

STAFF RECOMMENDATION

E. Goldkind

NCPC File No. 6572



DEPARTMENT OF THE ARMY, WASHINGTON AQUEDUCT WATER TREATMENT RESIDUALS MANAGEMENT BUILDING AND SITE IMPROVEMENTS

5900 MacArthur Boulevard, NW, Washington, DC

Submitted by the Department of the Army

July 26, 2007

Abstract

The U.S. Army Corps of Engineers, Washington Aqueduct, has submitted final site and building plans for a facility to collect residual solid material at the Dalecarlia Water Treatment Plant and from the Georgetown Reservoir. Processing and consolidation of residuals in a new building, with associated small structure and site improvements are proposed on federal property at the east Dalecarlia Reservoir area and Georgetown Reservoir. The largest building of the project would be located north of Sibley Memorial Hospital in the District of Columbia. Disposal of residuals from this structure would be achieved by trucking on major streets to licensed land disposal sites, likely located in Maryland or Virginia.

Commission Action Requested by Applicant

Approval of final site and building plans pursuant to 40 U.S.C. § 8722 (b)(1) and (d).

Executive Director's Recommendation

The Commission:

Approves the final site and building plans for the Department of the Army, Washington Aqueduct, Water Treatment Residuals Management Building and Site Improvements, as shown on NCPC Map File No. 74.10(38.00)42295.

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PROJECT DESCRIPTION

Background

Washington Aqueduct, a Division of the U.S. Army Corps of Engineers Baltimore District, operates the Dalecarlia and McMillan Water Treatment Plants in the District of Columbia that serves over 1 million persons with potable water in the District of Columbia and northern Virginia area. Water is also stored at the Georgetown Reservoir. The water treatment process removes solid particles (e.g. river silt) from the Potomac River supply water, treats and disinfects the water, and then distributes the finished water to the metropolitan service area. The Washington Aqueduct disposes of water treatment residuals, a combination of river silt and a chemical coagulant, by discharging it back to the Potomac River under a National Pollutant Discharge Elimination System (NPDES) permit.

Washington Aqueduct is proposing improvements associated with implementing the preferred alternative for a new water treatment residuals management process. Adjacent land uses include government-owned facilities, federal and local recreational areas, such as public access pathways and forested lands that surround the facility.

At its December 7, 2006 meeting, the Commission approved the revised master plan for the Dalecarlia Reservoir, District of Columbia and Montgomery County, Maryland, as shown on NCPC Map File No.74.10 (38.00)42145, to describe the new construction associated with this project within the existing master plan and to provide an update with regard to circulation, land use, and landscape concept planning. Also approved was EIS Alternative E for the Proposed Water Treatment Residuals Management Process for the Washington Aqueduct as well as the preliminary site and building plans for the residuals management building and site improvements.

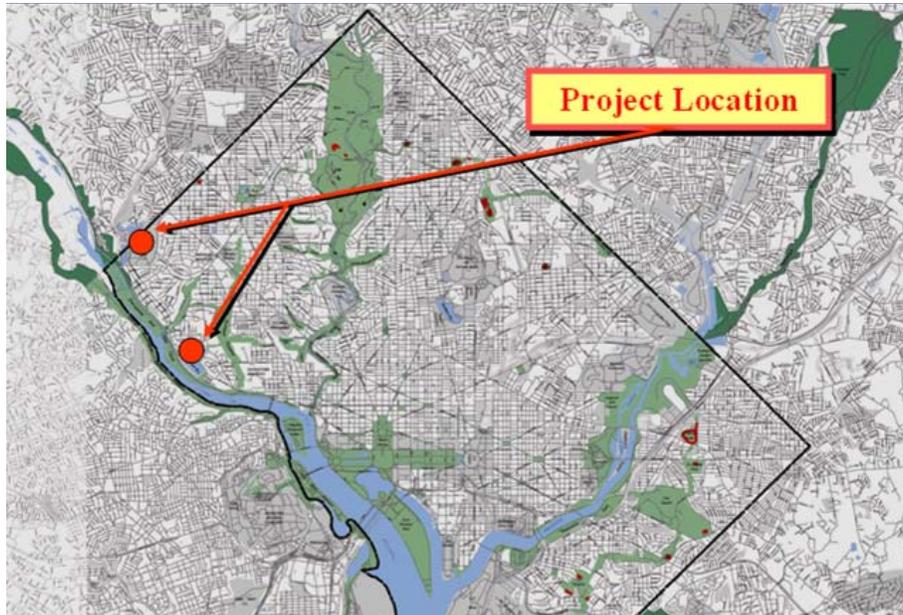
Site

The Washington Aqueduct Residuals Treatment project is located at the Dalecarlia Reservoir in Northwest Washington, DC. Project components are generally located near the reservoir, in the District of Columbia and within Montgomery County, Maryland. The main components of the project include the Dalecarlia Reservoir property and new construction for the Dalecarlia Water Treatment Plant (WTP). A small new pumping station is located at the Georgetown Reservoir.

The property at the Dalecarlia Reservoir consists of a Forebay, the open water portion of the Reservoir, approximately 47 acres of mixed hardwood forest, and cleared areas hosting warehousing, parking, and other operational facilities of the Washington Aqueduct. Total area of the Dalecarlia property comprises 276.8 acres. Much of the area surrounding the reservoir within the property bounty is characterized as “Permanent Open Space, Buffer, and Reservoir Protection” by the master plan approved by the Commission in December 1980.

The facilities and buildings comprising the Dalecarlia WTP property are located immediately south and west of the Dalecarlia Reservoir site on the other side of MacArthur Boulevard. This site is bordered by a mix of residential and commercial office uses immediately to the north, by MacArthur Boulevard (and beyond that, the Reservoir property) to the east, by residential uses to the south, and by woodland shoreline of the Potomac River to the west. The property is

characterized as commercial services and maintained as developed land in a campus-like setting. A portion of the Capital Crescent Trail passes through this property on an approximately north-south axis west of MacArthur Boulevard.



**VICINITY PLAN - WATER TREATMENT RESIDUALS
MANAGEMENT BUILDING AND SITE IMPROVEMENTS**

Proposal

The final site and building plans for this project are unchanged since the approved preliminary design submission, with a few exceptions. In response to comments and recommendations from the Commission of Fine Arts (CFA) as well as other affected parties, the following actions have been made:

- Significant landscaping earth mounding has been incorporated into the Residuals Processing Facility site.
- Thickener tank features have been modified.
- Following consultation with Sibley Hospital representatives, evaluating views from residential properties across the Dalecarlia Reservoir, and defining normal (Monday to Friday) working hours from 6:00 am to 6:00 pm, the applicant has determined that light will not adversely effect or be highly visible to neighbors; windows have not been changed to frosted or sandblasted glass as recommended by CFA.

The submitted project plans call for the construction of residuals collection and unthickened liquid residuals conveyance facilities in new facilities at the WTP located at the south side of the reservoir. Other new construction to meet the need would include new dredge collection, pumping, and conveyance facilities located at the Georgetown Reservoir, and new residuals collection equipment, pumping, and unthickened conveyance piping located at the Dalecarlia WTP sedimentation basins.

The Dalecarlia WTP residuals processing building will be sited just north of Sibley Memorial Hospital. Residuals processing, including gravity thickening and dewatering, would occur at the newly constructed building. Following processing, trucks would haul the residuals to an off-site permitted land-disposal area in Maryland or Virginia. The truck hauling will be contracted-out and would not be operated by the Corps. An estimated maximum of normally eight truck loads per day (5 days per week) of dewatered residuals are expected to be transported from the Dalecarlia WTP site on average. Higher numbers of truck loads could occur during high volume water flow years when more sediment may be carried by water and that is processed by the system. The project is to address the management of residual quantities for a period of at least 20 years.

The essential components of the project are as follows:

1. Modifications to existing sedimentation basins at the Dalecarlia WTP to permit the installation of new continuous residuals collection equipment required to convey residuals to a central processing facility.
2. Construction of three new residuals pumping facilities (the Georgetown Residuals Pump Station, the Dalecarlia Residuals Pump Station, and the Forebay Residuals Pump Station) required to pump the collected residuals to a central processing facility.
3. Expansion of an existing Booster Control Station at the north end of the Dalecarlia Reservoir to provide power for new Forebay residuals dredging and pumping facilities.
4. Installation of several new underground liquid residuals conveyance pipelines.
5. Construction of a new central residuals processing facility.

The development of the residuals processing building will allow residuals to be collected and conveyed from the Forebay portion of the Dalecarlia Reservoir and the sedimentation basins at both the Georgetown Reservoir and the Dalecarlia WTP to the central location to be thickened and dewatered prior to being loaded onto trucks that will haul the residuals to one or more remote disposal sites. The residuals processing operation is proposed on an existing cleared site immediately north of Little Falls Road; this site is referred to as the East Site for Thickening and Dewatering Residuals, or the East Dalecarlia Processing Site.

The facilities are located in two separate areas: the Georgetown Reservoir site located approximately 2 miles south of the Dalecarlia Water Treatment Plant and the Dalecarlia Reservoir site. A detailed description of each project component follows:

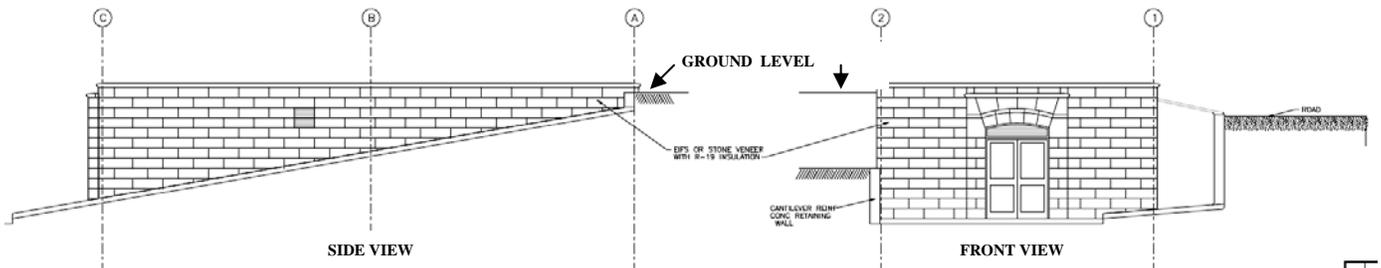
Georgetown Reservoir Site. The proposed buildings and support structures at the Georgetown Reservoir site will allow for collection and conveyance of residuals to the central processing facility at the Dalecarlia location. These include the following:

- The construction of a new unoccupied Georgetown Residuals Pump Station at the northwest corner of the Georgetown Reservoir site. The proposed pump station will be installed below grade to minimize visual impacts. The roof elevation of the proposed pump station will be set lower than the top of the existing Georgetown Reservoir berm to minimize view from MacArthur Boulevard. The pump station is needed to provide force to convey the residuals dredged from the Georgetown Reservoir (sedimentation basins) to the central processing facility.

- The installation of two new small floating electric powered dredges within Basins 1 and 2 of the existing Georgetown Reservoir. The basins will continue to be used for the same purpose with the installation of these dredges. The dredges allow for residuals to be automatically and continuously collected in place of the current practice of periodically draining the basins and manually washing the residuals to the Potomac River. Although the dredges do not represent a new building or structure to review, the description of the dredges is provided as it provides explanation of the need for a pump station at Georgetown Reservoir location.
- The installation of a new underground residuals transfer pipeline along the north edge of the Georgetown Reservoir. The pipeline will convey material from the pump station at the Georgetown Reservoir sedimentation basins to the central residuals processing facility located at the east Dalecarlia site.



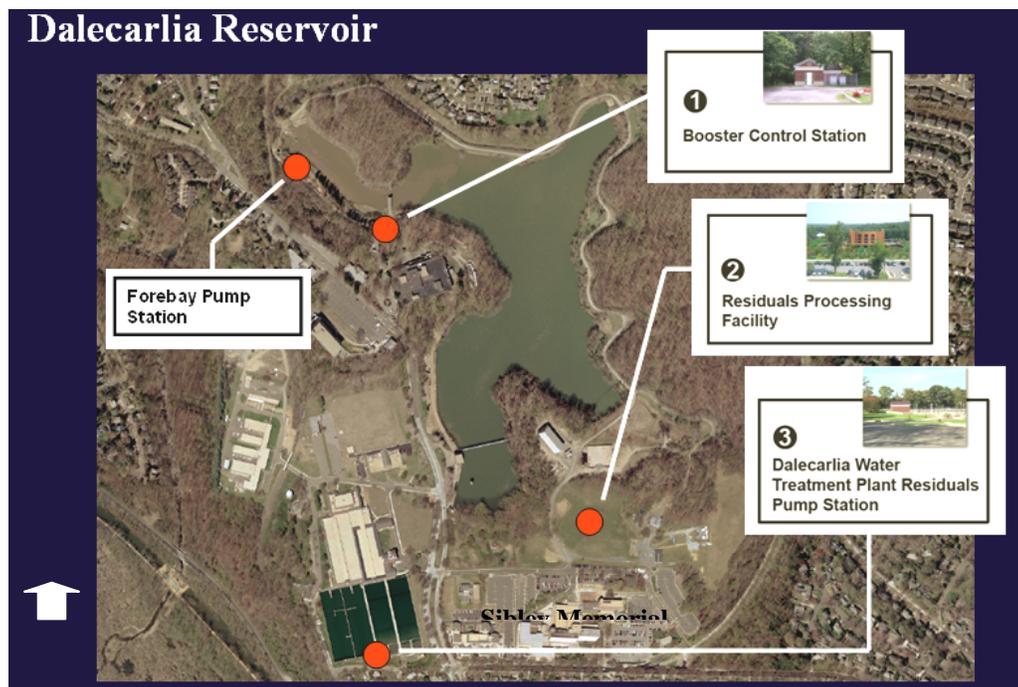
PROJECT ELEMENTS AT THE GEORGETOWN RESERVOIR



**BUILDING ELEVATIONS OF GEORGETOWN RESERVOIR
RESIDUALS PUMP STATION**



The Georgetown Reservoir site is located along an established heavily traveled corridor – MacArthur Boulevard. An existing underground 9-foot diameter conduit runs beneath the center median of MacArthur Boulevard between the Georgetown Reservoir and the Dalecarlia WTP. The Georgetown Conduit is part of the Washington Aqueduct water supply and treatment system, originally constructed and still used to convey partially treated water from the Dalecarlia Reservoir to the Georgetown Reservoir for sedimentation at Georgetown prior to conveyance across town to the McMillan WTP for further treatment. A new 12-inch diameter pipe will be installed inside of the existing Georgetown Conduit to convey dredged residuals back to the central processing facility at the east Dalecarlia site. The Georgetown Conduit has sufficient capacity to accommodate the new residuals transfer pipe while continuing to transport partially treated water by gravity from the Dalecarlia Reservoir to the Georgetown Reservoir.



PROJECT ELEMENTS AT DALECARLIA RESERVOIR

West Dalecarlia Site. The proposed modifications at the west Dalecarlia site will allow for collection and conveyance of residuals from the Dalecarlia sedimentation basins to the central residuals processing facility. The west Dalecarlia site includes the Dalecarlia WTP area located to the west of MacArthur Boulevard. The proposed modifications on this site include the following:

- The installation of a new unoccupied Dalecarlia Residuals Pump Station at the south end of Sedimentation Basin 3, on a cleared portion of Dalecarlia WTP site north of Norton Street. The majority of the new pump station will be below grade to minimize the visual impact of the facility. A small above ground access shaft and electrical building will be constructed above the underground pump station.

- The installation of new residuals collection equipment in the bottom of the four existing sedimentation basins. The existing sedimentation basins are installed below grade on the south side of the Dalecarlia WTP site.
- Several new underground residuals transfer pipelines will be installed at the southern end of the Dalecarlia WTP site. This area of the site currently includes many underground utilities. The new residuals pipelines will be both direct buried and installed within an existing 78” conduit, known as the Penstock Line, which crosses MacArthur Boulevard between the Little Falls Road intersection and the Dalecarlia WTP entrance. The use of the Penstock Line will allow new residuals pipelines to be installed under MacArthur Boulevard on their way from the sedimentation basin to the central Residuals Processing Facility without requiring disturbance of the existing MacArthur Boulevard road surface, extensive interruption of traffic, or disturbance of the existing mature trees located along the west edge of MacArthur Boulevard.

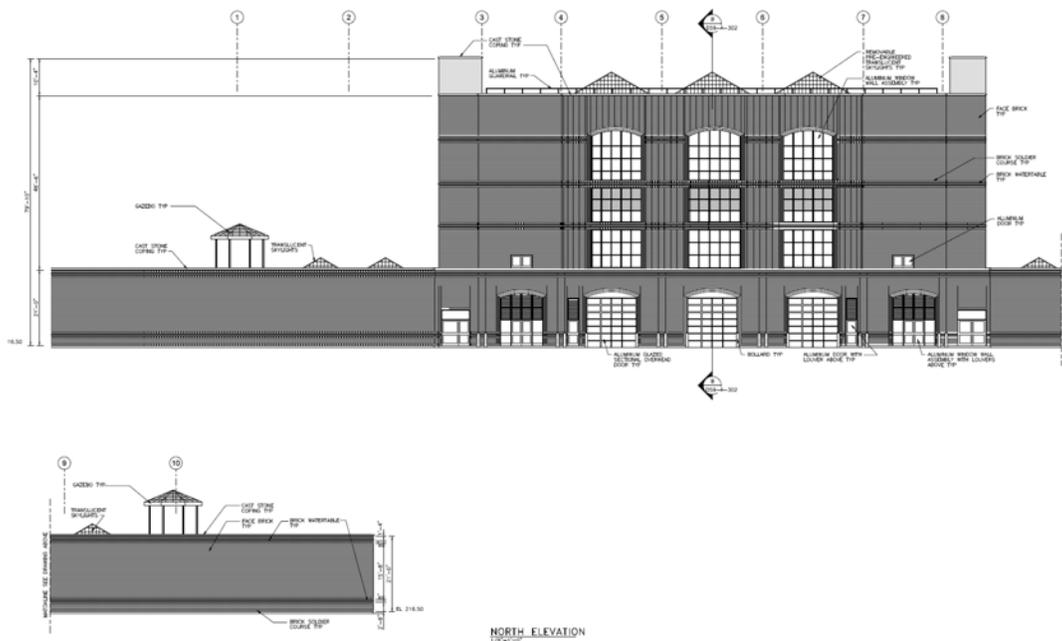
East Dalecarlia Site. The proposed modifications at the east Dalecarlia site, or area surrounding the Dalecarlia Reservoir and area located east of MacArthur Boulevard and north of Little Falls Road, allow for collection and conveyance as well as processing and disposal of residuals. These include the following:

- A new central Residuals Processing building will be constructed on an existing cleared site owned by Washington Aqueduct and located north of Little Falls Road and across from Sibley Memorial Hospital. A portion of this site was most recently used by the Washington Aqueduct for drying dredged material removed from the Dalecarlia Reservoir Forebay. The new central Residuals Processing Facility will include three floors plus a basement. The upper floor of the building will house the residuals dewatering equipment (centrifuges), operations room, rest rooms, and small operator’s lab. As with the second floor, dewatered residuals discharged from the dewatering equipment will discharge into the residuals cake storage bins located on the second floor by gravity. The second floor of the building will house dewatered residuals cake storage bins as well as polymer chemical storage tanks and feed pumps. Discharge from the bins to the trucks below will be by gravity, facilitated by a total of four mechanical bin unloading mechanisms. The ground floor will function as a residuals truck loading area. Roll-up doors will be provided on each of three drive-through bays oriented north/south in the building to allow between an average of 6-8 trucks per day and a maximum peak of 25 trucks per day of dewatered residuals. Loaded material will be hauled away to a permitted offsite disposal site. The lowest level also includes pumps and other mechanical equipment. Total building height is approximately 69 feet with the total building comprising approximately 69,500 square feet of space.
- Four gravity thickener basins will be attached to the corners of the Residuals Processing Facility. The function of these basins will be to provide temporary storage of liquid residuals pumped from the various residuals collection locations (Georgetown Reservoir, Forebay, and Dalecarlia Residuals Pump Stations) and to thicken the residuals prior to dewatering on the third floor of the building.

- To minimize the visual impact and minimize noise related to truck traffic of the proposed Residuals Processing Facility on its neighbors, the site surrounding the proposed building will be graded to allow the first floor of the new structure to be constructed 4 to 9 feet below the elevation of the adjacent Little Falls Road. In addition, extensive landscape plantings will be installed around the proposed facility and a new earthen berm, with a height ranging from 6 to 8 feet, and will be constructed south of the proposed Residuals Processing Facility along Little Falls Road. Soil excavated during the construction of the facility will also be mounded up against the gravity thickeners associated with the Residuals Processing building to lower their visible height.
- An addition will be added to the existing unoccupied Booster Control Station, located adjacent to the Forebay portion of the Dalecarlia Reservoir (to the far north of the reservoir site), to accommodate additional electrical equipment required to collect and transport Forebay residuals.
- A new below grade unoccupied Forebay Residuals Pump Station will be constructed adjacent to the Forebay in the same area as an existing concrete slab on grade. The top elevation of the new Forebay Residuals Pump Station will match the elevation of the existing slab to be removed. A new electric powered automated dredge will also be installed within the Forebay. This new dredge will be small and replace the larger dredge currently used to collect residuals at this location.
- Several new underground and submerged residuals transfer pipelines will be installed across the Dalecarlia Reservoir to transport residuals to the new central residuals processing facility. These pipelines will not be visible from neighboring residences and by public traffic on the Capital Crescent Trail. The construction of these pipelines allows the residuals to be conveyed from the Forebay Residuals Pump Station to the central residuals processing facility and then to a final disposal location without requiring trucks to carry residuals from the Forebay to a final disposal location.



**RESIDUALS PROCESSING BUILDING, PERSPECTIVE FROM LITTLE FALLS ROAD AT PROPERTY LINE WITH SIBLEY HOSPITAL
(Site Plan at Inset)**



ELEVATIONS - RESIDUALS PROCESSING BUILDING ILLUSTRATING BRICK FAÇADE, ALUMINUM WINDOWS, AND OVERHEAD DOORS



MASSING MODEL SIMULATION OF THE RESIDUALS PROCESSING BUILDING AND ITS RELATIONSHIP TO SIBLEY HOSPITAL, DALECARLIA PARKWAY AND THE RESERVOIR

PROJECT ANALYSIS

Staff recommends approval of the final site and building plans for the Water Treatment Residuals Management Building and Site Improvements at Dalecarlia and Georgetown Reservoirs. Staff believes that the exterior building finish and assemblies have been developed and chosen to enhance the articulation of the building and express its functional massing at the reservoir. The use of the two primary building envelope systems (brick and glass) will express the identity and function of the new structures while breaking down the visual scale of the large residuals processing facility overall. The construction of the residuals transfer pipelines within the existing MacArthur Boulevard conduit and other below ground locations minimizes the visual impacts and traffic impacts during construction. The ancillary project buildings are very small and are not intrusive.

Issues from the public concerns, identified through the project development, have been addressed in the submitted preliminary and final designs. Topics of concern included the following:

- Visual impact of Residuals Processing Facility and related facilities
- Light impacts from the proposed Residuals Processing Facility
- Air quality, dust, and dirt transmission to neighborhood roads
- Noise and vibration transmission
- Truck safety and dewatering site security

A total of approximately 140 employees are assigned to the Dalecarlia Water Treatment Plant. It is anticipated that the proposed residuals project as submitted will require no more than approximately 10 new positions, including operator and maintenance positions. It is expected that the new positions will be added when the new residuals facilities are completed in 2010. Additional positions are not anticipated to be required in future years.

CONFORMANCE

Comprehensive Plan for the National Capital: Federal Elements

Staff has determined that the project would not have an effect on other federal facilities and is consistent with the Federal Elements of the Comprehensive Plan.

Master Plans

The proposed project conforms to the Master Plans for the Washington Aqueduct Division of the US Army Corp of Engineers; the master plan was last amended at the December 7, 2006 Commission meeting.

National Environmental Policy Act

Pursuant to regulations implementing the National Environmental Policy Act (NEPA), the U.S. Army Corps of Engineers, Baltimore District-Washington Aqueduct, prepared a Final Environmental Impact Statement (FEIS) and a Record of Decision for the Proposed Water Treatment Residuals Management Process for the Washington Aqueduct, Washington, DC. These documents were prepared in September and late October 2005, respectively.

NCPC Environmental and Historic Preservation Policies and Procedures (69 FR 41299), Section 9.H., permit the Executive Director to adopt the Corps' FEIS. Here, NCPC was a cooperating agency on the EIS and the Executive Director adopted the EIS as adequate for NCPC review in the Executive Director's Report for a revised Master Plan and preliminary approval of the instant project presented to the Commission at its December 7, 2006 meeting.

National Historic Preservation Act

The Corps of Engineers' analysis has determined that the undertaking does not significantly affect historic resources in the project area and will result in no adverse effect; this determination was forwarded to the District of Columbia and Maryland State Historic Preservation Offices in November 2006. Representatives from DC SHPO and the MD Historic Trust have concurred with the finding of "No Adverse Effect" and the Section 106 review is complete.

COORDINATION AND CONSULTATION

The Coordinating Committee reviewed the proposed master plan modification and the preliminary site and building plans at its November 15, 2006 meeting and forwarded the proposal to the Commission with the statement that the proposal has been coordinated with all agencies represented.

During June of 2005, several parties reviewing the draft EIS requested an extension of the comment period for the document; a total review period of 75 days was provided on the draft EIS.

In May 2005 the Montgomery County Planning Board commented on the project as reviewed by the Maryland National Capital Park and Planning Commission (M-NCPPC) staff and recommended the following:

- Multiple haul routes should be established and selected on a trip-by-trip basis depending upon the destination to minimize total truck travel. Trucks should only use haul routes in Montgomery County for travel to destinations either in Montgomery County or other Maryland jurisdictions north of Montgomery County.
- Haul Route "C" was not recommended as a suitable route because the portion of Little Falls Parkway incorporated in the haul route has a posted restriction prohibiting commercial vehicle use. Either Haul Route "A" or Haul Route "B" was found to be acceptable for trips traveling into Montgomery County.

- Truck trips should be concentrated during off-peak travel times during weekdays between 9:30 a.m. and 4:00 p.m.

The Planning Board staff found that in Montgomery County, Haul Routes A and B consist of those portions of Wisconsin Avenue (MD 355) and River Road (MD Route 1), respectively, that exist between the Capital Beltway and the District of Columbia. M-NCPPC staff found that Haul Routes A and B were very similar in sharing the following characteristics:

- Approximately four miles in length between the Capital Beltway and the Washington, DC boundary
- Classified as multilane, divided, Major Highways in the County's Master Plan of Highways
- No prohibitions on truck traffic and carrying approximately 60,000 vehicles per day in the vicinity of the Capital Beltway

Congestion levels prompted the Planning Board to seek State Highway Administration Development and Evaluation study information based on the July 2004 Annual Development Approval and Congestion Report. The differences between Wisconsin Avenue and River Road are primarily related to adjacent land uses, which have sensitivity to truck traffic for different reasons.

Wisconsin Avenue serves the pedestrian-oriented central business districts of Friendship Heights and Bethesda. Based in part on the pedestrian activity, posted speed limits range from 25 MPH to 35 MPH. River Road serves lower density communities in the Bethesda-Chevy Chase planning area and is generally lined with residential and institutional uses, excepting the Westbard Sector Plan area of the county. Posted speed limits range from 35 MPH to 45 MPH.

M-NCPPC staff found that neither the pedestrian-oriented developments along Wisconsin Avenue nor the low-density residential communities along River Road to be clearly superior or inferior in determining the appropriateness of a haul route. The staff determined that either Haul Route A (Wisconsin Avenue) or Haul Route B (River Road) would be an appropriate designation for project usage.

M-NCPPC staff did not concur with the DEIS finding that Wisconsin Avenue and River Road operate at acceptable levels of service based on M-NCPPC standards. As described above, substandard congestion levels exist during peak periods along both candidate routes as identified in the July 2004 Annual Development and Congestion Report. The county staff therefore recommended that the truck trips be scheduled to occur after the end of the morning peak period and before the beginning of the evening peak period. Based on the peak period definitions in the Planning Board's Local Area Transportation Review Guidelines, the truck travel should be scheduled to occur between 9:30 a.m. and 4:00 p.m.

In May 2006, the Corps of Engineers initially met with nearby community and neighborhood interest associations to review the project development design and have established an "issues focused" Washington Aqueduct Dalecarlia Stakeholders Leadership Group, which will be meeting approximately quarterly to discuss and resolve project related concerns as the project design progresses, and specific characteristics for the operations of the new residuals treatment facilities as they are finalized.