

Scott Gustin

From: Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov>
Sent: Thursday, March 16, 2017 2:26 PM
To: dmarshall@cea-vt.com
Cc: 'Jack Wallace'; Scott Gustin
Subject: RE: Proposed Burlington Harbor Marina Project-Floodplain

Hello all,

In reviewing the updated site plans, it appears that the design will address the question about what development may be located within the SFHA, and therefore under the review of the City.

As I had stated in my earlier email, the buildings that are designed to float would appear to meet the FEMA definition of a functionally dependent use:

A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

FEMA regulations do allow for a variance from the non-residential building elevation requirements for functionally dependent uses. If a variance from the City's building elevation requirements is being considered for the floating marina buildings, FEMA's regulations state:

Under limited circumstances, variances may be issued for functionally dependent uses provided that the structure is protected by methods that minimize flood damages during the base flood and there are no additional threats to public safety.

The City's DRB would need to be able to make a finding that the protection methods proposed by the applicants would ensure that there are no additional threats to public safety. As I said in earlier emails, we would typically be looking at the protections measures taken to reduce the potential for fuel or sewage spills. As David had stated below, the flexible sewage line is designed to allow for the rise and fall of the dock. The DRB will need confirm that the line would be able to allow the bathroom building to float at least to the BFE (101.6' NAVD 1988) and be able to withstand anticipated wave action when the Lake is at the BFE, which should be somewhat minimized due to the breakwater. However, I would strongly recommend that the all of the flexible lines and any other systems be designed with the 2011 Lake flooding water and wave heights in mind.

As for the structures that are located below the BFE, the DRB should confirm that the dock and pier systems will be adequately anchored for water levels at the BFE, and should design the anchoring system to withstand wave forces as well.

Lastly, David had confirmed that the underground fuel storage tank will have a portion of the tank located below the BFE, and has been designed to incorporate tie-down straps. The DRB should confirm that the tank tie-down straps have been designed to withstand buoyancy force for the tank during a base flood.

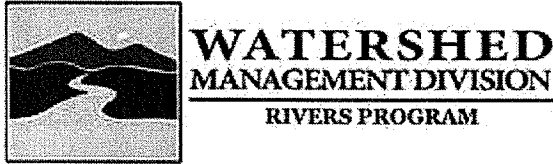
This was a general overview of the redesigned project, but I wanted to provide some comments to the DRB for consideration at their hearing. One of the primary things for the DRB to consider is whether to issue a variance from the non-residential building elevation requirements, and if so, to have findings that demonstrate that the structures are protected by methods that minimize flood damages and that there are no additional threats to public safety. All of the development that is located within the SFHA would need to meet Burlington's standards for all development in 4.5.4(f)8.c(i)-(iii) & (v), and the standards for water supply and on-site disposal systems (4.5.4(f)8.F & G).

Please let me know if there are questions, or if there are any additional changes to the design that would require additional review.

As always, other State, Federal or local permits may be required for this project. The VT DEC Permit Specialist for your region should be able to help identify any other State Environmental Permits that may be necessary. These comments are offered in accordance with 24 VSA §4424.

Please let me know if you have any additional questions or would like to further discuss,

Rebecca



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PLEASE NOTE MY NEW EMAIL ADDRESS: Rebecca.Pfeiffer@vermont.gov

Flood Ready Vermont: <http://floodready.vermont.gov/>
VT Floodplain Management Blog: <http://vtfpm.blogspot.com/>
VT ANR Natural Resources Atlas: <http://anrmaps.vermont.gov/websites/anra/>
River Corridor & Floodplain Protection Website: <http://dec.vermont.gov/watershed/rivers/river-corridor-and-floodplain-protection>

From: David Marshall [mailto:dmarshall@cea-vt.com]
Sent: Tuesday, March 14, 2017 12:24 PM
To: Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov>
Cc: 'Jack Wallace' <jwallace@gmavt.net>; Scott Gustin <SGustin@burlingtonvt.gov>
Subject: RE: Proposed Burlington Harbor Marina Project-Floodplain

Hi Rebecca-

After discussing the City's zoning regulations with Scott Gustin, we have revised the plans to relocate all of the non-floating project components to locations outside of the Flood Plain limits (NAVD 88 101.6) except for the gangway anchors/landings which are considered to be a functionally dependent (recreational) use exempt from the regulations.

Please find attached the revised site plan (and an 8.5x11 enlargement as Sheet C2.2A) which includes a highlight of the 101.6 jurisdictional limits.

The specific changes made to the plan include:

1. The emergency generator and electrical disconnect south of the south gangway were consolidated at a location upgradient of the 101.6 contour.
2. The south gangway landing was moved to the south to tie into the existing grade at a point located above the 101.6 Flood plain elevation.
3. Modify the width of the connecting walkway from the north gangway landing to the south gangway landing so that all work is located above elevation 101.6.

All of the other subsurface work is located in the white (non-floodplain) non-jurisdictional portion of the attached Flood Hazard Map zoning map.

Best Regards

David S. Marshall, P.E.
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P 802-864-2323 x310 F 864-2271

From: David Marshall [mailto:dmarsshall@cea-vt.com]
Sent: Monday, March 13, 2017 5:40 PM
To: 'Rebecca.Pfeiffer@vermont.gov'
Cc: 'Jack Wallace'
Subject: RE: Proposed Burlington Harbor Marina Project-Floodplain

Hi Rebecca-

Jack Wallace from Burlington Harbor Marina asked that I follow up with you with regard to the flood plain limits in the vicinity of the proposed marina project.

Attached is a site plan (Sheet C2,2) which has highlighted the 101.6 contour line. This mapping work is based on the NAVD 88 datum (see plan notes) as depicted on the attached existing conditions bathymetric survey map.

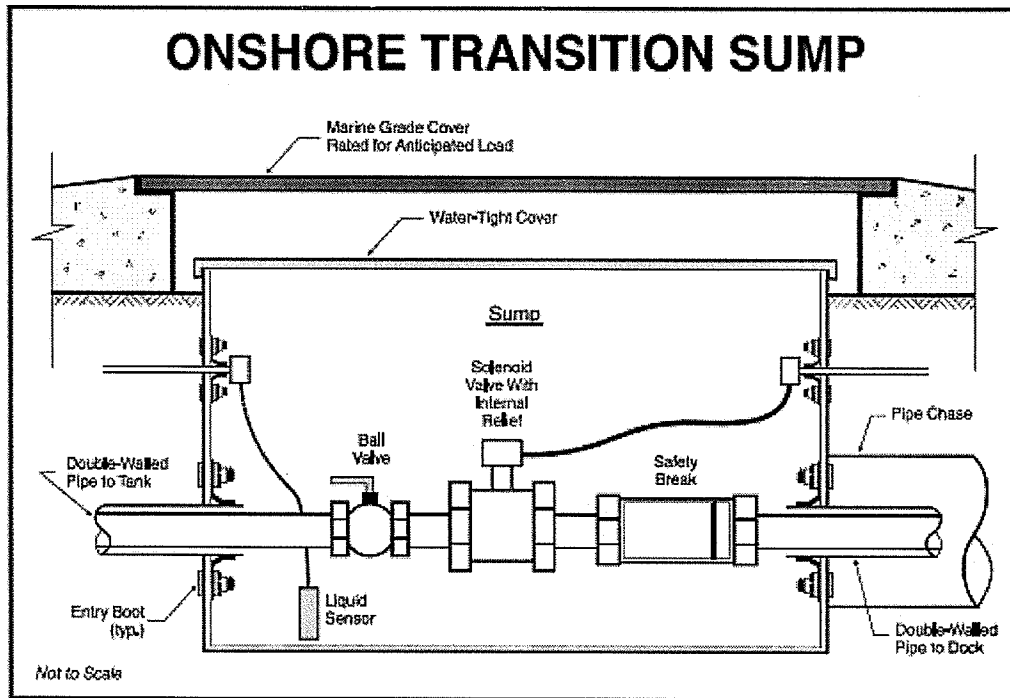
From your narrative below we have inserted our comments in (parenthesis)
From the plans and the information you provided, it appears that both some parts of the upland improvements and the in-water docking infrastructure including the fuel hut (The structure is placed on the floating dock which will always be above the lake flood level), bath house (the same as the fuel hut), transformers (actually these are located above the 101.6 elevation), marina support building (This is located above the 101.6 elevation) and the gangways (The landing platforms for the gangways are located below the FEMA Special Flood Hazard Area (SFHA)), etc. would be part of the local flood hazard area review.

Your narrative goes on to recommend:

I would recommend including the boundary of the FEMA Special Flood Hazard Area (SFHA) on your site plans, including the detailed upland improvement plans (This has been completed) . This would help to clarify if some of the upland infrastructure, like the emergency generator, underground fuel storage tanks (The top of the tanks are located above the FEMA flood limits. The below grade portion of the tanks are located below the 101.6 flood level but have been designed with tie-downs to prevent floatation), etc. are located within the SFHA and therefore be reviewed under Section 4.5.4(f) of the Burlington regulations.

We concur with your observation that the.

With regard to the fueling pipe work, the double wall pipes will terminate at a Transition Sump which will monitor for spill or water infiltration which will automatically shut off the fuel



pumps.

The water supply is isolated at the shoreline with curb stops. The sewer force main is constructed of high pressure rated flexible piping with slack on the gangway that can withstand the elevation changes between the floating dock and the land side landing.

The water supply

With regard to those features that are not considered to be functionally dependent uses, we look forward to your input on the best management practices that would be prudent to employ beyond those already identified.

Best Regards

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From: Pfeiffer, Rebecca [mailto:Rebecca.Pfeiffer@vermont.gov]

Sent: Tuesday, February 28, 2017 11:48 AM

To: Monica Beers <MonicaB@kas-consulting.com>

Cc: Jeremy Roberts <JeremyR@kas-consulting.com>; Clare Santos <ClareS@kas-consulting.com>; Scott Gustin <SGustin@burlingtonvt.gov>; Stickney, Michaela <Michaela.Stickney@vermont.gov>

Subject: RE: Proposed Burlington Harbor Marina Project-Floodplain

Hi Monica,

Sorry for the delay in getting in touch about the floodplain impacts for the proposed Burlington Marina.

With a project on Lake Champlain, the main concern for floodplain impacts is any of the development that is located below 101.6' (NAVD 1988), and would be part of the City of Burlington's permit review under their Natural Resource Protection Overlay District (Section 4.5.4(f) of the Burlington Comprehensive Development Ordinance). For a project like

this, there is no state permit for floodplain considerations, but we provide technical assistance to the municipality responsible for the local flood hazard area permitting.

From the plans and the information you provided, it appears that both some parts of the upland improvements and the in-water docking infrastructure including the fuel hut, bath house, transformers, marina support building and the gangways, etc. would be part of the local flood hazard area review. I would recommend including the boundary of the FEMA Special Flood Hazard Area (SFHA) on your site plans, including the detailed upland improvement plans. This would help to clarify if some of the upland infrastructure, like the emergency generator, underground fuel storage tanks, etc. are located within the SFHA and therefore be reviewed under Section 4.5.4(f) of the Burlington regulations.

For past marina projects, we have typically advised the municipality to consider the docks and other floating support buildings as “functionally dependent uses” which can be allowed in the flood hazard area. FEMA’s definition of a functionally dependent use:

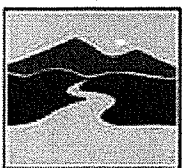
A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Under limited circumstances, variances may be issued for functionally dependent uses provided that the structure is protected by methods that minimize flood damages during the base flood and there are no additional threats to public safety.

From past reviews of marina infrastructure, the main considerations would be the design of the buildings and infrastructure, which we would recommend to meet Burlington’s standards for all development in 4.5.4(f)8.c(i)-(iii) & (v), and the standards for water supply and on-site disposal systems (4.5.4(f)8.F & G). We would also recommend that the bath house, fuel hut, transformers (presumably located on the transformer pads) and any other floating marina building demonstrate that the design would minimize potential threats to public safety. This would most likely include some sort of procedure to ensure that there is no fuel, oil or other hazardous materials in the fuel hut or around the docks during times of flooding, or that potential hazardous material connections be outfitted with shut-off valves or other safety measure. This would be to minimize the risk of a spill if there are waves that damage or overtop the building during flooding (not sure what type of waves the attenuators are designed for). This could be achieved by including a procedure in your comprehensive spill prevention plan.

This review would be a part of the City of Burlington’s permit review, and we provide recommendations and technical assistance to ensure that the minimum FEMA standards for flood hazard development have been met. I would be happy to meet with you and Scott Gustin of Burlington’s Planning & Zoning department if you have any questions or would like to discuss.

Rebecca



**WATERSHED
MANAGEMENT DIVISION**
RIVERS PROGRAM

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PLEASE NOTE MY NEW EMAIL ADDRESS: Rebecca.Pfeiffer@vermont.gov

Flood Ready Vermont: <http://floodready.vermont.gov/>

VT Floodplain Management Blog: <http://vtfpm.blogspot.com/>

VT ANR Natural Resources Atlas: <http://anrmaps.vermont.gov/websites/anra/>

River Corridor & Floodplain Protection Website: <http://dec.vermont.gov/watershed/rivers/river-corridor-and-floodplain-protection>

From: Monica Beers [<mailto:MonicaB@kas-consulting.com>]

Sent: Friday, January 27, 2017 9:53 AM

To: Pfeiffer, Rebecca <Rebecca.Pfeiffer@vermont.gov>

Cc: Jeremy Roberts <JeremyR@kas-consulting.com>; Clare Santos <ClareS@kas-consulting.com>

Subject: Proposed Burlington Harbor Marina Project-Floodplain

Dear Ms. Pfeiffer:

I am contacting you on behalf of the Burlington Harbor Marina, LLC. who are currently in the planning stages of building a marina in Burlington Harbor. We need to determine if the proposed project will impact the floodplain of Lake Champlain and if any other action is needed. Please let me know if this is something that you could help with. I have attached the site plans for the project for you to review.

Please let me know if this something that you would be able to help with and if there is any other information that you need. Thank you for your help.

Best,



Monica Beers

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