EPA has stated previously, we encourage coordination between the design and construction of the East/West Parkway and the design of the Westgate Landfill cap. Given that public funding has been committed for the East/West Parkway and the proposed parkway currently runs through the Westgate Landfill footprint, EPA recommends that the Navy consider how the two projects can best be integrated before completing the final cap design documents. As a first step, a meeting among all stakeholders should be held to discuss options for integrating the parkway

layout into the landfill cap design. Changes in cost because of these design changes should also be negotiated and settled before construction.

I look forward working with you and the Massachusetts Department of Environmental Protection to complete the cap on the West Gate landfill. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Dave Barney, USN, South Weymouth, MA
Dave Chaffin, MADEP, Boston, MA
Kevin Donovan, SSTTDC, South Weymouth, MA
Phoebe Call, TTNUS, Wilmington, MA

ATTACHMENT A

Page	Comment
p. 6; §3.2	Please clarify t the frequency of the storm events that produce the listed velocities.
Appendix B, Table 1	a) The drainage geocomposite referenced in Table 1 and the associated text is Tenflow 7100-2. However, the available Tenax products with that identification are either Tendrain 7100-2 or Tenflow 770-2. Please clearly indicate what product will be used. Based on the transmissivity data and slopes it appears that Tendrain 7100-2 is intended. b) The manufacturer's transmissivity data used in the calculations is based on a standard test with conditions not likely to be replicated in the actual application. It is noted that the minimum transmissivity values specified in the Table 1 footnote based on simulating field conditions are 70% of the standard values but these values were not used for design. Please explain. c) Please review the s, b, and I values listed in the table under *Drainage Layer Transmissivity Adjustments* as some appear to be misplaced (angles don't match gradients). d) The biological clogging reduction factor of 2.0 is on the lower end of the recommended range that is generally given as 1.2 to 3.5. This was justified based on the use of low permeability soils. Please revisit this selection as the design progresses to evaluate whether it remains an appropriate choice. e) The drainage safety factor of 2.0 is on the low end of the recommended range of 2.0 to 3.0. The greatest uncertainty in drainage design is generally the estimate of the infiltration rate. f) The gradient under *Topsoil Layers* should be unitless.
Appendix B, Table 2	a) This table lists the soil thickness normal to the slope as 1.5 feet, but it appears to be 2.0 feet. Please correct or clarify the intent. b) Please clarify how the normal depth of saturated soil was determined. It is listed as 0.028 feet.
Appendix C, p. 3 of 11	The second table in Conclusion A indicates that significantly greater runoff will impact the wetland post-construction as compared to pre-construction. The explanation that follows is not clear. The design requires the construction of structures to distribute runoff into the wetlands from the northern area that contributes significantly to the increased runoff volume into the wetland. However, the explanation states that runoff will actually be sheet flow. While runoff from the southern area will be sheet flow the majority of the runoff to the wetland following construction is apparently runoff diverted from the northern

area. This cannot be dismissed. Increased runoff to the wetland is only acceptable if it is managed properly. There is not enough information provided in this submittal to determine how the runoff will be managed and whether that plan is appropriate. A level spreader has not been shown for the western swale outlet to the wetland. Please provide additional details in the next submittal regarding the distribution of runoff into the wetlands following construction.

Appendix C, the p. 4 of 11

a) Please correct the typo for the northern drainage area, this area is Area B per figure on page 7 of 11.

b) No information is provided regarding the selection of the flow paths highlighted for Area A and Area B. Please provide information documenting that these are the appropriate paths to use for the time of concentration calculations.

c) It appears that the time of concentration calculation does not consider the path and associated time for travel in French Stream to the southern end of the landfill. Please clarify why.

Appendix C, p. 7 of 11

Please edit this figure to show the flow paths evaluated to calculate the time of concentration for each of the two areas. It is not apparent from the information on page 4 of 11 where the flow paths are located.

Appendix C, p. 8 of 11

a) There is a disconnect between the information in these tables and the figures supporting these tables. For example, the first table on this page refers to the routing of C2 to Structure 2; however, according to the figure on page 10 of 11, C2 does not flow to Structure 2 it flows to Structure 1 as does A2. (The inconsistent Structure 2 notation is apparently from the SEDCAD4 notation.) The same comment applies to the routing of C1 in the third table. Please correct, perhaps by providing separate figures as necessary for each table on page 8 of 11.

b) Regarding the second table : 1) the Tc information for SWS A1 does not appear consistent with Drawing C-2; and 2) the Tc information for SWS B2 appears to direct the runoff along a ridge, which is an unlikely flow path. Please clarify by providing figures containing the flow paths evaluated.

c) The first segment for C1 in the third table should apparently start at elevation 162 not 152. Please correct.

Appendix C, p. 9 of 11

a) Please provide a figure to show the flow paths evaluated to calculate the time of concentration for each of the two areas.

b) It is not apparent why only C2 is included. Without the swale it appears that much of C1 would also discharge to French Stream. Please correct or clarify as appropriate. Please add a footnote to the table if appropriate to document assumptions made to create this table.

Appendix C, p. 10 of 11	a) Please edit this figure to show the flow paths evaluated to calculate the time of concentration for each of the areas evaluated. It is not apparent from the information on page 8 of 11 where the flow paths are located. b) The relative sizes of the areas as indicated on this figure cannot be correct. A1 is visually much larger than B1, B2, and more than twice the size of A1, and C2 is said to be larger than C1; however, the areas shown on this figure and used in the calculation tables are not consistent with the size of the areas shown in this figure. Please correct. c) The boundaries of the areas shown in the figure are different from the boundaries shown in the figure on page 11 of 11. Please correct as appropriate.
Appendix C, p. 11 of 11	The Legend for this figure identifies B3 but there is no B3 in the figure or in the calculation tables. It appears that the 1.71 acre area labeled as B2 should be B3; however, then it would not correspond with the table on page 8 of 11. Please correct as appropriate.
Appendix C, Attachment B.1	Please correct the title page for this attachment to read '100 yr, 24 hour storm event.'
Appendix C, Attachments C & D	For clarity, please label the title pages of all of these attachments to identify them as post-construction conditions. Label C.1 and D.1 as with the swale and label C.4 and D.4 as without the swale.
Appendix C, Attachment C.1, p. 6	In the third table the vertical distance in the first line should be 5 feet per page 8 of 11 in Appendix C. Please correct this discrepancy here and in subsequent attachments.
Appendix C, Attachment C.2, p. 6	In the second table, the horizontal distance in the first line should be 150 per page 8 of 11 in Appendix C. Please correct this discrepancy here and in subsequent attachments.
Appendix C, this Attachment C.4, p. 6	a) In the first table, please clarify why the runoff from C1 is not also included in this calculation. b) In the second table on the fourth line, the vertical distance should be 11 feet (not 5 feet) per page 9 of 11 in Appendix C. Please correct this discrepancy here and in subsequent attachments.

c) In the second table on the fifth line, the vertical distance should be 1 foot (not 2 feet) per page 9 of 11 in Appendix C. Please correct this discrepancy here and in subsequent attachments.

d) In the third table on the first line, the vertical distance should be 5 feet (not 6 feet) per page 9 of 11 in Appendix C. Please correct this discrepancy here and in subsequent attachments.

Appendix C, Attachment D.1, p. 2	The design storm should be 100 yr – 24 hr. Please correct.
Appendix C, Attachment D.3, p. 6	In the second table the fifth line has all zeroes. This is not consistent with page 8 of 11 in Appendix C.
Appendix C, Attachment D.4, p. 2	The design storm should be 100 yr – 24 hr. Please correct.
Appendix C, Attachment E.3, p. 6	In the second table there should be a fifth line item for SWS 1 per page 8 of 11 in Appendix C. Please correct.
Appendix C	a) Regarding the velocity calculations at the end of this appendix, it appears the time of concentration calculation should include the travel time in French Stream for the northern-most sheet flow path. With a stream flow distance of 436 feet this would add about 0.08 hours to the time of concentration. However, it is not clear why the time of concentration was calculated as it was not used in the velocity calculation. Please clarify. b) On the Overland Flow sheet labeled page 2, a Manning's n of 0.24 was used in the table however, the input data below the table assumes Manning's n of 0.04, which is appropriate for channel flow. Please clarify why a Manning's n appropriate for sheet flow was used with a channel flow calculation. Please provide a more detailed description of the intent and rationale.
Sheet C-1	None of the pre-design investigation (PDI) data points have been included on this figure. Please include data from the PDI and consider it in the design.
Sheet C-2	a) Although the proposed fence would not prevent access to the site, the level spreader probably should not be located outside the perimeter fence. b) Considering the topography, it is not clear that the level spreader would produce an acceptable discharge velocity. Please provide design criteria and additional details in the next submittal.

c) The limit of the landfill cap along French Stream is shown at elevation 145. This elevation is apparently only about one foot above the elevation of French Stream which appears to be at elevation 144. Does this design prevent the 100-year storm from rising above the toe of the landfill cap?

d) Please clarify that the limit of the landfill cap depicted on this sheet includes the rip rap shown in Detail 2 of Sheet C-3.

Sheet C-3

a) Detail 5 is said to depict the diversion swale along the east side slope; however, according to Sheet C-2, the slope of the cap upgradient of the swale along the east side is always 5% not 15% as shown. Please correct as appropriate or explain why the detail is correct as shown.

b) For clarification, edit the note for Detail 3 to read: "Landfill cap shall extend a minimum of five feet beyond the limits of waste left in place."

c) Regarding Detail 2, it is not apparent how the rip rap could extend up to elevation 147 on a 15% slope if the toe of the slope is at elevation 145 as seems to be indicated by Sheet C-2. Please clarify.

d) Include the elevation of the 100-year flood in Detail 2.