

The Residences of South Brookline

Zoning Board of Appeals
Presentation

April 10, 2014



BETA Comments – CHR Response Presentation Format

- **General Responses to Comments**
 - Site Demolition, Earthwork and Site Preparation
 - Site Plans Details and Site Access
 - Utility Services
 - Landscaping and Lighting
 - Environmental and Cultural Impacts
 - Stormwater Management System
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BETA Comments – CHR Response

Site Demolition, Earthwork, and Site Preparation

- **General Responses**

- Earthwork numbers can be provided for review in working session with BETA
 - Construction routing, phasing and construction mitigation plans will be provided by the project general contractor in coordination with traffic consultant and construction manager.
 - Blasting will be done in strict conformance with all State local regulations and with required permit from the Fire Department. Blasting Plan is required as part of that process.
 - A pre-blast survey will be conducted
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BETA Comments – CHR Response

Site Plans and Details and Site Access

- **General Responses**

- Exercise stations will be relocated on site and will be indicated on plans
 - Trash and recycling locations will be indicated
 - Will review ingress/egress questions during working session
 - Will provide re-grade alternative to 10% grade concern at Asheville Road
 - Other comments will be addressed in the working session
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BETA Comments – CHR Response

Landscaping and Lighting

- **General Responses**

- Planting quantities will be provided
 - Will consider tree species alternatives
 - Will provide additional screening in parking areas and other suggested planting additions and will review in the working session
 - Will provide more planting design detail at Building 13
 - Will provide requested planting details and seed/sod mix and locations
 - Will review lighting suggestions and alternatives at the working session
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BETA Comments – CHR Response

Utility Services

- **General Responses**

- Will provide capacity and flow analysis
 - Will review pump station design in working session
 - Will show locations of other utility services
 - Will review fire hydrant locations in working session
 - All existing services to be cut and capped at main or manhole
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BETA Comments – CHR Response

Environmental Impacts

- **General Responses**

- Area between buildings 4&5 has hydrological connection to the municipal system so can't be a vernal pool
 - Agree that porous pavement and LID technique and BMP will work well to address pollutants
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BETA Comments – CHR Response Stormwater Management System

- **General Response**

- We take agree with a number of BETA's comments, and subsequent submissions of plans/calculations will address a number of other comments
 - Majority of the focus is related to Porous Pavement and DEP Stormwater Management Standards
 - We will formally respond to all comments in writing – we suggest that this be done after a working meeting with BETA where many comments can be clarified and / or resolved
 - Presentation to address the major theme of the comments – issues related to Porous Pavement and DEP Stormwater Management Standards
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BETA Comments – CHR Response

Stormwater Management System

- **Comments we take no exception to:**
 - Impermeable barrier to be designed at intersection of porous asphalt and Independence Drive.
 - Provide flow arrows on all drainage lines
 - Grade all access driveways towards curb lines and catch basins
 - Additional area drains to be provided between several buildings and abutting properties
 - Provide hydraulic analysis for closed drainage system
 - Revise Tc calculations for existing conditions > 2 acres
 - Boring Logs – Will be provided
 - Revise location of Stormceptor from CB3 to DMH6
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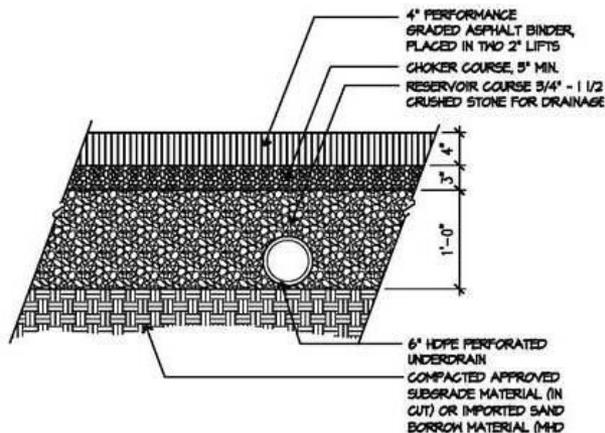
BETA Comments – CHR Response Stormwater Management System

- **Porous Pavement Comments**

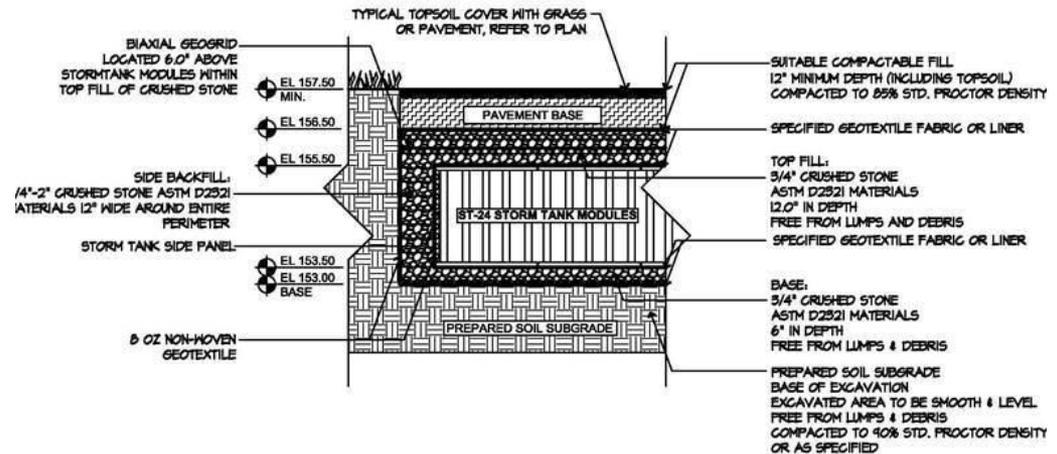
- Design is conservative
 - No credit taken for exfiltration
 - Specifications will be developed during Construction Documents preparation. University of New Hampshire's Stormwater Center specifications will be used as a guide. UNH is a leader in pervious pavement research.
 - Will provide precedent information and details in the working session with BETA
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BETA Comments – CHR Response Stormwater Management System

- **Porous Pavement Design Approach**
 - High groundwater and shallow ledge are why porous pavement is proposed
 - Allows for shallow profile, reducing the amount of filling required to achieve separation from groundwater/ledge



1 POROUS ASPHALT PAVEMENT
SCALE: 1" = 1'-0"



3 STORM TANK AT SUBSURFACE DETENTION/INFILTRATION BASIN P-4D
SCALE: NTS

BETA Comments – CHR Response Stormwater Management System

- Previous Porous Pavement Projects Prepared by Stantec



Design and Construction of a Porous Asphalt Stormwater BMP Retrofit - *An EPA Education and Outreach Project*

R. Cody, K. Simpson, C. Whittle, L. Hamjian
EPA New England, Nov 2012



Hurd Field, Arlington, MA

Project Conception

Conceived after a Municipal Subcommittee meeting of the Mystic River Watershed Initiative. We had a candid technical discussion last fall and you were skeptical about the efficacy, longevity, and cost effectiveness of porous pavement. To address questions about the technology, EPA decided to pave a parking lot in the watershed as **an education and outreach project** funded under Section 104 of Clean Water Act, 33 U.S.C. 1254 (Research, Investigations, Training, and Information).

We believed a local site and a municipal partner within the watershed would provide the best opportunity to see the pavement on the ground and to provide peer-to-peer education on how it works.

Site Selection – Hurd Field Parking Lot



Phase 2 – Construction [cont.]



Photo taken during rainstorm showing comparative performance of traditional pavement (left) and porous pavement (right)

BETA Comments – CHR Response

Stormwater Management System

- **Porous Pavement Comments**

- Protection during construction – preparation of subgrade will be completed after heavy equipment for buildings is in place
 - Redundant collection system is provided with catch basins at all low points.
 - Pavement will be repaired/replaced as required over time – similar to any other pavement
 - Porous pavement installed “as close as 20 feet” of downgradient residences – this is within DEP recommendations for cellar foundations. DEP recommended setback from slab foundation is 10’.
 - Damage from frost heaves – 31” profile depth provided, within acceptable range for Massachusetts
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BETA Comments – CHR Response

Stormwater Management System

- **Porous Pavement Comments**

- Porous pavement is not installed on flat ground. Check dams are provided to hold water and provide storage. DEP Standards for peak flow reduction are met if storage is reduced to account for effect of sloped pavement and checkdams
 - Maintenance of any stormwater system will fail without proper maintenance
 - We will consider suggestion of redundant treatment system for TSS removal
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BETA Comments – CHR Response Stormwater Management System

- **Stormwater Comments**
 - Design is conservative
 - Recharge volume requirement utilizes most conservative soil classification
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Other Comments

Stormwater Management System

- **Other Comments**

- Operation and Maintenance of Porous Pavement
 - Sewer Contamination to Hoar Sanctuary
 - Applicable Permits
 - TMDL Compliance (Phosphorus, Bacteria)
 - O&M Plan calls for guidance in the use of fertilizers (avoidance of use, slow release)
 - Porous pavement and infiltration basins will infiltrate 100% of runoff from vast majority of storm events ($< \frac{3}{4}$ "
 - No other stormwater related permit permits are required except for the SWPPP
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Conservation Commission Comments

Stormwater Management System

- **Other Comments**

- Understand the desire for post-construction monitoring further discussion the working session with BETA
 - Redundant Water Quality Measures will be considered
 - TMDL Compliance is addressed but can be explained further
 - SWPPP is required and will be filed prior to construction
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