

Memo

8/30/2016

From: Carmen O. Vanier, P.E.

Company Name: WSP|Parsons Brinckerhoff

To: Evan Bourquard, AIA, LEED BD+C Associate

Company Name: schacht | aslani architects »

This memo presents a summary of our review of the existing Main Base and South Base stormwater systems, provides an overview of the project thresholds, and identifies any specific concerns related to potential future development.

ASSUMPTIONS/NOTES:

This memo is based on the following assumptions:

- The storm water pond/feature located on the south end of the South Base is not a federally or state regulated water body.
- This memo is provided for the Main Base and South Base only. It is assumed that the East Base site would be handled separately as a “stand-alone” development. Same assumption applies to the West Base.
- No specific site plan has been evaluated. This memo is intended to be a high level overview of the future civil/stormwater requirements/concerns.
- This memo assumes that the existing infiltration system located on the Main Base is still functioning adequately, with no known deficiencies.

MATERIALS REVIEWED:

The following materials were reviewed in preparation of this memo:

- The following correspondence between Pierce Transit, the Corps of Engineers, and the Department of Ecology:
 - February 16, 2005 letter from the Department of the Army, Seattle District, Corps of Engineers
 - March 14, 2005 letter from the State of Washington Department of Ecology
 - April 26, 2005 letter from the State of Washington Department of Ecology
 - June 21, 2005 letter from Pierce Transit
 - August 17, 2005 letter from the State of Washington Department of Ecology

- Pierce Transit Stormwater Optimization Development Plan prepared by KPFF Consulting Engineers dated December 6, 2005
- Stormwater Infiltration Evaluation - South Base prepared by GeoEngineers, Inc. dated February 14, 2005
- Conceptual Site Plan - South Base prepared by KPFF Consulting Engineers dated September 1, 2005
- Finish Grading and Paving plan for the Main Base prepared by MMA dated May 14, 1986
- Chapter 12A.11 - Stormwater Management of the City of Lakewood Municipal Code
- Department of Ecology Stormwater Management Manual for Western Washington (DOE Manual)

SUMMARY OF EXISTING CONDITIONS:

Main Base

- Consists of 19.3 acres and includes an administrative building, maintenance building, fuel and wash facility, money-counting facility, fleet and employee parking areas.
- Main Base is fully developed, has a functioning infiltration system with no known deficiencies, and no treatment facility for the runoff. Treatment of stormwater was not required at the time of development of this site.

South Base

- Consists of 11.8 acres and includes a training center and employee and fleet parking. The southern, undeveloped portion of the site contains a stormwater facility which currently receives, manages and treats stormwater runoff from the developed portion of the site.
- Self-sustaining from a stormwater perspective. On-site runoff treatment and infiltration provided for existing improvements via biofiltration swales which treat runoff prior to discharging to the manmade stormwater facility where flows are fully infiltrated.
- City of Lakewood has been discharging runoff from a roadway overflow system located in 100th Street into the South Base pond during large storm events.

STORMWATER THRESHOLDS/MINIMUM REQUIREMENTS EVALUATION:

The minimum requirements evaluation presented below is based on the requirements outlined in Chapter 12A.11 - Stormwater Management of the City of Lakewood Municipal Code.

The focus of this evaluation is to determine the need for applying Minimum Requirement #6 - Runoff Treatment and Minimum Requirement #7 - Flow Control to any future development on the Main Base and/or the South Base. Other Minimum Requirements may also apply and will need to be evaluated as development options are explored in more detail. However, the focus of this evaluation is limited to runoff treatment and flow control, as these generally have the biggest cost implications.

Both the Main Base and the South Base have 35% or more of existing impervious coverage. Based on Figure 11.1 of Chapter 12A.11, both sites would be subject to the Redevelopment Minimum Requirements outlined in Figure 11.2 of Chapter 12A.11.

Below is a summary of the thresholds and minimum requirements outlined in Figure 11.2:

- If the project adds 5,000 SF or more of NEW impervious surfaces, then flow control and runoff treatment apply to NEW impervious surfaces only.
- If the project adds 5,000 SF or more of NEW plus REPLACED impervious surfaces, AND the value of the proposed improvements (including interior improvements) exceeds 50% of the assessed value (or replacement value) of the existing site improvements, then flow control and runoff treatment are required for both NEW and REPLACED impervious surfaces.
- Construction of a stormwater treatment facility is required if the project adds > 5,000 SF of PGIS (Pollution Generating Impervious Surfaces).
- Minimum Requirement #7 - Flow Control is waived for sites that will reliably infiltrate on-site ALL runoff from impervious surfaces.

Note that in general, redevelopment projects have the same requirements as new development projects in order to minimize the impacts from NEW impervious surfaces. However, in order to not discourage redevelopment projects, REPLACED impervious surfaces aren't required to be brought up to new stormwater standards unless the noted cost or space thresholds are exceeded. Based on this criteria, the assumption is that any existing impervious surfaces that are not touched as a result of any future improvements are not required to be brought up to current standards.

The thresholds and assumptions outlined above will need to be reviewed with the City of Lakewood for all site specific development plans, as the DOE Manual does state that local

governments may institute different guidelines for the retrofit of replaced impervious surfaces on a project site. Local governments are also allowed to institute a stop-loss provision on the application of stormwater requirements to replaced impervious surfaces. A stop-loss provision is an upper limit on the extent to which a requirement is applied.

EVALUATION OF SOUTH BASE STORMWATER FACILITY

Expanding the existing South Base site to include additional development on Parcel B is one option that has been considered and investigated as part of the on-going base expansion effort. This would require modification to the existing stormwater facility currently located on the south part of the South Base site.

Based on review of the Stormwater Infiltration Evaluation - South Base prepared by GeoEngineers, Inc. dated February 14, 2005, the depression on the south side of the South Base is underlain at shallow depths by relatively low permeability glacial till, which is generally not suitable for infiltration. Any modifications to the existing stormwater facility would require additional evaluation of the infiltration rates to confirm the feasibility of using infiltration to provide runoff control for any new development.

Additionally, this same report indicates that the elevation of the shallow, regional groundwater table was at or near the bottom of the closed depression during some of the geotechnical site visits, and a groundwater mound likely develops beneath the depression area during wet winter months. The current DOE Manual requires 3'-5' of separation between the seasonal high-water mark, bedrock (or hardpan) and other low permeability layers and the base of an infiltration facility. Any modifications to the existing facility would likely require additional analysis/consideration based on these criteria to confirm the feasibility of infiltration for use in providing control of stormwater runoff from new improvements.

CONCLUSIONS:

- Runoff treatment and flow control would be required for all NEW impervious surfaces exceeding 5,000 SF.
- The requirement for runoff treatment and flow control for REPLACED impervious surfaces would be largely dependent on the magnitude and cost of the proposed improvements.
- If the intent is to modify the existing stormwater facility located on the south side of the South Base site to provide infiltration for any new improvements, then the infiltration rates and groundwater separation requirements will need to be evaluated to ensure conformance with current standards. If it is determined that infiltration is not feasible, the project will need to be re-evaluated to determine an alternate method for providing the required flow control (conventional detention, etc.).