CITY OF SHORELINE
HEARING EXAMINER

FINDINGS, CONCLUSIONS AND DECISION

CRITICAL AREA SPECIAL USE PERMIT FOR CONSTRUCTION OF A NEW HIDDEN LAKE PUMP STATION AND 500,000 GALLON UNDERGROUND SEWER STORAGE PIPE WITHIN LANDSLIDE AND EROSION HAZARD AREAS, STREAM AREAS AND ASSOCIATED BUFFERS

I. PROJECT INFORMATION SUMMARY

PROJECT DESCRIPTION: Demolish the old Hidden Lake Pump Station and replace with a new pump station; replace 10,080 ft. of gravity sewers in the Boeing Creek Sewer Trunk Line; addition of 1,820 feet of pipe to an inverted siphon in 14th Avenue NW and NW Springdale; and construct a 500,000 gallon underground sewer storage pipe in Boeing Creek Park and 1,500 feet of new gravity sewers in mostly rights of way in the proximity of Boeing Creek Park. Portions of the project are located within landslide and erosion hazard areas and near piped portions of Boeing Creek.

PROJECT ADDRESS: Hidden Lake Pump Station: 16700 10th Avenue NW; Boeing Creek Park Underground Storage Facility: 401 NW 175th Street

PROPERTY OWNERS: Hidden Lake Pump Station: King County
Boeing Creek Park: City of Shoreline

PROJECT FILE NUMBER: 201294 and 201295

APPLICANT: King County Wastewater Treatment Division

CURRENT ZONING: Hidden Lake Pump Station: R4; Boeing Creek Park: R4

SEPA THRESHOLD DETERMINATION: Determination of Non-Significance (DNS)

II. DISCUSSION

A. BACKGROUND INFORMATION

1. *Proposed Project Description*

King County's existing Hidden Lake Pump Station receives wastewater from the Hidden Lake Service area via the Boeing Creek Trunk (BCT) sewer line. Flows from areas north and east of the pump station are carried by local gravity sewers, intercepted by King County BCT, and

delivered to the pump station. Downstream of the pump station, wastewater is discharged to the BCT and conveyed to King County's Richmond Beach Pump Station. From the Richmond Beach Pump Station wastewater flows to the Edmonds Treatment Plant where it is treated and discharged into Puget Sound.

The existing Boeing Creek Trunk system cannot accommodate peak wet weather volumes resulting in overflows from the pump station to Puget Sound several times per year. Additionally, in 1991 portions of the BCT were slip lined to combat corrosion, which reduced the diameter of the pipe by 2 inches thus also reducing the flow capacity. Overflows have also occurred at the Hidden Lake Pump Station resulting from equipment failures and power outages.

The pump station was constructed in 1962 and currently does not have adequate capacity to convey peak wet weather flows to the BCT. In the event of a power outage, the pump station wet well has inadequate storage volume to provide time for the emergency generator to start and wastewater pumping to resume. The pump station also has been subject to equipment failures and does not meet some current building and other codes.

A combination of constructing a 500,000 gallon storage pipe at Boeing Creek Park together with the construction of a new Hidden Lake Pump Station and the replacement of the gravity sewer between the Hidden Lake Pump Station and the Richmond Beach Pump Station, is proposed to address the existing and projected sewage capacity issues. The purpose of the storage pipe is to temporarily store wastewater during high flow events to reduce peak flow rates as an overall strategy to reduce the sizing of the required improvements to the downstream facilities, i.e. pump stations.

Construction is anticipated to begin in the third quarter of 2005 and be completed by late 2007. Construction of the pump station is anticipated to last approximately 25 months, the Boeing Creek Trunk pipeline 24 months and the storage facility 24 months. All three projects could be under construction simultaneously.

New Hidden Lake Pump Station – File Number 201294:

A new Hidden Lake Pump Station will be built at the site of the existing pump station. The old pump station will be demolished as soon as the new pump station is operational. The pump station will be designed to convey the projected 5.5 million gallons per day (mgd) 5 year peak flow (per King County standards) with the largest pump out of service, and the projected 6.8 mgd 20-year peak flow with all pumps operating. The new pump station building will be approximately 3,500 sq. ft. and will house four (4) wastewater pumps and their associated piping, electrical equipment and controls, an engine generator to provide an emergency source of electric power, odor control and a chemical injection system. Curb, gutter, sidewalk and amenity zone will also be required adjacent to the site.

The planned pump station will be built into an approximately 4:1 vertical slope and will have an upper motor room above a pump room. The motor room floor will be at ground level at the southwest side of the station and almost all of the northeast side of the structure will be exposed because of the site slope. The new pump station will have a diesel engine generator housed in a wing of the building at the same level as the motor room. A similar wing of the building will house odor control and chemical addition facilities.

The lower part of the structure up to and including the motor room floor will be reinforced concrete. Above the motor room floor level, the building will be concrete masonry unit (CMU) and metal truss roof. The main building foundation will be slab-on-grade and the engine room and odor control and chemical addition area will have spread footings supporting building foundation walls. A retaining wall will be provided to level the east entrance to the generator room. Please see Exhibit 1, Attachment A: Pump Station Abbreviated Plan Set.

500,000 Gallon Underground Sewage Storage Facility – File Number 201295:

Approximately 640 feet of reinforced concrete pipe, with an inside diameter of 12 feet and able to contain 500,000 gallons of sewage, is planned to be built in Boeing Creek Park south of NW 175th Street near the intersection with 6th Avenue NW. There will be an influent control structure at the upstream end and a flow control structure at the downstream end of the storage pipe. These structures will be cast in place reinforced concrete and located below ground. A new service entrance and underground odor control facility will also be located at the upstream end near 3rd Avenue NW. The odor control facility structure will also be cast in place reinforced concrete.

A shored construction trench approximately 20 feet wide would be excavated to install the 12-foot storage pipe. An unshored excavation up to 60 feet wide at the ground surface may be used for a portion of the pipe where there is sufficient room for that wide of an excavation. The pipe trench shoring would be drilled soldier piles and lagging or a proprietary shoring system. Pile driving will not be allowed in the project area. A crane will be used to lift and place the pipe sections in the trench.

Part of the 12-foot diameter pipe will be located under an existing stormwater detention facility owned by the City. An important feature of the detention facility is an earth embankment located at the western end of the pond. This embankment forms the dam that impounds water in the reservoir and is large enough to be classified as a jurisdictional dam by the Washington State Department of Ecology. The City is planning to construct improvements to the stormwater facility some of which, may be included in the same contract with the sewage storage facility.

The installation of the sewage storage facility in Boeing Creek Park will require installation of approximately 1,500 feet of new sewage pipe. The depth of the replacement piping is controlled by the invert of the storage facility and is approximately 35 feet below grade in NW 175th Street. The new piping will start in Boeing Creek at the flow control structure near NW 175th Street, extend northwest to the west side of 6th Avenue NW just north of 175th Street. This part of the

outlet sewer will cross under a corner of private property at the northeast corner of NW 175th Street at 6th Avenue NW. From there the outlet sewer will run southeast to the intersection of NW 175th Street and 10th Avenue NW and turn and continue down 10th Avenue NW. To limit impacts on roadway traffic and on the existing dam within Boeing Creek Park, and because the depth of the pipe will be at or below groundwater, the new piping will be installed with trenchless micro tunneling methods.

Odor control equipment for the storage facility will be installed in an approximately 23 by 25 foot underground vault near the influent structure. Please see Exhibit 1, Attachment B: Storage Facility Abbreviated Plan Set. An approximately 10 foot square chamber to house appurtenant electrical equipment would be attached to the vault. Access for maintenance and inspection of the influent and flow control structures and odor control vault would be provided via hatches installed in six locations at the ground surface. Each hatch would be metal and measure approximately 4 feet square. There will be ducts that appear above ground. The ducts will provide fresh air to the underground vault and electrical equipment chamber. One duct will serve to exhaust treated air from the odor control units.

Boeing Creek Trunk Sewer Upgrade (*Note: This portion of the project is exempt from the provision of the Critical Areas Regulations*)

The new BCT pipeline will be constructed between the Hidden Lake Pump Station and the Richmond Beach Pump Station. The pipe will be constructed in portions of the following streets: 15th Avenue NW, 14th Avenue NW, Springdale Court NW, NW 188th Street, NW 190th Street, 22nd Avenue NW, 23rd Avenue NW, NW 196th Street, and Richmond Beach Drive NW. An approximately 700 ft. section of pipe between NW 190th Street and the entrance to the Richmond Beach Park would be constructed on private property and park property. Please see Exhibit 1, Attachment C: Project Vicinity Map.

The majority of the new pipe will be constructed in the public right of way using open cut construction. Approximately 10,400 linear feet of conventional gravity sewer will be replaced between the Hidden Lake Pump Station and Richmond Beach Pump Station. The existing sewers range from 15 to 24 inches in diameter. Replacement sewers will range from approximately 18 to 30 inches in diameter. Within 14th Avenue NW and 15th Avenue NW, a 1,820 foot long inverted siphon will be modified by extending the inlet approximately 140 feet to the south, replacing approximately 400 feet of corroded pipe, and constructing a new pipe with an approximate diameter of 16 inches. The new pipe will be located parallel to the two existing pipes. The new pipe is designed to address odor problems by operating as an air jumper during normal flows and convey sewage during emergencies. The addition of the third siphon barrel will also improve maintenance accessibility by providing greater flexibility to transfer flows between pipes when a pipe needs to be removed from service for maintenance or inspections. A new inverted siphon inlet structure, outlet structure, and blowoff (drain) structure will be also built.

A portion of the pipeline immediately east of Richmond Beach Park will be installed by trenchless methods. Record drawings show that approximately 100 linear feet of the existing sewer was constructed by a trenchless method because of the closeness of houses on both sides of the alignment. Trenchless construction will be needed for the replacement at this location, and because of changes that have occurred since the original construction, the length of the trenchless segment will be approximately 300 feet.

2. Project Sites

Legal Descriptions and Tax Parcels

Storage Facility: Lot 25 and North Side Garden, TRS, Lots 25 through 32, TGW, Por of Vac. St. Adj. – tax parcel no. 619070-0750
Note: The City is the owner of these sites. Council is expected to enter into an Interlocal Agreement with King County on 2/14/05 that includes the provision of an easement to the County to use a portion of its Boeing Creek Park property for this project.

Hidden Lake Pump Station: Lot 30, Lot 3, Innis Arden No. 3 – tax parcel no. 35865-0885

Project Site Descriptions

Hidden Lake Pump Station Site
Topography
The pump station site slopes away from 10th Avenue NW to the north and east at approximately 5 to 15 percent. Elevations range from 338 feet in the northwestern corner of the site, to approximately 316 feet in the southeastern corner of the site. The steepest slope is approximately 20%. The planned pump station structure will be built into an approximately 4 horizontal to 1 vertical slope.

Soils
Advance outwash (western portion of site): mostly clean, pebbly sands that typically coarsen upward, with increasing amounts of gravel in the higher section. Scattered boulders may also be present.

Transitional beds (eastern portion of site): glacial and nonglacial deposits that occur below advance outwash consisting of massive, thick or thin beds and laminae of clay, silt, and fine to very fine sand.

Approximately 20,000 square feet of the 1.15 acre (50,000 square foot) pump station site would be disturbed during construction of the new pump station. Construction activity on the site would include clearing and removal of vegetation and grading to prepare the site for construction of the pump station. There are no surface indications or history of unstable soils at the pump station site. Approximately 2,700 cubic yards of material would be excavated from the site. Backfill at the site utilizing native or imported material would total approximately 2,500 cubic yards.