August 24, 2015

John Boyd
People's Bank of Commerce
1311 East Barnett Rd.
Medford, Or 97504

Re:

White Hawk Development
718 Beebe Road
Central Point, Oregon
2251-00

Dear Mr. Boyd:

This letter addresses concerns outlined in an email from Tony Weller of CESNW, Inc. on July 29, 2015 that arose during a hearing with the City of Central Point regarding the White Hawk development project.

Park Area

1. Anticipated Maintenance Requirements and Cost for Cap in Proposed Park Area

The Independent Cleanup Plan (ICP) proposed a cap in Area A (the proposed Park) to address soil containing arsenic at concentrations above background (Ash Creek, 2005). Soil with concentrations above background identified in areas outside the Park area would be excavated and moved to the proposed Park area and then covered by a two-foot clean soil cap and/or asphalt or concrete pavement. Once installed, the cap would be maintained through a program of regular inspection and maintenance encompassing:

- Annual visual inspection of the cap; and
- Repairs as needed based on the annual inspection to maintain the integrity of the cap.

Potential breaches in cap integrity could include: broken pavement allowing exposure of underlying soil, or, in areas where the cap is comprised of two feet of clean soil, animal burrows and surface water erosion. Repair would then be needed to maintain functionality of the cap. The cost of annual cap inspection would be minimal and could be completed by the homeowners association or City if publically owned. Costs of cap repair would be dependent on the construction of the cap, and the extent and severity of breach.

2. Use Restrictions.

Once the cap is in place, there would likely be few restrictions on use of the area and those restrictions would be based on minimizing disturbance of the cap and accessing soil below the cap, appropriate handling of soil beneath the cap if access is needed, appropriate disposal of soil beneath the cap were it to be excavated and could not be replaced below the cap, and proper repair of the cap should it be breached intentionally or through normal wear and tear. If re-use of the area were planned in the future, the type of use would only be restricted to the requirement of maintaining the cap (or constructing a new one in conjunction with the redevelopment). For example, if the area were first developed as a park and later it was identified that a parking area and/or commercial center was desired, this re-use would be acceptable as long as the entire area was re-capped by asphalt or concrete pavement, buildings, or two feet of clean soil in landscaped areas. A soil management plan

will need to be prepared and incorporated as a part of the land-use restriction for the site and would detail these requirements for capping, cap maintenance, and soil management. The SMP would be prepared in anticipate that additional park development (e.g., addition of trees or other landscaping, play structures, etc) would occur over time and would lay out the procedures that would need to be maintained; essentially, this would be that the integrity of the cap is maintained following any future park development activity and that any arsenic-containing soil that could not be replaced below the cap would be appropriately disposed of off-site. For example, should additional trees or shrubs be desired following development of the park, arsenic-containing soil from below the existing cap that is removed during the digging of the tree holes would need to be replaced below the depth of the cap and a 2-foot clean soil cap placed on top of this soil. If material is removed below the cap proper personal protective equipment (PPE) should be used to mitigate oral ingestion exposure pathways. This would include use of gloves, dust masks and hand washing after handling post cap material. As long as the integrity of the cap is maintained, there should be no concerns about public use of the park.

3. No Further Action (NFA) designation from the Oregon Department of Environmental Quality (DEQ).

The following are the anticipated steps for achieving DEQ approval and closure of the project (i.e., a NFA designation for the site):

- Submit a Voluntary Cleanup Program (VCP) application so DEQ assigns an oversight project manager for the project.
- Finalize the ICP report to address DEQ comments presented in a letter to Mike Duncan, the previous property owner, in a letter dated January 19, 2007.
- Update the *Soil Management Plan* (Ash Creek, 2006), for application to the current development plan and incorporating applicable DEQ comments from the 2007 letter.
- Submission of previously listed reports to DEQ for their review and to confirm that their 2007 comments have been adequately addressed.
- Once DEQ has approved the submitted documents, file a deed restriction on the property notifying of the presence of the arsenic (this would need to be completed following excavation of soil containing arsenic above background concentrations from areas outside of the proposed park and placement of this soil in the park area underneath an appropriately constructed cap).
- Following completion of deed restriction, provide a copy of the restriction document to DEQ.

4. Contaminated dust or groundwater

During the excavation and other earthwork activity in the park area, protocols for dust management detailed in the soil management plan would mitigate dust generation during construction activities. . Dust mitigation controls would include covering soil stockpiles with plastic sheeting secured by sand bags and periodically wetting surface soil to limit dust generation during excavation activities. Dust monitoring equipment could be deployed upwind and downwind from the construction area to identify conditions by which mitigation controls should be implemented. Following excavation of soil containing arsenic above background concentrations from areas outside of the proposed park and placement of this soil in the park area under an approved cap, soil containing arsenic above background concentrations will be contained and not accessible for dust generation With regard to groundwater, testing was performed during the development of the ICP that showed that groundwater has not been impacted by the presence of arsenic in soil at the site. Arsenic is highly immobile in natural systems and rarely migrates beyond the boundary by which it is deposited. As determined by previous site investigations (Ashcreek, 2006), arsenic observed in soil on site originated from agriculturally derived lead arsenate and is primarily confined to shallow soil. Groundwater analytical data shows no impact by arsenic and averages 10 to 15 feet below ground surface, well below the layer of impacted soil. Migration by arsenic from soil to groundwater is unlikely based on these site conditions. The DEQ will likely require that any soil

containing arsenic above background concentrations that is moved from Area B to Area A and capped, be placed at least 2 feet above the water table as an additional pre-caution against future impacts to groundwater from the arsenic in site soil.

Groundwater/wells

1. Site Vicinity Well Description

Eight wells were identified on parcels adjacent to or near the site: two to the east, four to the southeast, one to the west, and one to the northeast. The distance from the wells to the nearest proposed utility installation ranges from 90 to 600 feet. The well logs from the OWRD database were reviewed with the following observations/conclusions:

- Four of the eight wells have bentonite clay seals from the surface to depths of 20 to 50 feet.
- Three of the eight wells were deepened between 1983 and 1999.

2. Potential Impacts and Mitigation Recommendations During Storm and Sanitary Line Installation

The proposed storm and sanitary lines may intercept the water table and impact groundwater levels (and thereby impact nearby water wells) from the following:

- Dewatering during construction;
- Infiltration into sewer lines; or
- Longitudinal flow in trench backfill.

If dewatering is necessary during construction, the water table would be lowered and these effects could extend to nearby water wells. This effect would be temporary and conditions would be expected to return to normal within a short period after completion of the work.

Long-term, if the storm or sanitary lines leak, infiltration into the lines could permanently lower the water table in the vicinity of the utilities and would likely extend only a few feet from the utility trench. This potential impact is addressed by quality control during construction to assure the utility lines are installed in alignment, seals are in place, intact and tested, proper pipe bedding is used, and trench backfill is properly compacted. These conditions assure the lines have a tight seal and meet the required performance standards prior to acceptance by the City.

If trench backfill is more permeable than native soil, water could flow longitudinally along the trench and discharge to surface water, permanently lowering the water table in the vicinity of the trench. Given the native soil conditions (clay soils), it is possible that the trench backfill could be more permeable than the native soil. Depending on the depth to which the trench penetrates the water table, longitudinal flow could occur; however, the influence on the shallow water table would likely extend only a few feet laterally from the utility trench. This localized depression in the water table caused by the trench could be addressed by installing low-permeability plugs at intervals in the trench backfill. Given that dewatering of local wells was reported after a drain trench in Beebe Road was installed, it is recommended that low permeability trench plugs be installed in future utility trenches dug on site.

3. Evaluation and Mitigation Options

An evaluation of the potential impact of the installation and presence of the proposed storm and sanitary lines was performed given the site conditions and the following conclusions were made:

- Eight wells are located in the vicinity of the proposed project. The proposed utility installation is not expected to impact these wells because:
    - The utility installations will penetrate only 3 to 6 feet into the water table, if at all.
    - The wells are located at distances and/or depths that are outside the potential influence of the utility installation.
- It is also noted that three of the eight wells have been deepened over a period of 16 years, indicating that there is a long-term reduction in water level in the area.

It is noted that, prior to 1950, domestic water wells were not registered with the state. To further delineate groundwater conditions adjacent to the site, a survey of property owners within a 0.5 mile radius of the site is recommended to identify wells that may not be registered.. This would include obtaining addresses of residents within ½ mile of the site, and sending a form letter inquiring whether the resident maintained a water well. Typically this is followed by a door-to-door inquiry to verify responses from the letter survey. Residents identified as maintaining wells would be approached for access to measure the depth to groundwater in their wells and ascertain the construction of the well, if available. Apex has conducted these surveys and would be happy to provide assistance in this process.

The following presents mitigation options to address potential concerns:

- Prior to construction, verify whether the 13-foot-deep irrigation well located 270 feet from the site is still in service. Consider monitoring water levels in that well during construction.
- If installation does penetrate the water table, low-permeability plugs can be used to inhibit flow along the trench line. Assuming crushed rock is used for trench backfill, adding 5 percent (dry weight) bentonite to the backfill is sufficient to reduce the permeability of the backfill. The plugs should be placed from the bottom of the trench to 1 foot above the water table the full width of the trench and have a minimum length of 5 feet. A plug should be placed at the low end of each main sewer line.

If you have any questions or need further information, please contact us at your convenience.

Sincerely,

Christopher Luk
Engineering Staff

Amanda Spencer, R.G., P.E.
Principal Hydrogeologist