

Porous Asphalt Construction Phasing/Sequencing Plan and Installation Oversight The Residences at Johnson Farm - Landham Road, Sudbury

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Construction phasing, sequencing and engineering oversight is required to ensure the successful production, installation, and long-term performance of the porous pavement systems. This proposed Porous Asphalt Construction Phasing and Sequencing Plan was developed and used successfully on similar installations. Proper coordination of these procedures with the site contractor and inspection of pavement subbase during construction is critical to provide access and prevent damage to porous pavement system components. Temporary construction methods and phasing considerations account for the necessary use of large construction equipment over the porous pavement subbase while maintaining its structural integrity and infiltrative capacity. Frequent review and inspection during construction of the porous pavement subbase for proper compaction is critical. Insufficient compaction will result in low durability pavements and rutting; over-compaction will result in insufficient drainage, infiltration, and freeze-thaw concerns in winter. Both protective and corrective actions are included in this Plan for expected impacts from construction activities. Inspection activities are similar to those commonly used for state roads: review of asphalt mix production and aggregate materials; check dimensions, compaction, crown and slope.

Temporary methods that have been used successfully on other porous pavement construction sites are planned for the Johnson Farm project to provide access and stormwater management during the construction period. As identified in the Phasing sequence below, a temporary two-inch overfill of the porous pavement filter course or choker course is proposed as an effective approach for protecting the constructed media subbase from tracking of sediment and from over-compaction. The temporary overfill method also allows for stockpiling of materials directly on the subbase. The two-inch thick layer of overfill material will trap sediment at the surface and prevent fines from migrating through to the permanent porous pavement subbase. This method has also proven successful in preventing over-compaction of the porous pavement media subbase. Following site completion, the two-inch overfill is removed along with sediment/fines, the subbase is inspected for compaction and infiltrative capacity, and if necessary, the media is scarified to the depth required to eliminate any over-compaction in areas.

Another temporary method that will be employed along the main construction site access road is installation of a temporary impervious binder course to provide a finished road surface for vehicle access. This will be used to the completion of construction and include the use of two permanent leaching catch basins at the low-points as a construction-phase BMP and permanent redundancy to ensure that no runoff will occur from the access driveway during or after construction. The temporary overfill and the binder/drywell methods have been used successfully in similar applications.

At a minimum, weekly sweeping is recommended for the temporary binder course access road to prevent tracking onto porous pavements, and more often as necessary.

Phase 1: Installation of Porous Media Infiltration Beds and Temporary Overfill

1. A preconstruction meeting will be held to review all requirements.
2. Establish sediment control in locations shown on Erosion & Sediment Control Plans.
3. Excavation of existing topsoil and subsoil organic soil layers (stockpile in designated area for later use) and placement of properly compacted select bank run gravel fill material up to bottom elevation of porous media infiltration bed (subgrade).
4. Installation of utilities.
5. Sideslope geotextile and porous pavement subbase shall be placed immediately after approval of subgrade preparation. Any accumulation of debris or sediment which has taken place after approval of subgrade shall be removed prior to installation.
6. Following placement of subbase aggregate, the sideslope geotextile shall be folded back along all bed edges to protect from sediment washout along bed edges. At least a four-foot edge strip shall be used to protect beds from adjacent bare soil. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. In addition, take any other necessary steps to prevent sediment from washing into beds during site development.
7. For the Temporary Construction Access Road area, construct porous pavement subbase with select materials. This includes bottom reservoir layer to the top of the choker course plus 2" of additional choker course material as overfill.
8. For the Development Loop Road, construct porous pavement subbase with select materials. This includes bottom reservoir layer to the top of the filter course plus 2" of additional filter course material as overfill.
9. Loop Road areas with 2" filter course overfill are suitable for construction traffic and stockpiling of soil materials.
10. See porous pavement notes in Design & Construction Specifications on subbase construction and quality control.
11. Temporary sediment control devices shall be kept in place and in working order until site completion.

Phase 2: Installation of Temporary Construction Access Road

1. Establish erosion control around perimeter of disturbed area. As stated in Phase 1, porous pavement subbase for temporary construction access road is constructed with select materials, including bottom reservoir layer to the top of the choker course plus 2" of overfill material.
2. See porous pavement notes for specifications on subbase construction and quality control.
3. No run-on is to be permitted onto constructed subbase prior to installation of temporary binder.
4. Install drywells and all utility frames and grates/covers.
5. Install 2" of temporary standard impervious asphalt binder. Weekly vacuuming, at a minimum, is recommended for Temporary Access Road once Phase 3 occurs to prevent tracking onto porous pavements, more often if required by engineer.

Phase 3: Installation of Porous Pavement on Loop Road for Buildings 1-5, Property Management Office, and Close Area to Construction Traffic

1. Remove 2" of temporary filter course overfill, regrade, compact, and inspect as per porous pavement notes for specifications on subbase construction and quality control.
2. If over-compaction of subbase has occurred during construction or where erosion has caused accumulation of fine materials, those materials shall be removed and/or scarified to a minimum depth of 6 inches, and retested for compaction and infiltration as per specifications.

3. The Engineer shall be notified and shall inspect at his/her discretion before proceeding with the porous pavement installation.
4. Install 4" of choker course as per specifications.
5. Install 2.5" of binder course of porous asphalt (PG64-28 with fibers, see latest specification for updates).
6. Install curbs and landscaping. Special care is to be taken to protect fresh binder course. All trucks (including concrete trucks) will be stopped prior to entering the site and instructed to make large radius turns within the porous asphalt area to limit disturbance to the new pavement. Concrete trucks will perform the mixing cycle prior to entering the site. A washout area outside of porous pavement area near construction access entrance is designated on Erosion Control Plan. Concrete trucks will only be allowed during hours while the pavement is cool to avoid damaging new mat placement. Plywood will be used as required under trucks to prevent damage to the pavement. Trucks and other construction traffic will not be allowed to access the site while the pavement is excessively hot. Water may be used to cool excessively hot pavement prior to trucks entering site. No stockpiling of materials, e.g. soil, stone, landscaping materials will be allowed on porous pavement binder course. Materials excavated for curb installation and landscaping stockpiles shall be placed outside of porous pavement area.
7. Install 1.5" of wearing course of porous asphalt (PG64-28SBR with fibers, see latest specification for updates)
8. Temporary construction fencing will be used to close porous pavement areas to construction traffic during project completion.
9. Erosion controls will be used as needed to prevent run-on to the porous pavement.
10. All areas disturbed during construction will be loamed, seeded and stabilized.
11. Following completion of Phase 3, all construction traffic will be routed back around the loop road away from the completed areas. A construction fence will be placed at the end of the porous pavement to close the transition to the unpaved areas.

Phase 4: Installation of Porous Pavement on Loop Road for Buildings 6-10

1. Repeat items 1-16 in Phase 3.

Phase 5: Removal of Temporary Construction Access Road and Final Completion of Porous Pavement

Note: Final porous pavements are not to be paved until adjacent building areas are stabilized.

1. Mill and remove temporary 2" binder course.
 2. Remove 2" of choker course overfill down to finish choker course grade.
 3. Replace perimeter stone within leaching catch basins.
 4. The Engineer shall inspect all Phases for damage or clogging of pavements during construction at his/her discretion before proceeding with the porous pavement installation. Areas determined to be clogged will need to be replaced.
 5. Install 2.5" of binder course of porous asphalt (PG64-28 with fibers, see latest specification for updates).
 6. Install 1.5" of wearing course of porous asphalt (PG64-28SBR with fibers, see latest specification for updates)
- All areas disturbed during paving will be loamed, seeded and stabilized.