July 2013 version (EQB Form)

ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19. **Note to reviewers:** Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project Title

Upper Post Flats Affordable Housing, Fort Snelling State Park

2. Proposer: Minnesota Department of Natural Resources, Parks and Trails Division
Contact person: Diane K. Anderson
Title: Principal Planner
Address: 500 Lafayette Road
City, State, ZIP: St. Paul, MN 55155
Phone: 651-259-5614
Email: diane.k.anderson@state.mn.us

3. RGU: Minnesota Department of Natural Resources, Ecological and Water Resources
Contact person: Lisa Fay
Title: Planner Principal / EAW Project Manager
Address: 500 Lafayette Road
City, State, ZIP: St. Paul, MN 55155
Phone: 651-259-5110
Email: environmentalrev.dnr@state.mn.us

4. Required:
☐ EIS Scoping
☒ **Mandatory EAW**

Discretionary:
☐ Citizen petition
☐ RGU discretion
☐Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
Minnesota Rules, part 4410.4300, subpart 19 (residential development).
Specifically, Part *A. ..."100 unattached units or 150 attached units in a sewered unincorporated area;" and,*
"If a project consists of mixed unattached and attached units, an EAW must be prepared if the sum of the quotient obtained by dividing the number of unattached units by the applicable unattached unit threshold, plus the quotient obtained by dividing the number of attached units by the applicable attached unit threshold, equals or exceeds one."

5. Project Location:
County: Hennepin
City/Township: Fort Snelling
PLS Location (¼, ¼, Section, Township, Range): NE 1/4 of the SE 1/4 of Section 29, Township 28N, Range 23W
Watershed (81 major watershed scale): Lower Minnesota River
GPS Coordinates: 44.885 N, -93.19 W
Tax Parcel Numbers: 2902823110001

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project;
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and

- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.

List of Figures

6. Project Description:

a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

The Minnesota Department of Natural Resources is proposing to lease the Upper Post in Fort Snelling State Park for 99 years to Fort Snelling Leased Housing Associates I, LLLP, an affiliate of Dominium Development & Acquisition, LLC, for rehabilitation into rental housing. Up to 215 housing units would be constructed within the existing footprints of 26 historic buildings. New construction to support the housing units would include a commons area with outdoor swimming pool, sidewalks, landscaping, parking facilities, new streets, stormwater infiltration basins, utility improvements, and reconstruction of existing streets and driveways.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that would cause physical manipulation of the environment or would produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The Minnesota Department of Natural Resources (MN DNR) is proposing to rehabilitate 26 historic buildings on the Upper Post area of Fort Snelling State Park into approximately 215 housing units. The Upper Post Flats Affordable Rental Apartments, Fort Snelling State Park (the "Project") is being undertaken by the MN DNR through a long-term lease (99 years) and Redevelopment Contract with a private developer, Fort Snelling Leased Housing Associated I, LLLP (FSLHA), an affiliate of Dominium Development and Acquisition, LLC (Dominium).

Up to 215 housing units would be constructed within the existing footprints of 26 historic buildings. The units would be rented to individuals and families that meet state requirements for moderate income housing (incomes up to 60% of area median), with a preference for military veterans and their families. All housing units would be constructed within the existing building footprints, using the historic building exteriors. All rehabilitation work on buildings and site/landscape will be designed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (the "Secretary's Standards") in order to meet the terms of the property's Federal Historic Surplus Property, Historic Monument Program deed restriction, as well as to qualify for historical tax credits. New construction would include a commons area with outdoor swimming

pool, sidewalks, landscaping, parking facilities, construction of new streets, stormwater infiltration basins, utility improvements, and reconstruction of existing streets and driveways.

The Project Area is part of the former Fort Snelling Military Reservation, and was part of an active U.S. Army fort from the late 1870's through 1946. After 1946, the Upper Post parcel continued to be used for a variety of Veteran's Administration (VA) offices and for family housing for VA health professionals and also as offices and training facilities for various military reserve units. The last occupancy of various buildings was in the mid to late 1990s. Many of the buildings were previously occupied for residential use but have been vacant for about 20 years.

The Upper Post parcel was declared federal surplus property in the late 1960s, and was entered into a program called the Federal Lands to Parks Program, administered by the General Services Administration (GSA) and the National Park Service (NPS). The Land for Parks program imposed covenants restricting the use to recreational purposes, precluding commercial income producing activities, and the Department of the Interior, acting through the NPS, retained oversight over programmed uses. This resulted in the land being transferred to the State of Minnesota in 1971, at which time custodial control was assigned to the MN DNR with the property included within the boundaries of Fort Snelling State Park.

Fort Snelling State Park is located within Ramsey, Hennepin and Dakota counties, at the confluence of the Minnesota and Mississippi rivers, in the heart of the Twin Cities Metropolitan area. The Minneapolis/St. Paul (MSP) International Airport is adjacent to the south edge of the Project Area. The Upper Post and Project Area is located entirely within Hennepin County, but is unincorporated (see Figures 1-3).

During the 1970s and 1980s, the entire Upper Post parcel owned by the State of Minnesota was leased to a private golf course operator, including building development rights. The parcel was also covered by a federal restriction that the property must be used for recreational purposes only. The 26 buildings that are part of this project proposal went unused under this lease restriction, and many slowly deteriorated. In 2000, a lease was granted through legislative action to the Minneapolis Park and Recreation Board (MPRB) to operate the golf course and construct a soccer and baseball field complex. The 26 historic buildings that are part of the proposed Project were separated from this MPRB lease, with the MN DNR taking operational control of the proposed Project Area (also referred to as Officer's Row and Area J).

Between 2000 and 2012, a number of reuse ideas were presented and considered, but the recreational restriction in the deed proved to be a difficult obstacle for functional reuse. In 2012, MN DNR entered into a Joint Powers Agreement with the NPS, Hennepin County, the MPRB, and the Minnesota Historical Society (MNHS) to jointly promote adaptive reuse of the 26 historic buildings in the Upper Post that constitute the Project and other improvements in the area. In 1960, a portion of the Project Area was designated as a National Historic Landmark.

With the support and involvement of the Joint Powers partners, MN DNR entered into negotiations with the NPS and GSA to change the designation of the parcel from the Lands to Parks Program to the Historic Monument Program for federal surplus properties. This alternative designation allows the property to be used for "income producing" activities, including long-term leasing of the historic properties and housing and other commercial uses. This change in federal surplus property program designation was finalized in 2016. To fulfill the NPS' responsibilities for review of the program change under Section 106 of the National Historic Preservation Act (Section 106), a Programmatic Agreement (PA) was also executed in 2016. This PA essentially authorizes the MN DNR to act on behalf of the NPS for purposes of facilitating Section 106 review and consultation for reasonably

foreseeable future undertakings at the Upper Post. The MN DNR has also sought several legislative authorizations in recent years to facilitate leasing, financing and reuse (see MN Statutes Sec. 85.34, Subd. 1).

Anticipating the approval of the change to allow "income producing" uses, the MN DNR issued a Request for Proposals in early 2015, and three proposals were received. The proposal from Dominium for this Project was selected. This selection was endorsed unanimously by the Joint Powers entity. The proposed project is to adaptively reuse all 26 buildings as affordable rental housing. This includes rehabilitating 19 residential units (existing/prior housing units) and converting six existing buildings (formerly institutional uses) into housing units, with one existing institutional use building rehabilitated for recreational use and common space. In the 2018 session, the legislature reserved and provided for the issuance of qualified tax exempt revenue bonds for the Project, making it eligible for low income housing tax credits (LIHTC), and made other changes in historic tax credits and LIHTC approvals to facilitate the Project (see MN Laws, 2018, Ch. 214, Art. 3, Sec. 2). The legislature in doing so made the legislative finding that: "The redevelopment of the Fort Snelling Upper Post shall be a strategic priority of the state and the Minnesota Housing Finance Agency." (Coded at MN Statutes Sec. 474A.22, Subd. 4.)

The proposed project would consist of rehabilitation of 19 historically residential buildings, the conversion of 6 institutional buildings into residential units and repurposing 1 institutional building for recreational use and common space for the apartment community. The historic buildings to be repurposed are located on the Upper Post parcel within locations known as Area J and Officer's Row (Figure 5). The Project proposes to create up to 215 rental apartments (one, two, three, four, and five bedroom dwelling units) that would be rented to individuals and families that have an income no greater than 60% of the area median income. A rental preference for veterans and their families is required for the Project. All new apartment units, common areas, and supporting exterior infrastructure would be designed and constructed within the existing buildings and existing landscape/site areas in accordance with the Secretary's Standards. Total development would be approximately 233,000 square feet (excluding basements) in the existing buildings.

Officers Row currently consists of 10 houses used for 11 historical dwelling units (nine single family residences; one duplex) and a Bachelor Officer Building with 12 apartments, for a total of 23 dwelling units. These buildings were historically used as residences and continued as such into the 1980s and 1990s.

Area J includes three barracks structures that were occupied by 300-400 people each (institutional use). The remainder of Area J includes 12 buildings with a mixture of institutional and housing functions: a hospital; recreation hall; band barracks (which at one time housed 28 people); a single family house; an administration building; guardhouse; fire hall; bakery (converted into a duplex); Civilian Employees Quarters (previously converted into four dwelling units); morgue (previously converted into single apartment); and a telephone exchange building.

New construction would consist of parking facilities, including approximately 93 single, common-wall garage stalls (among 22 structures), surface parking stalls, three infiltration basins for stormwater management, and an outdoor swimming pool. Accessibility ramps would also be incorporated where needed as appropriate to meet American with Disabilities Act standards. Roadways and sidewalks would be reconstructed while also building some new access roads, driveways, and sidewalks.

Utilities within the Project Area: In 2001, a 12" looped water main was installed and owned by the City of Minneapolis, which is adequate for this development. The existing sanitary sewer system is in

poor condition, a new system would be installed in place of the old in the same locations where feasible. Only a small portion of the old sanitary sewer would be reused on the south end of the Project Area, and a connection to the existing sewer would be made on the north end. Once complete, the sanitary sewer system in the Project Area would flow into an existing sewer interceptor line along Highway 5, which currently has adequate capacity, and is shared with the Metropolitan Airports Commission. No wells or septic systems are located within the Project Area.

Currently, electrical service to the Project Area is primarily connected through underground lines. The primary service line is located beneath Sibley Street with connections branching off to buildings in Area J. Some buildings are also served by overhead service connections. Existing phone, communication and gas lines are also primarily underground. Replacement or updates to these existing lines are included as part of the proposed Project.

Roadways in Project Area: Taylor Avenue and Leavenworth Avenue are state park roads; Bloomington Road and Minnehaha/Colville Avenues are Hennepin County roads. Taylor Avenue may be reconstructed as an asphalt street with curbs as part of the Project. Reconstruction of the existing portions of Taylor Avenue and Leavenworth Avenue would be approximately 3,500 linear feet in length.

Bloomington Road and Minnehaha Avenue (located outside the proposed Project Area) are scheduled for reconstruction in 2019 by Hennepin County (existing width and geometry). The Bloomington/Minnehaha project is approximately 2,700 linear feet in length.

Materials Removal during Construction/Hazardous Materials: The rehabilitation and renovation of the historic buildings would require removal and abatement of hazardous building materials (primarily lead-based paint and asbestos) from the interiors and exteriors of the buildings. Removal or abatement of hazardous materials would generate regulated waste that would require disposal at an appropriately permitted facility.

Reconstruction of Taylor Avenue, construction of sidewalks, new streets, parking facilities, utility improvements (including three infiltration basins) and the swimming pool would require earthwork, primarily excavation and grading. This would disturb the current land surface and has the potential to generate waste materials if contaminated soils or large amounts of solid waste are encountered.

Vegetation within the Project Area would also be managed and restored, with the removal of dead trees/shrubs. New trees and landscaping to create green spaces along the reconstructed Taylor Avenue and around the buildings would also occur. Healthy stands of mature trees and some vegetation along the eastern portion of the Project Area are expected to remain. Planned landscaping for the Project includes a mix of native species adapted to Minnesota's climate and selected for appropriateness related to a variety of site-specific conditions such as exposure to sun or shade, windy or protected areas, wet or dry. A goal of the Project is to remove as much invasive non-native vegetation from the Project Area as is feasible. No species that are known to invade natural areas would be planted as part of the project's landscaping. Some areas of the project area would be managed as mowed turf. In those areas, non-native turf grass species are likely to be utilized. The Project landscape plans for rehabilitation would comply with the Secretary's Standards.

Construction Timing and Duration: Construction activities are expected to begin in fall 2019. The reconstruction of Taylor and Leavenworth Avenues existing alignments are expected to begin in the fall of 2020. Where needed, vegetation would be cut or cleared between November 1 and March 31, during winter months in order to avoid impacts to rare species that may be utilizing the area (see Item 13d). The Project is estimated to be completed by fall 2021.

c. Project magnitude:

Project Aspect	Magnitude
Total Project Acreage	Approximately 46.24 acres
Linear Project length	NA
Number and type of residential units	Up to 215 units, 1-5 bedroom apartments
Commercial building area (in square feet)	NA
Industrial building area (in square feet)	NA
Institutional building area (in square feet)	9,521 square feet (recreational use/common space)
Other uses – specify (in square feet)	1,728,607 square feet (39.68 acres) for greenspace, sidewalks, roads and parking areas
Structure height(s)	No structures taller than the existing buildings are planned (building heights range from 25-55 feet).

d. Explain the project purpose; if the project would be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of this Project is to rehabilitate and repurpose the existing historic buildings and landscape/site within the Upper Post area, a National Register of Historic Places/National Historic Landmark historic property, into multi-family affordable housing units with a preference for veterans. The Project would provide a practical reuse of the Upper Post land and historical structures, provide affordable housing units to an area of the Twin Cities that is currently lacking affordable multi-family housing options, and assist the MN DNR in achieving long term management goals for Fort Snelling State Park. The Project would assure the immediate rehabilitation and long term preservation for this National Landmark property which the legislature has determined to be a "strategic priority" for the State. The SHPO, NPS and MN DNR and other consulting parties will review and consult upon all aspects of Project design and implementation to assure that the Secretary's Standards are met.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐Yes ☒No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

No future stages are known or planned at this time.

f. Is this project a subsequent stage of an earlier project? ☐Yes ☒No

If yes, briefly describe the past development, timeline and any past environmental review.

The Project Area is part of the former Fort Snelling Military Reservation, and was part of an active

U.S. Army fort from the late 1820s through 1946. After 1946, the Upper Post parcel continued to be used for a variety of VA offices and for family housing for VA health professionals and also as offices and training facilities for various military reserve units. The last occupancy of various buildings was in the 1990s.

More recent development of the Upper Post parcel included the lease of the golf course to the MPRB and the development of a sports complex for soccer and baseball on the former polo field. This later project included Section 106 review, however, formal environmental review was not required for other past developments within the Upper Post parcel.

7. Cover Types:

Estimate the acreage of the site with each of the following cover types before and after development:

Cover Type	Before	After
Wetlands	0	0
Deep water/streams	0	0
Wooded/forest*	11.94	10.82
Brush/Grassland	0	0
Cropland	0	0
Lawn/landscaping	22.52	18.16
Impervious surface	11.78	16.28
Stormwater Pond	0	0
Other (describe) Infiltration basin**	0	0.98
TOTAL	**46.24**	**46.24**

*Wooded areas present within the Project Area are not characteristic of true forest conditions. These areas have more open space and could be defined as woodlands. Overgrown brush and invasive species are also present which is typical of disturbed landscapes like the Project Area.

** Three infiltration basins are currently proposed within the Project Area for a total of 0.98 acres, but may be subject to changes and approval through Section 106 review.

8. Permits and Approvals Required:

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of Government	Type of Application	Status
FEDERAL		
National Park Service	Federal Historic Tax Credits	To be applied for
	Section 106 Approval	To be applied for
STATE/LOCAL		
Minnesota Department of Health	Water Main Installation Permit	To be applied for, if needed
	Drainage Permit	To be applied for, if needed
Minnesota Department of Natural Resources	Redevelopment Agreement	Issued
	Lease	To be applied for
Minnesota Pollution Control Agency (MPCA)	National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit	To be applied for
	Sanitary Sewer Extension Permit	To be applied for, if needed

Unit of Government	Type of Application	Status
	Brownfields Programs Enrollment [Petroleum and Voluntary Investigation & Clean Up (VIC)]	To be applied for
	Response Action Plan Approval	To be applied for
State Historic Preservation Office	State and Federal Historic Tax Credits Section 106 Review	To be applied for
Metropolitan Council	Sewer Availability Charge (SAC) Determination Request	To be applied for
	Special Discharge Approval	To be applied for, if needed
	Sanitary Sewer Extension Permit	To be applied for, if needed
Hennepin County	Tax Exempt Bond Issuance	County has approved Preliminary Resolution to act as bond issuer, Final approval to be applied for
Minnesota Management and Budget (MMB)	Tax Exempt Bond Allocation Approval	To be applied for
Minnesota Housing Finance Agency (MHFA)	Approval of low income housing tax credits (LIHTC)	Preliminary waivers have been granted, Final approval to be applied for
Lower Minnesota River Watershed District	Erosion and Sedimentation Control Plan Approval and Grading Permit	To be applied for
	Stormwater Management Plan Approval	To be applied for
Minnesota Department of Labor and Industry	Building Permits	To be applied for
	Stormwater Management Plan Approval	To be applied for
	Approval of Easement Vacation (existing utility easement)	To be applied for, if needed
	Temporary Water Discharge Permit	To be applied for, if needed
	Utility Repair Permit	To be applied for, if needed
	Sidewalk Construction Permit	To be applied for, if needed
	Remediation Grant Applications	To be applied for, if needed
Minnesota Department of Revenue	State Historic Tax Credits	To be applied for

9. Land Use:

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The Fort Snelling Upper Post buildings were constructed beginning in 1879 to be part of the larger Fort Snelling military base established in 1819. Over the years, the buildings were used for a variety of different military activities before being decommissioned and turned over to the MN DNR. In 1960, the Upper Post parcel was designated as a National Historic Landmark, the highest level of historical designation. In 1961, Historic Fort Snelling, including the Upper Post, was designated as a Minnesota State Park. In 1966, the Upper Post was added to the National Register of Historic Places (NRHP). Since the late 1990s, all of the Upper Post buildings have been vacant and abandoned and are now currently in various states of disrepair. The Upper Post properties are fenced off, vegetation is overgrown, and the buildings are not being utilized by public or private entities.

The Project Area is part of Fort Snelling State Park with park property surrounding the Project Area except for along the southwest edge where the Minneapolis/St. Paul (MSP) International Airport is located. (See Figures 2, 3.) MSP International Airport is the region's commercial-service airport located on 3,400 acres approximately seven miles south of downtown Minneapolis and seven miles southwest of downtown St. Paul. The airport is surrounded by city limits of Minneapolis, St. Paul and the suburban cities of Bloomington, Eagan, Mendota Heights and Richfield. It has one airfield with four runways, numerous taxiways and service roads, and two terminal buildings - Terminal 1-Lindbergh and Terminal 2-Humphrey - each with adjoining parking ramp facilities. A portion of the Project Area lies to the northeast of Runway 30R/12L. The Metropolitan Airports Commission (MAC), a public corporation established in 1943 by the Minnesota State legislature to provide for coordinated aviation services throughout the Twin Cities metropolitan area, owns and operates the MSP International Airport.

Fort Snelling State Park encompasses Historic Fort Snelling, multi-use recreational trails, picnic areas, Snelling Lake, Snelling Golf Course, athletic fields, and additional recreational and educational resources. Fort Snelling State Park is managed for day-use only, no camping is available.

Other adjacent areas to the Upper Post and Project Area include Highway 55 and the Mississippi River to the north, MN Highway 5 to the east, and the Minnesota River beyond the highway. Additional nearby trails and recreational lands are described below.

- **Minnesota Valley State Trail**- a multi-use trail paralleling the Minnesota River that currently runs through Fort Snelling State Park.
- **Minnehaha Trail**- a paved recreational trail that travels from Minnehaha Regional Park to Fort Snelling State Park, located along Minnehaha Creek and the Mississippi River.
- **Big Rivers Regional Trail-** a paved recreational trail traveling along the eastern side of the Minnesota & Mississippi Rivers confluence valley from Mendota Heights Road near Highway 13 into Lilydale near Interstate 35E (I-35E). Access to numerous trails in the Mississippi National River and Recreation Area and downtown St. Paul are possible through this trail.
- **West River Parkway-** a paved multi-use trail that runs along the western side of the Mississippi River valley that travels from Minnehaha Regional Park to Orvin Olson Park in northeast Minneapolis.

Two designated state water trails (MN Statutes 85.32) and a national wildlife refuge are located near, but not within, the proposed Project Area.

- **Mississippi River State Water Trail** - The Mississippi River is the fourth longest river in the world, flowing 2,350 miles from Lake Itasca in Minnesota to the Gulf of Mexico. In Minnesota, the river flows through valleys, bluffs, prairies, and woodlands in a variety of flow rates and widths. Portions of the river have been designated as a Wild and Scenic river. Ten segments of the Mississippi River in Minnesota have been mapped for paddling, beginning at the source and ending on the Minnesota/Iowa border.
- **Minnesota River State Water Trail** - The Minnesota River flows 318 miles from Big Stone Lake in Ortonville to its confluence with the Mississippi River near Fort Snelling in St. Paul. It is a gentle, placid river, with some portions designated as a Wild and Scenic River, and the entire river is a State Water Trail.
- **Minnesota Valley National Wildlife Refuge**, established in 1976, the northern boundary is located approximately 1.5 miles south or upstream of Fort Snelling State Park along the

Minnesota River. The refuge is part of a corridor of land and water stretching nearly 70 miles along the Minnesota River, from Bloomington to Henderson, Minnesota. Comprised of more than 14,000 acres, the refuge has multiple units, offering a variety of free outdoor recreational experiences for individuals and families. Minnesota Valley National Wildlife Refuge also manages a 14 county Wetland Management District.

The proposed project is not anticipated to negatively impact these nearby resources and recreational areas, however the Project's proximity to these resources enhances the recreational opportunities for tenants.

There is no prime or unique farmland within the Project Area or immediate vicinity.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The Project Area is located within the Fort Snelling Unorganized Territory, so is not included in municipal comprehensive plans. Fort Snelling State Park is acknowledged in the Metropolitan Council's Regional Parks Policy Plan 2040, but no plans for the Project Area are mentioned since it is managed by the MN DNR as part of a State Park.

The proposed Project Area is located entirely within the statutory boundary of Fort Snelling State Park, managed by the MN DNR. The Fort Snelling State Park Management Plan (MN DNR, 1997) refers to the Upper Post parcel as "Upper Bluff" and briefly indicates the need to preserve the historical nature of the land while promoting recreation. The management plan does not state specific land use plans aside from suggesting that a commercial entity on the property may be beneficial to funding maintenance and possible rehabilitation of the Upper Post buildings and grounds. The plan mentions the historic buildings within the Upper Post parcel and their poor condition and recommends trying to rehabilitate at least a representative sample of the buildings to preserve the historical integrity of the land.

The current proposal is consistent with reuse recommendations contained in the Fort Snelling State Park Master Plan (MN DNR, 1997) and the Fort Snelling State Park, Upper Bluff Reuse Study (Fort Snelling State Park Upper Bluff Consultation Team and Thomas R. Zahn & Associates, 1998).

Other relevant documents include the Upper Post Reuse Studies of 1996 and 2006, and the Fort Snelling Light Rail Transit and Upper Post Master Plan of 2011. The proposed project is consistent with the recommendations in each of these documents, as well as the Programmatic Agreement between MN DNR and the SHPO and National Parks Service (NPS) (October 17, 2016) and the recent legislative action declaring the rehabilitation a "strategic priority" of the State (MN Statutes Sec. 474A.22, Subd. 4, adopted in 2018).

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

Fort Snelling is an Unorganized Territory within Hennepin County, and is not included on municipal zoning maps. Fort Snelling State Park includes the Upper Post parcel which is designated as a National Historic Landmark. In 2006, the National Trust for Historic Preservation added the Upper Post to its list of "America's Most Endangered Places".

The Upper Post land is located within the **Mississippi River Corridor Critical Area (MRCCA)**, Separated from River District (CA-SR) – as the Project Area is separated from the river by a major

transportation corridor (Highway 5). The Project Area includes a bluff impact zone and new structures must meet the 40-foot bluff setback. Structure heights would not exceed the heights of any existing buildings (25-55 feet), would be consistent with the height of the current mature tree line and existing surrounding development as viewed from the ordinary high water level of the opposite shore. Historic structures are exempt from the setback limits, but the exemptions do not apply to additions or site alterations (MN Rules, 6106.0180). The Project Area is not located within the MRCCA Shore Impact Zone. A portion of the Project Area includes MRCCA Bluff Impact Zone, which is primarily located along the Project boundary parallel to Highway 5.

> Minnesota Rules, 6106.0100 Districts.
> *Subp. 6. Separated from river district (CA-SR).*
> *A. The separated from river district (CA-SR) is characterized by its physical and visual distance from the Mississippi River. The district includes land separated from the river by distance, topography, development, or a transportation corridor. The land in this district is not readily visible from the Mississippi River.*
> *B. The CA-SR district provides flexibility in managing development without negatively affecting the key resources and features of the river corridor. Minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the Mississippi River are priorities in the district.*

The **Mississippi National River and Recreation Area** (MNRRA) includes Fort Snelling State Park. This designation stretches a total of 72 miles surrounding the Twin Cities metro area and is designed to protect, preserve, and enhance the resources provided by the river. The NPS is a party to the Programmatic Agreement (October 17, 2016) which endorses a reuse consistent with the proposed Project.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

Reuse recommendations for the Upper Post area are primarily outlined in the Fort Snelling State Park Master Plan (MN DNR, 1997) and the Fort Snelling State Park, Upper Bluff Reuse Study (Fort Snelling State Park Upper Bluff Consultation Team and Thomas R. Zahn & Associates, 1998). Other relevant documents include the Upper Post Reuse Studies of 1996 and 2006, the Fort Snelling Light Rail Transit, Upper Post Master Plan of 2011 and the Mississippi National River and Recreation Area Comprehensive Management Plan of 1995. The proposed Project is consistent with the recommendations in each of these documents. The NPS and the SHPO entered into a Programmatic Agreement with the MN DNR in 2016, creating a framework for the project to be reviewed and move forward. In 2018, the Minnesota Legislature passed legislation that reserved tax exempt housing bonds for the Project, and defined the Project as a "strategic priority" of the State.

The Upper Post is an at risk area of the Fort Snelling Historic District. This Project would rehabilitate the buildings that are currently abandoned, in poor condition, and turn the land into usable space. The restoration of the historic buildings would be compatible for the goals of the Historic District as it would preserve the historical value of the Upper Post.

The Project Area borders the MSP International Airport, which would not be affected by the restoration and new use of the buildings. The portion of the airport adjacent to the Upper Post buildings consist of runways, so the proposed Project and its residential use would not affect airport operations. The noise generated by the airport is a concern for the residential use, but would be mitigated by suitable construction noise abatement features in the buildings and location of the recreational facilities in the far eastern portion of the Project Area, remote from the airport.

The Upper Post Project Area does not directly border the Mississippi River. Impacts to the Mississippi River, MRCCA or MNRRA would be expected to be limited as Highway 55 is located between the Project Area and the Mississippi River. The Project Area also does not directly border the Minnesota River. Impacts to the Minnesota River Valley from the proposed Project would also be limited as Highway 5 is located between the river valley and the Project Area.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

Solid wastes generated by residential activities would be hauled by a refuse contractor to the appropriate landfills. Housing units would have designated parking spots and visitor parking spots would be located in close proximity to each building, as appropriate to help mitigate and manage daily traffic and number of vehicles.

Noise from the airport and adjacent highways would be mitigated by adding insulated storm windows, using air tight design on windows and doors, attic and wall insulation, and other best practices during building restoration and remodeling. Such techniques are common in housing near noise sources and have been similarly used successfully in the nearby VA housing by CommonBond, another residential developer. See Item 17 for additional information.

10. Geology, Soils, and Topography/Land Forms:

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The unconsolidated sediments within the vicinity of the Project Area are late Pleistocene age terrace deposits which consist of fine to coarse grained sand and gravel. These terrace deposits typically contain scattered organic sediments and coarsen with depth. These sediments are associated with meltwater from glacial River Warren and the ancestral Crow and Mississippi Rivers (Steenberg et. al 2018).

The depth to bedrock within the Project Area is typically less than 25 feet below ground surface. The uppermost bedrock units within the vicinity of the Project Area are the Upper Ordovician Platteville and Glenwood formations (Steenberg et. al 2018). The Platteville Formation is composed of tan to gray fossiliferous limestone and dolostone with frequent burrows present within its beds. The Platteville Formation is typically 25-30 feet thick. The Glenwood formation underlies the Platteville and is a grayish-green to brownish-gray, calcareous sandy shale, with very thin deposits, typically 3-7 feet thick (Steenberg et. al 2018).

The St. Peter Sandstone formation lies below the Glenwood shale and the upper 2/3 of its deposits are often visible within the Mississippi River Valley near the Project Area. The St. Peter Sandstone is a white to tan fine to medium grained, friable quartz sandstone in the upper 110 to 140 feet of its deposits (Steenberg et. al 2018). The St. Peter Sandstone was also reported in a well log (Unique Well #717948) from a well adjacent to the Project Area at a depth of 33 feet.

Within one mile of the Project Area, one shallow/unconfined aquifer is present. There are also three sinkholes within one mile of the Project Area, located to the south as shown on Figure 10.

The Project is primarily a rehabilitation of existing structures and impacts to existing geologic conditions would not be anticipated. The new construction of roads, parking lots, infiltration basins,

utilities and garages would not be anticipated to adversely affect the geologic conditions within the Project Area.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

The soils within the vicinity of the Project Area are characteristic of the Dorset soil series: coarse-loamy, mixed, superactive, frigid Calcic Argiudolls (soils characteristic of outwash plains, stream terraces and moraines). These soils are typically sandy loams with varying amounts of silt, clay and gravel. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the Dorset soils listed in Table 1 below are mapped within the Project Area (Figure 9).

Table 1. NRCS Soil Units in Project Area.

Map Unit Symbol	Soil Unit Name	Slope	Description	Drainage Class	Notes	% of Project Area
D4A	Dorset Sandy Loam	0 to 2%	Sandy loam underlain by gravelly coarse sand	Somewhat excessively drained	Parent material: loamy glaciofluvial deposits over sandy & gravelly outwash	99.6 %
D4B	Dorset Sandy Loam	2 to 6%	Sandy loam underlain by gravelly coarse sand	Somewhat excessively drained	Parent material: loamy glaciofluvial deposits over sandy & gravelly outwash	0.4 %

The Dorset Sandy Loam soils in the Project Area have been rated by the NRCS for their suitability in various types of land use and construction activities. The soils ratings are typically: not limited, somewhat limited and very limited. Construction activities that the soils are rated somewhat or very limited for may require implementation of additional engineering practices in order to achieve Project goals. If the soils are deemed to be completely unsuitable for a Project activity, they may be excavated and replaced with a suitable imported fill material. The earthwork contractor would be responsible for the reuse or export of any excess soils generated during construction. Construction and land use activities applicable to the Project and the NRCS rating of the Dorset Sandy Loam for each activity are outlined in Table 2 below.

Table 2. Soil ratings for construction and development activities.

Construction/Development Use	NRCS Rating	Reason for rating
Dwellings (with or without basements)	Not limited	Soils are well drained, not subject to flooding or ponding have favorable slopes, low shrink swell potential, low subsidence and favorable compaction performance.
Lawns, Landscaping and Golf Fairways	Somewhat limited	Soils have a low exchange capacity (a limited ability to hold and transfer nutrients to plants), are fairly drought susceptible and occasionally dusty.
Local Roads and Streets	Somewhat limited	Soils are moderately susceptible to frost action (frost heave and thaw weakening).

Construction/Development Use	NRCS Rating	Reason for rating
Shallow Excavations	Somewhat limited	Excavations in these soils would have unstable sidewalls due to their primarily sandy composition.
Small Commercial/Institutional Buildings	Not limited	Soils are well drained, not subject to flooding or ponding have favorable slopes, low shrink-swell potential, low subsidence and favorable compaction performance.
Gravel Source	Poor	Low amounts of gravel present in the soils.
Sand Source	Fair	Soils contain the highest amounts of sand in the thickest and bottom layers of the deposits present.
Roadfill Source	Good	Soils are well drained, have low shrink-swell potential and favorable compaction performance.
Topsoil Source	Fair	Soils contain a moderate amount of rock fragments, contain too much sand in areas, have a low exchange capacity and are difficult to reclaim due to the amount of rock fragments.
Irrigation	Very limited	The soils are somewhat excessively drained with rapid water movement, low water holding capacity and seepage.
Sub-Surface Water Management System	Very limited	Since the soils are somewhat excessively drained, additional drainage is typically not required and installed drain tile would likely clog with sand.

The topography of the Project Area is primarily level with an approximate elevation of 815 feet above mean sea level. Substantial changes in the surface elevation are not planned or anticipated from the proposed Project. The final grades of new construction would closely follow existing topographic contours. Maintaining topography similar to existing conditions would ensure compatibility with existing connecting roads, utilities, and the historic buildings that would remain. The Dorset Sandy Loam soils are rated as slight for erosion hazard, with little to no erosion expected. The earthwork contractor would be responsible for implementing appropriate Best Management Practices (BMPs) during earthwork activities to minimize soil erosion. Given the relatively level topography of the Project Area, no planned major changes in the finished elevations, the low erosion rating of the soils, and BMPs to be implemented, soil erosion during construction activities would be limited for the proposed Project.

Since the Project would primarily consist of rehabilitation of the existing buildings, disturbance of soils or earthwork would be limited to the new construction features of the Project (landscaping, parking, roads, infiltration basins, utilities and the swimming pool). Once construction is completed and vegetation from the new landscaping is established, impacts to soils in the Project Area are expected to be minimal. The proposed earthwork areas and estimated volumes for soil excavation are listed in Table 3 below.

Table 3. Estimated excavation for the Proposed Project.

Type	Proposed Construction/ Disturbance Area (acres)	Estimated Excavation (CY)
Greenspace, Sidewalks, Walkways	2.75	1,910
Parking Stalls, Garages, Roads, Curb	10.12	6,400
Swimming Pool	0.13	141
Utilities (storm, water, sewer)	2.47	76,657

Type	Proposed Construction/ Disturbance Area (acres)	Estimated Excavation (CY)
Infiltration Basins	0.95	12,485
Remediation Activities	3.07	13,733

11. Water Resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

No lakes, streams, wetlands or other water bodies are located within the Project Area (see Figure 9). The closest water to the Project Area is Snelling Lake, approximately 0.09 miles to the southeast across Highway 5. Snelling Lake (27-1), Gun Club Lake (19-78), the Mississippi River and the Minnesota River (no inventory numbers) are identified as MN DNR Public Waters. Snelling Lake, Gun Club Lake, and the confluence of the Minnesota and Mississippi Rivers are located within Fort Snelling State Park. A portion of the state park is within the Minnesota River Valley, which is an important feeding/resting area for migratory waterfowl and an ecologically unique area in Minnesota.

The Minnesota River, the Mississippi River, Snelling Lake and Gun Club Lake are located within one mile of the Project Area. The following are listed as impaired on MPCA's 2018 Impaired Waters List:

- The Minnesota River is listed as an impaired water (07020012-505) for:
  - aquatic consumption due to mercury in fish tissue, mercury in the water column, and Polychlorinated Biphenyl (PCB) in fish tissue; and
  - aquatic life due to turbidity, dissolved oxygen, and nutrient/eutrophication biological indicators.
- The Mississippi River is listed as an impaired water (07010206-814) for:
  - aquatic consumption due to mercury in fish tissue, mercury in water column, PCB in fish tissue, Perfluorooctane Sulfonate (PFOS) in fish tissue, and PFOS in water column;
  - aquatic life due to total suspended solids and nutrient/eutrophication biological indicators; and
  - aquatic recreation due to fecal coliform.
- Snelling Lake is listed as an impaired water (27-0001-00) for aquatic consumption due to mercury in fish tissue.

Turbidity, dissolved oxygen, total suspended solids, and fecal coliform are construction-related impairments, and therefore the SWPPP for the Project will need to specify that inactive, disturbed areas are stabilized immediately, with final site stabilization completed within seven

days of temporarily or permanently ceasing soil disturbance on any one portion of the Project Area as required by the MPCA NPDES/SDS Construction Stormwater Permit.

No impacts from the Project are anticipated to the waters identified in the Project Area vicinity. The new infiltration basins would help control stormwater run-off and may minimally improve the water quality of Snelling Lake.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Two environmental investigations involving soil borings were recently completed within the Project Area by Braun Intertec and did not encounter groundwater. According to published geologic information, the water table within the Upper Post vicinity is approximately 12-32 feet below ground surface (Kanivetsky 1989).

Groundwater flow within the unconsolidated deposits in the vicinity of the Project Area is generally to the east. The uppermost bedrock aquifer in the vicinity is the Platteville aquifer, underlain by the St. Peter, Prairie du Chien-Jordan, Franconia-Ironton-Galesville and Mt. Simon-Hinckley aquifers. The approximate groundwater flow direction within the most heavily used regional bedrock aquifer, the Prairie du Chien-Jordan, is primarily to the east-southeast (Kanivetsky 1989).

Numerous springs are identified along the Minnesota River Valley, the closest of which are across Highway 5 from the Project Area near Snelling Lake (see Figure 9).

A review of the Minnesota Depart of Health (MDH) Minnesota Well Index (MWI) identified one well directly adjacent to the Project Area (see Figure 10):

Unique ID	Well Name	Depth (ft)	Aquifer	Listed Use	Date
717948	MAC-CWN-13B	99	St. Peter	Monitoring Well	August 11, 2005

The location of this monitoring well is not within the Project Area and no actions regarding the well would be taken as part of construction. This well is part of an overall groundwater monitoring system for MSP International Airport and is owned by the Metropolitan Airports Commission (MAC). It is approximately 175-200 feet from the closest edge of the Project Area boundary. Monitoring results show that it is currently below detectable levels for Diesel Range Organics/Gasoline Range Organics and Benzene/Toluene/Ethylbenzene/Xylene.

The Project Area is not located within a wellhead protection or drinking water supply management area.

No impacts are anticipated from the Project or to the Project related to the features discussed above or to groundwater in general.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.
   i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

The estimated wastewater flow for the proposed Project is 61,009 gallons per day (GPD). The usage is based on the Metropolitan Council 2018 Sewer Availability Charge (SAC) Procedure Manual (215 residential units + 7.66 SAC units for building 65 with a swimming pool at 274 gallons per SAC unit per day = approximately 61,009 GPD). The existing sewer main connected to the Project Area along with downstream sanitary tunnels have sufficient capacity for the proposed Project.

The Project Area is connected to the City of Minneapolis wastewater collection system, which is connected to the Metropolitan Council Metropolitan Wastewater Treatment Plant in St. Paul, Minnesota. According to the Metropolitan Council Environmental Services *Plant Inflow Summary Report* for the 12-month period ending May 2018, the Metro wastewater treatment plant handles approximately 175 million GPD and can handle up to 314 million GPD. The treatment plant would not need additions or improvements to treat the estimated water flow for the proposed Project, which would be an additional 61,009 GPD (0.06 million GPD).

As discussed in item 6.b, the existing sanitary sewer system is in poor condition, a new system would be installed in place of the old in the same locations where feasible. Once complete, the new sanitary sewer system in the Project Area would flow into an existing sewer interceptor line along Highway 5, which currently has adequate capacity to handle the estimated wastewater flow from the proposed project.

The sanitary sewer system would also be used for disposal of excess amended water used during asbestos abatement. This water would be filtered and discharged to the sanitary sewer within the Project Area per MDH guidance as discussed in item 16.c.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

No SSTS is present within the Project Area or planned for the proposed Project.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

No wastewater from the proposed Project would be discharged to surface water.

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

Pre-construction stormwater surface drainage in the Project Area occurs via sheet flow in various directions to stormwater catch basins on the perimeter, which eventually drain to municipal systems. There are no current stormwater best management practices (BMPs) in use within the

Project Area. Since the Project Area has been vacant for over 20 years, current runoff does not likely contain the typical pollutants associated with a residential development, including but not limited to road salts, plant fertilizers and chemicals from motor vehicles.

Runoff captured by the existing stormwater system flows untreated through five discharge points to the neighboring golf course, soccer fields, and outside the Project Area through existing storm sewers. The stormwater monitoring program HydroCAD was utilized to calculate stormwater runoff volumes for the Project Area, both under existing conditions and once the proposed Project is complete. The estimated current stormwater volume (under a 1 year, 24-hour rain event of 2.48 inches) from the Project Area is approximately 122,098 cubic feet. Once the project is complete, the estimated stormwater volume (under the same conditions) from the Project Area is approximately 60,723 cubic feet.

Post-construction, BMPs, such as landscaped areas and infiltration basins, would be implemented at the Project Area for stormwater runoff quality and quantity to meet applicable MPCA treatment requirements, including requirements for storm events. Three infiltration basins (one underground system and two surface basins) are planned as part of improvements to the storm sewer system. Because coarse soils are identified at the site and noted to be "somewhat excessively drained", the MPCA has indicated that soil testing will be required to ensure that infiltration rates do not exceed 8.3 inches per hour unless soils are amended. Soil testing will also be required to ensure there are no contaminated soils in the location of the infiltration systems that would prohibit use of infiltration. If determined that infiltration is prohibited, other methods of stormwater volume reduction (retention onsite) would need to be considered, including water harvest and reuse. Additional information can be found at Green Infrastructure in the MN Stormwater Manual.

Because the proposed Project would involve disturbance of more than one acre of land, a Stormwater Pollution Prevention Plan (SWPPP) and an MPCA administered National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit are required. The proposed Project would be required to provide both temporary and permanent erosion and sediment control as required by MPCA's stormwater construction general permit. Temporary and permanent erosion and sediment control measures may include: rock entrances; silt fence; wood chip logs; inlet protection; rock check dams; temporary seeding and mulching; erosion control blankets for disturbed areas; filtration treatment devices; and seeding or placement of sod or other vegetative material for final stabilization.

Based on the proposed Project soil disturbance, an Erosion and Sediment Control Plan would be required by the Lower Minnesota River Watershed District. An Erosion and Sediment Control Plan would be submitted to the Lower Minnesota River Watershed District for approval prior to the start of construction on the proposed Project. With the BMPs and storm drainage controls, modest water quality improvement may occur in Snelling Lake, the discharge point for stormwater runoff.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

The estimated water usage for the proposed Project is 67,110 gallons per day (GPD). This estimate is based on the premise that water consumption is approximately 110 percent of estimated wastewater generation. Please see Section 11.b.i.1 for a discussion on the estimated wastewater generation for the proposed Project. The existing City of Minneapolis water main connected to the Project Area currently has sufficient capacity to support the planned redevelopment. To ensure optimal water service for the proposed Project, new sections of water main would be added and some existing sections would be rehabilitated.

The Project Area is connected to the City of Minneapolis water supply, which is drawn from the Mississippi River. According to the City of Minneapolis, approximately 21 billion gallons of water are pumped each year, under a permit which allows 125 billion gallons per year. In addition, the City of Minneapolis has a storage capacity of 162 million gallons. Based on this information, the City of Minneapolis would not need additions or improvements to provide the estimated water flow for the proposed Project.

Permanent dewatering is not anticipated. Temporary dewatering during construction is not anticipated but a minimal amount may be required. If required, appropriate permits from MN DNR would be obtained and discharge would comply with NPDES/SDS and City permit requirements. The Project involves no wells, groundwater or surface water appropriation and use, hence no impacts are anticipated.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts would occur in the same minor or major watershed, and identify those probable locations.

There are no wetlands that occur within the boundaries of the Project Area. The U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) identifies two wetland areas adjacent to the Project Area (see Figure 9). One is a freshwater emergent wetland that is located southwest of the property boundary (within airport property) and the other is a freshwater pond located northwest of the property boundary (within the golf course).

Since these wetlands are not located within the proposed Project Area, no direct impacts to these wetland features are expected. It is possible under certain weather conditions during construction that minor amounts of construction trash/debris or sediment may be swept by wind or water into the adjacent wetland areas. To the extent possible, these materials would be removed. The infiltration basins and use of BMPs such as silt fences would be expected to prevent or minimize these potential impacts. No long-term wetland impacts are expected as a result of the proposed Project.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration.

Discuss direct and indirect environmental effects from physical modification of water features.

Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project would change the number or type of watercraft on any water body, including current and projected watercraft usage.

No surface waters are present in the Project Area and no effects from Project activities to nearby surface waters are anticipated. Snelling Lake is the closest surface water to the Project Area and may receive stormwater runoff from the Project Area and nearby highways. A construction SWPPP would be implemented during construction with BMPs in place until all new vegetation has been established. In addition to the infiltration basins, other post-construction stormwater BMPs would be implemented as needed to satisfy MPCA stormwater treatment requirements. For further details on stormwater management practices involving the proposed project, see Item 11.ii.

The proposed project would not change the number or type of watercraft on any waterbody.

12. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

To determine if existing contamination or potential environmental hazards exist on, or in close proximity to the Project Area, the MPCA "What's in My Neighborhood" (WIMN) online database was accessed. The database does not indicate any sites present within the Project Area. However, 43 sites are listed within 0.25 miles of the Project Area. Of the 43 sites identified, 13 remain active. Locations of these sites are shown on Figure 11.

The majority of the identified sites are associated with fuel storage for multiple airport entities at MSP International Airport, which is adjacent to the Project Area. Most of the active sites are associated with above and below ground storage tanks, and there are known releases to soil and groundwater at the airport from the tanks and other sources. The extents of the releases have been defined and are not in close proximity to the residential development. As a result, soil and groundwater contamination from identified fuel storage tanks at the airport is not anticipated to be encountered during construction in the Project Area.

In the interest of due diligence for the proposed project, Braun Intertec conducted two limited environmental investigations within the Project Area. A limited Phase II Environmental Site Assessment (ESA) was conducted in June 2017, which consisted of 11 soil borings and five soil vapor probes. An additional investigation was conducted concurrently with a geotechnical evaluation in December of 2018 and consisted of 26 soil borings and five soil vapor probes. In both investigations, soil and soil vapor samples were collected and sent for laboratory analysis.

The soil samples were analyzed for one or more of the following parameters: Volatile Organic Compounds (VOCs), Diesel Range Organics (DRO), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) and eight Resource Conservation & Recovery Act (RCRA) metals. All soil vapor samples were analyzed for VOCs. Soil sample analytical results were compared to the

MPCA Screening Soil Leaching Values (SLV) and Residential Soil Reference Values (SRVs). Soil vapor sample analytical results were compared to the MPCA Residential Intrusion Screening Values (ISVs).

General conclusions from the results of both investigations are outlined below:

- Fill soils, consisting primarily of silty sand with some gravel, sandy lean clay, and/or poorly graded sand with silt, were encountered from the ground surface to depths of 1 to 18 feet below ground surface (bgs).
- Underlying the fill soil was apparent native soil consisting mainly of sandy silt, silty sand, sandy lean clay, lean clay, and/or poorly graded sand.
- Debris consisting of asphalt, brick, concrete, metal, slag and burned materials was observed in 13 of the soil borings. The debris was generally present in the upper 8 feet of soil.
- Organic vapor/Photoionization Detector (PID) readings were recorded for soil samples collected from each of the borings. Observed PID readings ranged from 0.0 to 2.7 parts per million (ppm), which are considered to be within the range of background readings.
- In both rounds of the soil vapor samples collected, various petroleum and non-petroleum related VOCs were identified at concentrations less than 33X the Residential ISVs. However, in addition, in each of the ten samples one or more petroleum or non-petroleum VOCs were detected at concentrations above the respective Residential ISVs.
- In all the soil samples collected, no VOCs or PCBs were detected at concentrations greater than or equal to the laboratory reporting limits.
- DRO was detected in 4 of the 26 soil samples at concentrations below the MPCA unregulated fill criterion of 100 mg/kg. DRO was detected above the MPCA unregulated fill criterion in two soil samples from borings B-7 (0-2') and ST-23 (0-2.5') at concentrations of 394 mg/kg and 157 mg/kg respectively.
- Varying concentrations of PAHs were detected in 13 of the 25 soil samples analyzed. The concentrations of the detected PAHs were below the applicable regulatory standards with the exception of the BaP equivalent in borings B-12, ST-21 and ST-23 and naphthalene in ST-21. The BaP equivalent concentration exceeded the residential SRV in samples B-12 (0-2'), ST-21 (0-2.5') and ST-23 (0-2.5'). The naphthalene concentration exceeded the residential SRV in ST-21 (0-2.5).
- Varying concentrations of the eight RCRA metals were detected in each of the soil samples analyzed. All of the detected concentrations of metals were below their respective SLVs and residential SRVs with the exception of arsenic in soil borings B-5, B-11, B-12 and ST-4. The concentrations of arsenic in samples B-5 (4-6') and B-11 (6-8') exceeded the SLV of 5.8 mg/kg. Arsenic concentrations in samples B-12 (0-2') and ST-4 (0-2.5') exceeded the residential SRV of 9 mg/kg.

Based on the results of the environmental investigations described above, Braun Intertec recommended the development of a Response Action Plan (RAP)/Construction Contingency Plan (CCP) to provide procedures for the management of contaminated or debris laden fill soils that may be encountered during construction for the proposed Project.

Although the identified WIMN sites in the vicinity of the Project Area are not expected to cause adverse environmental impacts during redevelopment, based on the results of Braun Intertec's environmental investigations within the Project Area, a RAP/CCP was developed and submitted to the MPCA for approval. The MPCA approved the RAP/CCP on April 30, 2019. The Project has also been enrolled into the MPCA's Brownfield and Voluntary Investigation & Clean Up (VIC) programs.

Locations with soil that exceeds regulatory standards would be removed from the Project Area during construction and handled in accordance with the MPCA approved RAP/CCP. To accommodate construction goals or satisfy geotechnical soil requirements after the removal of contaminated or debris laden soils, fill material may be imported to the Project Area if needed. Prior to arrival, imported fill material would be tested for suitable use within the Project Area as outlined in the approved RAP/CCP.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

Solid waste generated during construction is expected to consist primarily of construction debris, material packaging, and general municipal refuse. The contractors working within the Project Area would be responsible for proper storage and outside disposal that meets local regulations.

Solid waste generated after Project construction is completed and the Project Area is in use would consist of mixed residential/municipal waste materials. A local garbage and recycling transport service would be used to move refuse out of the Project Area to a landfill accepting these types of residential wastes.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

During construction, hazardous materials and petroleum products such as gasoline, lubricants, and solvents would be brought to the Project Area as needed for fueling and equipment maintenance. Materials would be removed from the area once maintenance activities are completed. Proper storage and use procedures of all chemicals/hazardous materials would be followed during construction to prevent spills. All required spill kits and containment materials would be present during work activities and easily accessible if needed. Any spills that occur would promptly be reported to the MPCA by the contractor present and handled in accordance with the procedures outlined in the Construction Contingency Plan (CCP) described in item 12.a.

Upon Project completion, use of chemical/hazardous materials would be expected to be limited. Types, quantities, and composition of chemical/hazardous materials would be typical of residential activities. These chemicals and materials would be stored and used in accordance with Dominium's chemical use and storage policies, which require proper labeling, easy access to product Safety Data Sheets, and use of appropriate personal protective equipment (PPE). Chemicals associated with the pool would be stored in a dry secure location, and would be handled only by trained personnel utilizing proper PPE.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

Inspections for lead-based paints and asbestos-containing materials are in progress for the Upper Post buildings. The buildings surveyed all contain both lead-based paint and asbestos-containing material. Due to the current state of the buildings some of these materials are in poor condition.

Asbestos-containing materials that are in poor condition or are to be affected by the rehabilitation of Project Area buildings would be removed by a licensed abatement contractor. The contractor would be responsible for removing and disposing of the materials in a manner that meets state and federal regulations. Asbestos-containing materials would be sealed in plastic sheeting or barrels after removal and transported daily for disposal at an appropriate landfill licensed to accept this type of hazardous waste.

Lead-based paint would either be removed or encapsulated by a contractor licensed for lead paint abatement. Due to the historic nature of the Project Area, it is expected that wooden surfaces (i.e. doors, windows, trim) would be stripped of lead-based paint in order to be reused in the remodeled buildings. Any lead-based paint that is left in place would be encapsulated in order to seal the surface and provide a barrier between the paint and the surrounding environment. Removal and disposal of lead-based paint would be done in manner that meets all state and federal regulations.

The redevelopment of the Upper Post buildings would reduce the amount of hazardous materials in the buildings and ensure proper disposal. Upon completion of the Project, the residential buildings are expected to generate small amounts of household hazardous wastes such as paint, batteries, and some cleaning supplies. When routine maintenance that requires use of these products is conducted, property management personnel would utilize safe handling, disposal, and storage practices as recommended by product manufacturers.

13. Fish, Wildlife, Plant communities, and Sensitive Ecological Resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Project Area is located within the Ecological Classification System's St. Paul-Baldwins and Moraines subsection of the Minnesota and Northeast Iowa Morainal section of the Eastern Broadleaf Forest. This area is dominated by end moraine complex with a series of outwashes. Topography is characterized by rolling to hummocky on the moraine and level to rolling on the outwash. Pre-settlement vegetation in this subsection was mainly characterized by oak and aspen savanna with areas of tallgrass prairie and maple-basswood. Bur oak savanna developed on rolling moraine ridges. Maple basswood forests were restricted to ravines.

Currently, the Project Area is in an urbanized location with the MSP International Airport located to the south, sport recreational areas to the west, Highway 55 to the north, and Highway 5 to the east. The Project Area is predominantly landscaped or previously landscaped with overgrown turf grasses. The remainder of the Project Area itself is approximately 30% unmanaged brushy communities occurring along the eastern boundary and a woodland in the northern portion. The brush community consists mainly of early successional species, many of which are naturalized rather than native. Scattered trees are present including box elder (*Acer negundo*), green ash (*Fraxinus pensylvanica*), hackberry (*Celtis occidentalis*), cottonwood (*Populus deltoides*), basswood (*Tilia americana*), and catalpa (*Catalpa speciosa*). Thick shrub cover is present comprised of staghorn sumac (*Rhus typhina*), black raspberry (*Rubus occidentalis*), riverbank grape (*Vitis riparia*), and non-native, invasive common buckthorn (*Rhamnus cathartica*), and non-native honeysuckle (*Lonicera* spp.). Brushy areas currently have dense cover of common buckthorn (see Items 13c and 13d regarding proposed invasive species control).

The ground cover is typical of a disturbed location and old fields consisting of smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), Canada goldenrod (*Solidago canadensis*), burdock (*Arctium minor*), birdsfoot trefoil (*Lotus corniculatus*), common mullein (*Verbascum thapsus*), and garlic mustard (*Alliaria perfoliata*). The woodland community is dominated by a savannah-like canopy of numerous mature bur oaks (*Quercus macrocarpa*) with old field species in the understory. Naturally vegetated areas occur primarily to the east of the Project Area, beyond Highway 5.

No aquatic habitat occurs within the Project Area. The nearest fisheries resource is Snelling Lake, and Minnesota River located approximately 500 ft and 1000 ft east of the Project Area respectively and the Mississippi River located approximately 1,500 ft north of the Project Area. Gamefish management in Snelling Lake targets mainly bluegill and yellow perch. Other fish species that occur in high abundance in this lake include northern pike (*Esox lucius*), black crappie (*Pomoxis nigromaculatus*), largemouth bass (*Micropterus salmoides*), yellow perch (*Perca flavescens*), yellow bullhead (*Ameiurus natalis*) and pumpkinseed (*Lepomis* gibbosus). The Minnesota and Mississippi Rivers house over 75 species of fish. Channel catfish (*Ictalurus punctatus*), walleye (*Sander vitreus*), largemouth bass, smallmouth bass, northern pike are found in abundance.

Wildlife present in and around the Project Area are primarily generalist species such as raccoons, skunks and white-tailed deer accustomed to urbanization. The Project Area is in close proximity to the Mississippi and Minnesota River valleys, Fort Snelling State Park and the Mississippi Flyway migratory corridor. Due to the Project Area's close proximity to Snelling Lake and the Minnesota and Mississippi Rivers, a variety of aquatic birds such as herons and ospreys are likely to occur or nest in the general vicinity of the Project Area.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-873) and/or correspondence number (ERDB #20190203) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The Minnesota Natural Heritage Information System (NHIS) database was reviewed to determine whether any rare, threatened, or endangered plant or animal species or other important natural features are known to occur within or near the Project Area (within an approximate one-mile radius). These queries identified several rare features within the search radius. Of the features documented in the search radius, a subset were identified in the NHIS response letter with potential to be adversely affected by the proposed Project (see Attachment A). These features are addressed below.

Table 4. State of Minnesota Rare, Threatened and Endangered Species in Vicinity of Project Area.

Scientific Name	Common Name	Category	Habitat	State Protection Status
Ligumia recta	black sandshell	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Special Concern
Ellipsaria lineolata	butterfly mussel	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Fusconaia ebena	ebonyshell	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Alasmidonta marginata	elktoe	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened

Scientific Name	Common Name	Category	Habitat	State Protection Status
Truncilla donaciformis	fawnsfoot	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Lampsilis higginsii	Higgins eye	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Quadrula metanevra	monkeyface	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Actinonaias ligamentina	mucket	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Cyclonaias tuberculata	purple wartyback	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Arcidens confragosus	rock pocketbook	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Pleurobema sintoxia	round pigtoe	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Special Concern
Bombus affinis	rusty-patched bumble bee	Invertebrate Animal	Terrestrial - Associated with a variety of native herbaceous and woody plant species that occur commonly in the Great Lakes and Great Plains regions.	Watchlist
Elliptio dilatata	spike	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Quadrula nodulata	wartyback	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Threatened
Megalonaias nervosa	washboard	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Lampsilis teres	yellow sandshell	Invertebrate Animal	Aquatic – Occurs in rivers and streams.	Endangered
Anguilla rostrata	American eel	Vertebrate Animal	Aquatic – Occurs in rivers, streams and silt or muddy bottom lakes.	Special Concern
Eptesicus fuscus	big brown bat	Vertebrate Animal	Terrestrial – Forages in forested habitats near water sources. Roosts in buildings, bridges, and trees with cavities or loose bark. Hibernates in caves, cellars, and tunnels.	Special Concern
Emydoidea blandingii	Blanding's turtle	Vertebrate Animal	Semi-aquatic – Prefers ephemeral wetlands.	Threatened
Cycleptus elongatus	blue sucker	Vertebrate Animal	Aquatic – Occurs in large rivers systems.	Special Concern
Myotis lucifugus	little brown bat	Vertebrate Animal	Terrestrial – Forages in forested habitats near water sources. Roosts in buildings, bridges, and trees with cavities or loose bark. Hibernates in caves, mines, tunnels and buildings.	Special Concern
Necturus maculosus	mudpuppy	Vertebrate Animal	Aquatic – Prefers rivers, weedy ponds, large lakes, and perennial streams.	Special Concern

Scientific Name	Common Name	Category	Habitat	State Protection Status
Myotis septentrionalis	northern long-eared bat	Vertebrate Animal	Terrestrial – Typically roosts in large trees with cavities or loose bark, although summer roosting in buildings and bridges has been documented. Hibernates in caves or mines.	Special Concern
Hybopsis amnis	pallid shiner	Vertebrate Animal	Aquatic – Prefers large rivers and streams with sand and gravel bars.	Endangered
Perimyotis subflavus	tri-colored bat	Vertebrate Animal	Terrestrial – Roosts in buildings, bridges, and trees with cavities or loose bark. Hibernates in caves, mines, and tunnels.	Special Concern

Native Plant Communities

One native plant community was identified in the NHIS letter (Attachment A) with potential to be adversely affected by the Project.

Calcareous Fen: A calcareous fen was documented in the vicinity of the proposed Project Area. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota (see Calcareous Fen Fact Sheet included in Attachment A). The Wetlands Conservation Act, authorized by MN Statutes, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the Commissioner of the MN DNR.

This native plant community consists of graminoid-dominated fens that occur on permanently saturated peat substrate sustained primarily by groundwater discharge. This type of vegetation community occurs east of Gun Club Lake, north of the Interstate 494 (I-494) Bridge and in the Minnesota River Valley, south of the I-494 Bridge approximately 1.25 miles and 2.5 miles southeast of the Project Area respectively. These areas consist of saturated deep peat on gentle west-facing slopes with areas of calcareous groundwater discharge. The proposed project is not anticipated to adversely impact hydrological conditions of the Project Area or surrounding areas. As a result, no impacts to calcareous fens located in the vicinity of the Project Area are anticipated.

Animal Assemblages

Two animal assemblages have been identified within a one-mile radius of the Project Area by the MN DNR. One is a bat colony in a manmade excavation characterized by high ceilings and several tunnels. A second is a freshwater mussel concentration that was identified in the Minnesota River within Fort Snelling State Park.

State listed species

Several state-listed fish, mussels, amphibians, and reptiles have been documented in the Mississippi and Minnesota Rivers in the vicinity of the proposed Project. These species are particularly vulnerable to deterioration in water quality, especially increased siltation. Effective erosion prevention and sediment control practices would be implemented and maintained throughout the duration of the project and incorporated into the SWPPP for the Project Area. Storm sewer improvements are part of the proposed development and include infiltration basins, which are designed to improve the water quality of aquatic habitats downstream from the Project Area.

Northern long-eared bat (*Myotis septentrionalis*), is state-listed as a species of special concern and federally-listed as a threatened species, typically roosts and broods young in large trees that have shaggy bark, cavities, or otherwise exhibit signs of decay, particularly aspen. The species has been documented roosting in buildings and bridges in the summer. There are known hibernaculum within one mile of the proposed Project Area, but not known to be within the Project Area boundary.

Tricolored bat (*Perimyotis subflavus*), little brown bat (*Myotis lucifugus*), and big brown bat (*Eptesicus fuscus*) are listed as special concern, have been documented in the vicinity of the proposed Project. During winter, these species typically hibernate in caves and mines. During the active season (approximately April – October) they roost underneath bark, in cavities, or in crevices of both living and dead trees, and in human structures such as buildings and bridges. Pup rearing is during June and July.

Higgins eye (*Lampsilis higginsii*) also known as pearly mussel is a freshwater mussel that occurs in larger rivers usually found in areas with deep water and moderate currents. This species is endangered at both the state and federal levels.

Federally-listed Species

The US Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) online tool was queried in December 2018 for the occurrence of federally-listed plant and wildlife species in the vicinity of the Project Area. One mammal, one mussel and 20 migratory bird species were identified as potentially occurring in the Project vicinity.

Northern long-eared bat (*Myotis septentrionalis*) is federally-listed as a threatened species (see description above).

Higgins eye (*Lampsilis higginsii*) is endangered at both the state and federal levels (see description above).

Rusty-patched bumblebee (*Bombus affinis*) is a federally endangered insect associated with a variety of native herbaceous and woody plant species and urban gardens that provide floral resources April through October (see Rusty-patched Bumblebee Fact Sheet included with NHIS letter in Attachment A). It nests and winters underground. It is also state-watch listed. The species was not noted on the IPaC results, but NHIS results indicate it is known from a location within a few miles of the Project Area.

The table below summarizes the migratory birds mentioned by the IPaC results. While this is not a comprehensive list of migratory birds known, or could potentially occur, in the Project vicinity, the species enumerated are on the USFWS Birds of Conservation Concern (BCC) list.

Table 5. Migratory Birds of Conservation Concern in Vicinity of Project Area.

Scientific Name	Common Name	Breeding Season	Probable Timing of Presence
Botaurus lentiginosus	American bittern	April - August	April - September
Pluvialis dominica	American golden-plover	Breeds elsewhere	April - October
Haliaeetus leucocephalus	bald eagle	December - August	All year
Chlidonias niger	black tern	May - August	May - August
Coccyzus erythropthalmus	black-billed cuckoo	May - October	May - August

Scientific Name	Common Name	Breeding Season	Probable Timing of Presence
Dolichonyx oryzivorus	bobolink	May - July	June and September
Dendroica cerulea	Cerulean warbler	April - July	June
Alpina arcticola	Dunlin calidris	Breeds elsewhere	May, June, October
Aquila chrysaetos	golden eagle	Breeds elsewhere	April
Vermivora chrysoptera	golden-winged warbler	May - July	May, August, September
Ixobrychus exilis	least bittern	August - October	May-September
Tringa - avipes	lesser yellowlegs	Breeds elsewhere	March - May, August - October
asio otus	long-eared owl	March - July	February - March
Melanerpes erythrocephalus	red-headed woodpecker	May - September	March, May, September - December
Arenaria interpres morinella	ruddy turnstone	Breeds elsewhere	May, August-September
Euphagus carolinus	rusty blackbird	Breeds elsewhere	March, April, September - November
Limnodromus griseus	short-billed dowitcher	Breeds elsewhere	April, May, July, August, October
Calidris pusilla	Semipalmated sandpiper	Breeds elsewhere	May, August
Empidonax traillii	wouldow flycatcher	May - August	May, September
Hylocichla mustelina	wood thrush	May - August	May, September

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Fisheries Resources

Impacts to fisheries resources are not anticipated from the proposed development. Appropriate use of stormwater BMPs during and after construction would prevent or minimize erosion and siltation that could negatively affect off-site water quality and organisms inhabiting aquatic environments.

Wildlife Resources

Minimal impacts to wildlife and its habitat are anticipated from activities related to the proposed Project. Potential effects include changes in existing ground and canopy cover, accidental introduction of invasive species and disruption of animal movements. Bats nesting in abandoned buildings may be displaced during renovation. State-special concern species may potentially be present. The federally-listed northern long-eared bat is not anticipated to be affected since it is not known to be roosting in buildings within the Project Area. No regional or long-term impacts to wildlife or its habitat are anticipated.

State-listed Species

There are no known occurrences of state-listed plant species within the Project Area; no impacts are anticipated from the proposed development.

As indicated in Table 4 above, the majority of the state-listed animal species are found in wetland or aquatic habitat. No corresponding habitat occurs within the Project Area. Appropriate use of stormwater BMPs during and after construction would prevent or minimize erosion and siltation that

could negatively affect off-site water quality and organisms inhabiting wetland and aquatic environments. No impacts to these species are anticipated from the proposed development

Also as noted in Table 4, several species associated with terrestrial habitat are known to occur within a one-mile radius of the Project Area. The table below provides a discussion of their habitat requirements and anticipated impacts from the proposed development.

Table 6. State-Listed Species and Anticipated Impacts.

Scientific Name	Common Name	State Protection Status	Anticipated Impacts
Bombus affinis	rusty-patched bumble bee	Watchlist	***None*** – Suitable habitat (occurrence of native plant species) present within Project Area. However, Project Area is within a low priority zone identified by USFWS, and following USFWS guidelines, no impact is anticipated in low priority zones.
Epitesicus fuscus	big brown bat	Special Concern	***Unlikely, but negative impacts possible. T***he species has been documented roosting in bridges and buildings. In the unusual event the species is roosting in one of the buildings, renovation could create adverse impacts.
Myotis lucifugus	little brown bat	Special Concern	***Unlikely, but negative impacts possible. T***he species has been documented roosting in bridges and buildings. In the unusual event the species is roosting in one of the buildings, renovation could create adverse impacts.
Myotis septentrionalis	northern long-eared bat	Special Concern	***Unlikely, but negative impacts possible.*** Although the species' roosting habitat is typically reported as large trees with cavities or loose bark, the species has been documented roosting in bridges and buildings. In the unusual event the species is roosting in one of the buildings, renovation could create adverse impacts.
Perimyotis subflavus	tricolored bat	Special Concern	***Unlikely, but negative impacts possible. T***he species has been documented roosting in bridges and buildings. In the unusual event the species is roosting in one of the buildings, renovation could create adverse impacts.

Federally-listed Species

Northern long-eared bat (*Myotis septentrionalis*): Bat wintering habitat such as natural caves and mines are absent within the Project Area. This species is typically associated with forested habitat near water resources; a small portion of the existing tree cover within the Project Area may provide suitable roosting and foraging habitat during the summer months. While no known hibernaculum are within the Project Area, there are known hibernaculum in the vicinity (within one mile).

The US Fish & Wildlife Service impact assessment key for Consultation and 4(d) Rule Consistency was followed for the northern long-eared bat. The outcome of the analysis was that the project may impact the bat, but any impact would be considered an incidental take. Low impacts to potential bat roosting habitat may be anticipated as a result of the Project development because few, if any of the trees that would be removed could provide roosting habitat for northern long-eared bat (the trees planned for removal are smaller). The large, mature trees within the Project Area are nearly all bur oak, which would be preserved because they are part of the natural and cultural history of the Project Area. Although the species' roosting habitat is typically reported as large trees with cavities or loose bark, the species has been documented roosting in bridges and buildings. In the unusual event the species is roosting in one of the buildings, renovation could create adverse impacts.

Higgins eye (*Lampsilis higginsii*): No effect to this species or its habitat is anticipated from the proposed development. Appropriate use of stormwater BMPs during and after construction would prevent or minimize erosion and siltation that could negatively affect off-site water quality and organisms such as Higgins eye inhabiting aquatic environments.

Rusty-patched bumblebee (*Bombus affinis*): The Project Area is a low priority zone identified by USFWS, and following USFWS guidelines, no effect is anticipated in low priority zones. Existing floral resource habitat may be eliminated by the Project; however, planting of native and pollinator friendly vegetation species would be part of the landscaping for the proposed development. This would potentially aid in the mitigation of lost habitat for this species.

Migratory Birds

All listed migratory birds and/or their habitat have the potential to be affected from the proposed development due to habitat removal or disturbance. Removal or disturbance to vegetation and trees would be conducted during the winter months (approximately November 1 to March 31) to avoid impacts to migratory birds that may be utilizing the area.

Native Plant Communities

Adverse impacts to the calcareous fen or other native plant communities are not anticipated from the proposed development. The proposed Project is not expected to adversely impact hydrological conditions of the Project Area or surrounding areas, and therefore, no impacts to calcareous fens located in the vicinity of the Project Area are anticipated.

Animal Assemblages

No impacts to animal assemblages are anticipated from the proposed development. Appropriate use of BMPs during and after construction would prevent or minimize erosion and siltation that could negatively affect off-site water quality and organisms inhabiting aquatic environments, such as the mussel populations in the Minnesota River.

Invasive Species

There is potential for introduction and spread of invasive species during Project-related construction activities. Soil disturbance can provide suitable conditions for establishment of invasive species where they have the opportunity to outcompete native species. During Project Area development, the extensive, brushy growth of common buckthorn and non-native honeysuckle on the east portion of the Project Area would be cut, and native species would be reestablished. Both woody and herbaceous invasive plant species would be controlled as part of routine landscaping and vegetation management activities. See item 13d for measures to prevent or limit the potential for introduction and spread of invasive species.

d. Identify measures that would be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

The following measures would be taken to avoid, minimize, or mitigate adverse effects:

- Retain existing vegetation and tree canopy to the extent possible to limit impacts to wildlife and wildlife habitat.
- Maintain historic landscape of the Fort (oak savannah plant community) including existing mature bur oaks. Additionally, due to the risk of oak wilt infection, oak pruning and any necessary oak tree removals would take place from November-March, to ensure the lowest chance of oak wilt infection.
- Prevent or limit the introduction, establishment, and spread of invasive species following DNR's Operational Order 113. This includes control the potential for introduction and spread of invasive species by inspecting equipment prior to entering Project Area, monitoring equipment and maintaining clean working equipment and conditions.
- Plant with thoughtfully-selected native species adapted to this climate and selected for appropriateness related to a variety of site-specific conditions, such as exposure to sun or shade, windy or protected areas, wet or dry. Native savannah plantings would be reestablished in select locations around the Project Area, particularly near the edge of the bluff where the goal is to re-create a more "natural" area for passive use.
- No invasive non-native species would be planted in the naturally vegetated areas of the Project Area, and much of the invasive non-native vegetation currently present would be removed. Some portions of the Project Area would be managed as mowed turf. In those areas, non-native turf grass species are likely to be utilized. No species that are known to invade natural areas would be planted as part of the project's landscaping.
- Manual removal of seedlings of invasive species from revegetated area for at least three growing seasons. As appropriate, revegetation areas would be mowed occasionally to control invasive growth.
- Application of appropriate sediment control measures to reduce impacts to terrestrial and aquatic habitats outside the Project Area.
- During project development and on an ongoing basis, there would likely be a need for some limited removal of potentially hazardous trees located near buildings and other use areas of the Project Area. Whenever possible, removal/disturbance to vegetation and/or tree removal would be conducted during the winter months (approximately November 1 to March 31) to avoid impacts to active bat roosting habitat, rusty-patched bumblebee, and state and federally-listed migratory birds that may use the Project Area for breeding, nesting, loafing and hunting.
- If winter removal is not possible, attempts would be made to remove any large trees deemed hazardous outside the bat pup season (May 1 – Aug 15) to minimize the risk of impacting young bats that cannot fly.
- Follow appropriate guidelines (including the National Bald Eagle Management Guidelines and Nationwide Standard Conservation Measures) for migratory birds if species are determined to be present.
- DNR resource specialists recommend sealing buildings by May 1 (new windows, roofs, and doors, etc.) to minimize impacts to roosting bats in buildings. Otherwise, it is recommended to avoid demolition/construction from May 1 to Aug 15. Once buildings are sealed, interior construction would not be restricted.
- If bats are discovered in buildings during renovation, it is recommended to consult with resource specialists to determine whether a bat survey for building interiors is needed. If so,

a survey by a qualified biologist would be conducted to determine the species present, and if bats are roosting or raising pups. If no pups are present, bats would be removed by a professional service and released, and/or bat exclusion devices would be installed on the buildings. The exclusion devices allow bats to exit the building on their own and prevent re-entry. Buildings would be sealed during renovation to prevent future occupancy. If northern long-eared bats are present, a biologist with a USFWS take permit would be contracted to relocate the bats. If bat pups are present, exclusion and sealing would wait until pups are old enough to exit the building.

- Resource specialists recommend allowing the developer to install artificial bat roosting structures within the Project Area for at least three years, allowing bats to become familiar with them, if needed. The structure type and locations would be determined and approved by resource specialists as well as SHPO due to the historic importance of the Project Area.

14. Historic Properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that would be taken to avoid, minimize, or mitigate adverse effects to historic properties.

As noted in Question 6 above, the MN DNR is proposing to lease the Upper Post in Fort Snelling State Park for 99 years to FSLHA, an affiliate of Dominium, a major Twin Cities-based apartment developer. The 26 historic buildings and associated landscape/site within the Upper Post area would be rehabilitated for use as multi-family housing units that would be rented to individuals and families that meet state requirements for moderate income housing (incomes up to 60% of area median), with a preference for military veterans and their families. Up to 215 units are planned. All housing units would be constructed within the existing buildings. All rehabilitation would comply with the Secretary's Standards as required by the Historic Monument Program deed restriction and to qualify for historic tax credits. New construction and site work associated with the housing development would include a commons area with outdoor swimming pool, sidewalks, landscaping, parking facilities, construction of new streets, stormwater infiltration basins, utility improvements, and reconstruction of existing streets and driveways.

The Project Area is within the boundaries of the Fort Snelling Historic District, which is listed in the National Register of Historic Places (NRHP) and is also designated as a National Historic Landmark (NHL). Both districts are located within Fort Snelling State Park. The NHL district was created in 1960 and is 313 acres over two sections of land separated by Highway 55. One section is bounded by Highway 55 to the southwest and the Mississippi River to the northeast. Minnehaha Regional Park is to the north and the Minnesota River is to the south. The other section of the NHL district is bounded by Bloomington Road on the northwest, Highway 55 to the northeast, Highway 5 to the southeast, and the MSP International Airport to the southwest.

The NRHP district was listed in 1966 and is 619 acres. It includes all of the land in the NHL district and additional land extending along and into the Mississippi and Minnesota Rivers, and land northwest of Bloomington Road. Figure 4 shows the boundaries of the two historic districts and the Project Area. The Project Area includes Area J and Officers' Row in the Upper Post section.

The Section 106 Programmatic Agreement between the MN DNR and the NPS and SHPO, executed on October 17, 2016, allows a Program Change from the Federal Lands to Parks Program to Historic Monuments Surplus Property (40 U.S.C. § 484(k)(3) and 41 C.F.R. 101-47-308.3). This Program Change allows the MN DNR to lease the buildings to a developer, who would rehabilitate the buildings into

affordable housing with the option of participating in the Federal and State Historic Preservation Tax Incentives Programs.

As authorized by the NPS under the terms of the Section 106 Programmatic Agreement, the MN DNR is responsible for assuring that the project complies with Section 106 of the National Historic Preservation Act. All of the proposed work in the Project Area would be consulted upon and reviewed as part of the historic rehabilitation tax credit process and as part of the Section 106 process. The Section 106 process includes a public engagement component, and the results of public comment and public engagement gathered in preparation of this EAW would inform the Section 106 consultation process as a component of fulfilling public engagement requirements in that process. Additional public engagement may be required as part of the Section 106 process. To successfully complete both processes, and meet the requirements of the Property's deed restriction, all Project rehabilitation work must be designed and implemented in accordance with the Secretary's Standards and result in an overall finding that the Project will not adversely affect historic properties.

1) **Historic designations**

The Fort Snelling Historic District was designated a NHL for significance to the Theme "Westward Expansion and Extension of the National Boundaries" and the Subtheme "Military and Indian Affairs." The NRHP district is listed under Criterion A and is designated as significant in the areas of Military, Aboriginal-Historic, Commerce, Communications, Political, Transportation, and Other-Settlement of Frontier. The NRHP period of significance extends from 1819 to 1858 and 1861 to 1946.

The fort's history begins in 1805 when Lieutenant Zebulon Pike acquired land from the Dakota people. Work on a fort would occur in 1819 when Lieutenant Colonel Henry Leavenworth built the temporary Camp New Hope and then Camp Coldwater. Colonel Josiah Snelling arrived in 1820 to construct a permanent fort. He chose the present location of the historic fort, also known as the Lower Fort, at the confluence of the Mississippi and Minnesota Rivers, and designed a walled fort using limestone and timber. In 1825, the fort was officially renamed Fort Snelling in honor of its designer. Over the next three decades, the fort provided a constant military presence as Minnesota was opened to Euro-American settlement and new communities formed in the area of the fort. Leading up to the Civil War, the strategic importance of the fort declined as the Euro-American settlement continued to push west (M. Larew, 1978).

Mobilization of the military for the Dakota War of 1862 renewed government interest in Fort Snelling. In 1866, the Department of Dakota was created and headquartered at the fort. The fort outgrew the original buildings, which were also damaged by fire in 1869, and utilized temporary structures. In 1880, construction of buff-colored brick buildings and parade and polo grounds occurred to the southwest of the original fort. This area would become known as the Upper Post. The fort was used to assemble military recruits as the United States entered the Spanish American War and both World Wars. In 1946, the fort was decommissioned by the U.S. Army. The National Register nomination notes that "Fort Snelling is a rare exception among frontier posts, most of which had brief periods of service to the nation only to fade as the frontier passed them by. Fort Snelling continued to be an active post, with the exception of the years 1858-1861, as the frontier passed and the army moved into the modern world." (M. Larew, 1978).

Buildings and landscape features are contributing resources to both Fort Snelling Historic Districts. The table below lists the individual resources and includes SHPO inventory numbers. The data is taken from the SHPO report on historic resources in the Project Area (see Attachment B).

Table 7. Historic Properties in Area J

Property Name	*Address*	*Inventory Number/ Site Number*	*National Register Status*
Fort Snelling Historic District	Off MN Highway 55 and MN Highway 5	HE-FSR-0001	Listed
Building 53 (Gymnasium)	xxx Taylor Avenue	HE-FSR-0002	Listed
Building 54 (Medical Detachment Barracks)	xxx Taylor Avenue	HE-FSR-0003	Listed
Building 55 (Post Hospital)	xxx Taylor Avenue	HE-FSR-0004	Listed
Building 56 (Hospital Steward's Quarters)	xxx Taylor Avenue	HE-FSR-0005	Listed
Building 57 (Band Barracks)	xxx Taylor Avenue	HE-FSR-0006	Listed
Building 62 (Morgue)	xxx Taylor Avenue	HE-FSR-0008	Listed
Building 63 (Quartermaster Shops – ruins)	xxx Taylor Avenue	HE-FSR-0009	Listed
Building 64 (Fire Station House)	xxx Sibley Street	HE-FSR-0010	Listed
Building 65 (Post Guard House)	xxx Sibley Street	HE-FSR-0011	Listed
Building 66 (Telephone Exchange)	xxx Sibley Street	HE-FSR-0012	Listed
Building 67 (Post Headquarters)	xxx Taylor Avenue	HE-FSR-0013	Listed
Building 76 (Civilian Employees Quarters)	xxx Taylor Avenue	HE-FSR-0014	Listed
Building 101 (Barracks)	xxx Taylor Avenue	HE-FSR-0017	Listed
Building 102 (Barracks)	102 Taylor Avenue	HE-FSR-0018	Listed
Building 103 (Barracks)	103 Taylor Avenue	HE-FSR-0019	Listed
Building 112 (Bakery)	112 Taylor Avenue	HE-FSR-0021	Listed
Building 151 (Bachelors Officers Quarters)	xxx Leavenworth Avenue	HE-FSR-0022	Listed
Building 152 (Officer's House)	xxx Taylor Avenue	HE-FSR-0023	Listed
Building 153 (Officer's House)	xxx Taylor Avenue	HE-FSR-0024	Listed
Building 154 (Officer's House)	154 Taylor Avenue	HE-FSR-0025	Listed
Building 155 (Officer's House)	155 Taylor Avenue	HE-FSR-0026	Listed
Building 156 (Officer's House)	156 Taylor Avenue	HE-FSR-0027	Listed
Building 157 (Officer's Double House)	157 Taylor Avenue	HE-FSR-0028	Listed
Building 158 (Officer's House)	158 Taylor Avenue	HE-FSR-0029	Listed
Building 159 (Officer's House)	159 Taylor Avenue	HE-FSR-0030	Listed
Building 160 (Officer's House)	160 Taylor Avenue	HE-FSR-0031	Listed
Building 161 (Officer's House)	161 Taylor Avenue	HE-FSR-0032	Listed
Taylor Avenue		HE-FSR-0124	Listed
Leavenworth Avenue		HE-FSR-0121	Listed
Sibley Street		HE-FSR-0123	Listed

2) **Known artifact areas**

Both the NHL and NRHP Fort Snelling Historic Districts are documented as one archaeological site (21HE0099), which is confirmed by the SHPO report on archaeological resources in the Project Area (see Attachment B). Numerous studies have previously occurred in site 21HE0099 (see table below).

As part of the project, Nienow Cultural Consultants conducted a Phase I archaeological survey in October 2018. The following summary is excerpted from the draft survey report:

"Archaeological survey consisted of standard interval shovel testing throughout much of the Upper Post, as well as limited surface survey to document archaeological features. Survey work began on October 10 after an extensive literature review and was completed October 24, 2018. A total of 145 shovel tests, typically 35-40 centimeters (cm) wide and 100cm deep were excavated. In several situations, a pry bar

was used to break through compacted fill / debris soils. All soils were screened through ¼" mesh screen, detailed profile notes completed, and photographs taken. Nearly all recovered materials were collected and processed with the exception of brick, limestone, coal / clinker, asphalt, concrete, architectural tile, and modern materials (candy wrappers, Styrofoam cups, plastic bags, etc.). A total of 1,323 cultural materials were processed and cataloged."(J. Nienow, Dec. 12, 2018).

"Shovel testing documented consistent prairie soils impacted by historic development including multiple demolition and construction events. Many of these activities directly relate to the period of significance for Fort Snelling between the late 1800s and 1946. Artifacts documented two primary occupation periods. Unsurprisingly, construction materials, military ammunition, and objects from everyday life (buttons, coins, glassware, children's toys) over the past 120 years were routinely documented. In addition to this historic occupation, an Archaic (5,000 to 3,500 B.P.) prehistoric site, previously documented in the early 1990s was also expanded to include the entire length of the property's bluff edge." (Nienow, Dec. 12, 2018).

The NPS would share the findings of the final Phase I survey report with tribes as part of consultation on the project. Additional survey and testing would occur in the spring through autumn of 2019. The scope would be determined in consultation with the MN DNR, SHPO, and NPS.

Table 8. Previous Archaeological Studies for Fort Snelling (21HE0099)

Report Number	*Date*	*Report Title*	*Author*
HE-46-01	June 1946	Fort Snelling Investigation	Hagen, Olaf T.
HE-75-03	December 1975	Fort Snelling Archaeological Completion Report, No. 1	Olsen, Susan C., Charles O. Diesen, and Liza Nagel
HE-89-04	March 1989	Archaeological Excavations at the Fort Snelling Stables (21HE99) An Interim Report	Clouse, Robert A.
HE-95-22	September 1995	Minneapolis-St. Paul International Airport Air Reserve Station, Minneapolis, Minnesota	Science Applications International Corporation
HE-06-08	March 2006	Archaeological Testing at Historic Fort Snelling (21-HE-99) Hennepin County, Minnesota	Emerson, Patricia M. and Timothy A. Tumberg
N/A	June 2006	The Cultural Meaning of Coldwater Spring: Final Ethnographic Resources Study of the Former U.S. Bureau of Mines TC Research Center Property, Hennepin County, Minnesota	O'Brien, Mollie, et al.
HE-09-03	July 2009	Final Report on Archaeological Evaluation as Part of Utility and Drainage Improvements at historic Fort Snelling (21HE99) Hennepin County, Minnesota	Nienow, Jeremy L.
N/A	June 2002	Before the Fort: Native American Presence at the Confluence of the Mississippi and the Minnesota Rivers	Harrison, Christina
N/A	August 2012	Cultural Resources Literature Review for the Fort Snelling West District Development Project, Minneapolis, Hennepin County, Minnesota	Mathis, Greg and Kelli Andre Kellerhals
HE-12-06	September 2012	Cultural Resource Reconnaissance Survey for Proposed Observation Well Drilling with the Fort Snelling Historic District	Allan, Stacy and Michael A. Magner
N/A	October 2013	Phase I Archaeological Resources Investigation for the Fort Snelling West District Development Project	Halvorsen, Peer

Report Number	*Date*	*Report Title*	*Author*
N/A	September 2018	Archaeological Survey and Excavation 21HE99 Fort Snelling @ Bdote, Hennepin County, Minnesota	Nienow, Jeremy L., et al.

3) **Architectural/historic features**
The Project Area contains twenty-six buildings and a historic landscape. The individual building descriptions below are taken from a document from the MN DNR with revisions utilizing information from the U.S. Army Quartermaster Reports, available at the MNHS. The buildings are oriented on a northeast-southwest axis but for simplification of building descriptions, Highway 55 is assumed as north, Highway 5 as east, the MSP International Airport as south, and Bloomington Road as west.

Area J comprises the east portion of the Project Area and extends along the bluff edge with Minnesota Highway 5 to the east and Taylor Avenue to the west. Taylor Avenue serves as the main road providing access to the buildings in Area J. A secondary road, Sibley Street, is within Area J and accesses buildings closer to the bluff edge. The buildings in Area J are described below from north to south. The foundations of Building 63, the Quartermaster Shops, are included in this area. The building partially collapsed in the 2000s and was demolished for public safety. The area is now fenced in and inaccessible.

Building 53 – Gymnasium: Date(s) of Construction: 1903, 1942-1943
Foundation: stone Walls: brick Roof: slate

Built from the first congressional funds dedicated for the construction of gymnasiums and canteens, it served as a center for indoor recreation for troops. The two-story red brick structure has a T-shaped plan with a wing extending east towards the bluff. It is the northernmost building in Area J with Taylor Avenue to the west, Highway 55 to the north, Highway 5 to the east, and Building 54 to the south. The red brick exterior is accented with cast-stone keystones and a main entry surround. The water table course is gray limestone. The window openings are boarded over on the exterior but are visible on the interior and are six-over-six and eight-over-eight, wood-frame hung sashes. The building was remodeled in 1942-1943 for use as a Service Club. A new second floor was installed in the gymnasium to house a ballroom, and a billiard room and lounge were located on the first floor. The post exchange was located in the basement, and a basement-level addition accommodated bowling alleys. A brick patio in a different shade of red brick, was constructed on the east end of the wing and provides access to first- and second-story entrances to the building.

Building 54 – Medical Detachment Barracks: Date(s) of Construction: 1939
Foundation: stone Walls: brick Roof: slate

The Medical Detachment Barracks is located north of Building 55, with Taylor Avenue to the west, Building 53 to the north, and Highway 5 to the east. Unlike other buildings along Taylor Avenue, its front (south) facade overlooks the hospital (Bldg. 55) rather than Taylor Avenue. The two-story, buff-colored brick building has a rectangular plan with paired windows on the first and second stories. The window openings are boarded over on the exterior but are visible on the interior and are six-over-six, wood-frame hung sashes. A cast-stone architrave and entablature surround the primary entrance on the south facade and extend up to the second-story window. The hipped roof contains three gabled roof dormers on the north and south sides. The building provided housing for soldiers assigned to hospital duty and was the last building to be constructed in the Project Area.

Building 55 – Post Hospital: Date(s) of Construction: 1898, 1905, 1910, 1935
Foundation: stone Walls: brick Roof: slate

The Post Hospital is located south of Building 54 with Taylor Avenue to the west, Building 62 and the bluff to the east, and Building 56 to the south. The building was constructed in phases starting with the original 1898 building, which had a rectangular plan. The masonry wings were extended and added in 1905, 1910, and around 1918. Smaller additions were made around 1935 and in 1944. The building is buff-colored brick with two stories over a raised basement. The attic space under the hipped slate roof was used as an occupiable third floor. Hipped-roof dormers project out from the roofs on most of the wings. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. Historic two-story wood porches and a central one-story porch extended along the west (front) facade of the building, but were later removed. Designated as U.S. Hospital No. 29, the structure contained isolation wards, surgery facilities, a kitchen, dental facilities, and a dispensary along with hospital ward rooms that held 150 beds.

Building 56 – Hospital Steward's Quarters: Date of Construction: 1900
Foundation: stone Walls: brick Roof: asphalt shingles

The two-story, red brick, Colonial Revival building is south of the hospital (Building 55), and has an L-shaped plan. Taylor Avenue is to the west, the bluff edge and Highway 5 are to the east, and Building 57 is to the south. The structure has a hipped roof with one chimney on the south roof slope. The original full-width wood porch was replaced by a flat-roofed brick porch with a rusticated concrete-block foundation. The window openings are boarded over on the exterior but are visible on the interior and are six-over-six, wood-frame hung sashes. A small, single story addition on the northeast corner of the house has a flat roof and simpler architectural decoration. The building initially housed the hospital's principal non-commissioned officer—the chief steward and his family.

Building 57 – Band Barracks: Date of Construction: 1903
Foundation: stone Walls: brick Roof: asphalt shingles

Located south of Building 56 is the Band Barracks, a three-story, buff-colored brick, Colonial Revival building. The building faces Taylor Avenue to the west, the bluff and Highway 5 are to the east, and Buildings 65 and 67 are to the south. The building has a rectangular plan with the three-story central portion flanked by two-story sections on the north and south. The roofs are gables, but the gables do not intersect because of the different building section heights. On the west facade, two-story porches flank the central portion of the building. The porches were originally open, but were later enclosed with Masonite siding and concrete block. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. Palladian windows are set in upper stories of the north and south facades. The band barracks was built near the former fort flagstaff and central administration building because the band frequently played for guard mounts, retreats, and other scheduled ceremonies. During the early 1920s, it also served as an isolation hospital.

Building 62 – Morgue/Dead House: Date of Construction: 1904, 1933
Foundation: stone Walls: brick Roof: slate

The morgue, or dead house, is a single-story, buff-colored brick building with a rectangular plan. It is located near the bluff edge on the north end of the Upper Post. Building 55 is to the west, Highway 5 is to the north and east, and the bluff extends to the south. In 1933, an addition was built on the east side of the building that nearly doubled the footprint. A brick porch was also constructed on the west facade that same year. The building has a hipped roof and the porch roof is flat. The window openings are boarded over on the exterior but are visible on the interior and are six-over-six, wood-frame hung sashes. The interior was remodeled into living quarters in 1933 after the addition was built and housed non-commissioned officers' families.

Building 64 – Post Fire House: Date of Construction: 1903, ca. 1915, 1938
Foundation: stone Walls: brick Roof: slate; metal

The red-brick building has a rectangular plan and is located near the bluff edge east of Building 65. The bluff extends to the north and south, and Highway 5 is to the east. The original building was one story and a one-story addition was made to the south facade around 1915. The addition was extended to the east to be as long as the original building around 1938. That same year a second story was added to the original building to house fire house personnel. The original siren tower at the northeast corner of the building was removed when the second story was built. The window openings are boarded over on the exterior but are visible on the interior and are six-over-six, wood-frame hung sashes. Large wood garage doors on the west facade denote the bays for fire trucks. The hipped roof of the second-story portion is clad in slate, and the one-story addition is clad in metal.

Building 65 – Post Guard House: Date of Construction: 1891, 1908, 1912
Foundation: stone Walls: brick Roof: asphalt shingles

The post guard house is located east of Building 67 with Building 64 and the bluff further to the east, and Building 66 to the south. Sibley Street runs in front of the building to the east and curves around the building to the north. The buff-colored brick building has a rectangular plan with small additions (1908, 1912) on the east and south facades. A full-width porch, or loggia, extends across the west facade, and was reconstructed in 2016-2017. The window openings are boarded over on the exterior but are visible on the interior and many of the windows are missing. The north side of the roof collapsed in the 2010s but was reconstructed and a new asphalt shingle roof installed in 2016-2017.

Building 66 – Telephone Exchange: Date of Construction: 1927, 1938-1939
Foundation: cement Walls: brick Roof: asphalt shingles

The Telephone Exchange is immediately south of Building 65 and east of Building 67. Building 64 and the bluff are further to the east. A chapel was historically located south of the Telephone Exchange but it was demolished in the 1930s and the land is currently overgrown with vegetation. The red-brick building has an L-shaped plan and was constructed in two phases. The original building dates to 1927 and extends east-west. An addition running north-south was built on the east side of the original building in 1938-1939. The addition housed soldiers working at the exchange. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. The hipped roofs are clad in asphalt shingles.

Building 67 – Administration Building: Date of Construction: 1879-80, 1883 Foundation: stone Walls: brick Roof: membrane roofing

This two story buff-colored brick building is the central focal point of the line of buildings along Taylor Avenue. Buildings 65 and 66 are to the east and Building 101 is to the south. The Fort Snelling Golf Course is to the west across Taylor Avenue. Built in 1879-1880, the clock tower was added in 1883. The window openings are boarded over on the exterior but are visible on the interior and are four-over-four, wood-frame hung sashes. The Mansard roof was historically clad in standing seam metal, but is currently covered with black membrane roofing. The building was the headquarters of the Department of the Dakota and also the administration building for the fort.

Building 76 – Civilian Employees' Quarters: Date of Construction: 1879-80, 1912, 1938
Foundation: stone Walls: brick Roof: cement-fiber tile

This red brick one-story building has a rectangular plan and is located near the bluff edge. Highway 5 is to

the east, the bluff is to the north and south, and Building 101 is to the west. Additional houses were historically located to the north but were demolished in the 1970s or 1980s. The window openings are boarded over on the exterior but are visible on the interior and are one-over-one, wood-frame hung sashes. Porches on the east facade were originally wood but were replaced with brick porches in 1938. The hipped roof may still be clad in a cement-fiber tile. The building originally housed six civilian employees but was remodeled in 1912 to house four non-commissioned officers' families.

Buildings 101, 102, and 103 – Barracks: Date of Construction: 1889, 1936
Foundation: stone Walls: brick Roof: asphalt shingles / Cortright metal tile

The three barracks line the east side of Taylor Avenue south of Building 67. The officers' quarters are across Taylor Avenue to the west. Overgrown vegetation extends to the east, although some buildings were historically located in the area. The MSP International Airport is to the south.

The three buildings were constructed during the same period and are nearly identical in appearance. Each building is two-and-one-half stories on a raised basement. The walls are buff-colored brick and the hipped roofs were clad in slate, but now also include some asphalt shingles. Hipped-roof dormers are located over all of the roofs, and ventilating cupolas sit on the roof ridgelines. One-story brick kitchen additions were added to the east facades at an unknown time. Historic two-story porches on the east facades were removed in the 1930s and one-story porches on the west facades were also removed around the same time. In 1936, the Work Projects Administration (WPA) built two-story additions to the east end of the north and south wings. The window openings are boarded over on the exterior but are visible on the interior and are four-over-four, wood-frame hung sashes.

Building 112 – Post Bakery: Date of Construction: 1891, 1937-1938
Foundation: stone Walls: brick Roof: asphalt shingles

This single-story building is constructed out of buff-colored brick. It is located near the south end of Area J. The bluff is to the north, Highway 5 is to the east, the Minneapolis-Saint Paul Airport is to the south, and Building 103 is to the west. The hipped roof was originally metal, and was replaced by slate in 1907-1908. It is now shingle. The roof has a small gable over the front door. The window and door openings originally had flat-arch lintels of brick, but are now segmental-arch lintels. Some window openings have been filled in with brick. The window openings are boarded over on the exterior but are visible on the interior and are one-over-one, wood-frame hung sashes. The building was converted to non-commissioned officers' quarters in 1937-1938 and the interior substantially remodeled at that time.

Officers' Row is west of Taylor Avenue and is also accessed by Leavenworth Avenue, which runs perpendicular to Taylor Avenue. An alley extends north-south behind the houses, and the Fort Snelling Golf Course is to the north and south of the area.

Building 151 – Bachelor Officers' Quarters: Date of Construction: 1904, 1929, 1936, 1938
Foundation: stone Walls: brick Roof: slate

This red-brick, two-story Colonial Revival building is the westernmost building in the Project Area. It is on the north end of Officers' Row and faces Leavenworth Avenue. The Fort Snelling Golf Course extends to the north and west, Taylor Avenue is to the east, and the single-family houses of Officers' Row extend to the south. The building has a hipped roof with a gable-roofed bay facing north. Two-story, brick porches flank the center bay on the north facade. The openings to the porches have been boarded over for temporary security. The windows of the structure have flat-arch lintels and sills made of stone. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two and three-over-three, wood-frame hung sashes. In 1929, two-story additions were built on the southeast

and southwest corners of the building for new kitchens. In 1936, a concrete addition on the southwest corner housed a new boiler. The porches were partially enclosed in 1938.

Building 152 – Officer's Quarters: Date of Construction: 1879-80, 1930s
Foundation: stone Walls: brick Roof: asphalt shingles

This buff-colored brick house is located on the north end of Officers' Row. The Fort Snelling Golf Course is to the north, Building 151 is to the west, Building 153 is to the south, and lawn and Taylor Avenue are to the east. This is one of five houses built to this particular plan, and the only remaining example of that plan at Fort Snelling. It is Queen Anne in style and has a cross-hipped roof. As was common in the Queen Anne style, the roof also has lower cross gables on the north, south, and east sides, which have a decorative cornice. The single-story, full-width porch was built in the 1930s and replaced an earlier porch. The porch has been temporarily enclosed with wood for security. The bay window on the south facade has a triangular shape. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. A historic single-story wood porch is located on the west facade.

Building 153, 155, 159, 161 – Officers' Quarters: Date of Construction: 1892, 1930s
Foundation: stone Walls: brick Roof: asphalt shingles

These buff-colored brick houses are located on Officers' Row. The Fort Snelling Golf Course is to the west, neighboring officer's houses are to the north and south, and lawn and Taylor Avenue are to the east. These four houses were built to the same plan and style. They are Queen Anne in style with some characteristics of the Colonial Revival style, including cross-hipped roofs. The single-story brick porches on the east facades were built in the 1930s and replaced earlier wood porches. The porches have been temporarily enclosed with wood for security. Bay windows on the south facades of the houses have triangular shapes. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. Historic single-story wood porches are located on the west facades.

Building 154, 156, 158, 160 – Officers' Quarters: Date of Construction: 1879-80, 1930s
Foundation: stone Walls: brick Roof: asphalt shingles

These buff-colored brick houses are located on Officers' Row. The Fort Snelling Golf Course is to the west, neighboring officer's houses are to the north and south, and lawn and Taylor Avenue are to the east. These four houses were built to the same plan and style. They are Queen Anne in style with some characteristics of the Second Empire style, including mansard, cross-gable roofs. The single-story brick porches on the east facades were built in the 1930s and replaced earlier wood porches. The porches have been temporarily enclosed with wood for security. Bay windows are located on the south and north facades. The window openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. Historic single-story wood porches are located on the west facades.

Building 157 – Officers' Quarters, Double House: Date of Construction: 1905
Foundation: stone Walls: brick Roof: asphalt shingles

This buff-colored brick double house is located on Officers' Row. The Fort Snelling Golf Course is to the west, neighboring officer's houses are to the north and south, and lawn and Taylor Avenue are to the east. The cross-gable roof has a large front gable centered on the east facade. The roof was originally covered in slate but now has shingles. The plan is U-shaped, with a symmetrical east facade and two symmetrical wings extending to the west. Most of the windows have segmented-arch brick lintels. A pair of arched windows fill the front gable and there are Palladian windows in each side gable. The window

openings are boarded over on the exterior but are visible on the interior and are two-over-two, wood-frame hung sashes. The single-story wrap-around porches on the east facade have been temporarily enclosed with wood for security. Historic single-story wood porches are located on the west facades.

Landscape

The landscape in the Project Area has been evaluated in several previous reports including: "Fort Snelling State Park Area J and Officers' Row Development Design Guidelines" prepared by the Minnesota Department of Natural Resources the Fort Snelling State Park Upper Bluff Consultation Team and Thomas R. Zahn & Associates (Winter 2003); "Fort Snelling Upper Post Open Space and Landscape Development Guidelines" prepared by Miller Dunwiddie Architecture, Damon Farber Associates, Frank Edgerton Martin, and Thomas R. Zahn & Associates (Summer 2008); and "Fort Snelling Light Rail Transit and Upper Post Master Plan" prepared by Cornejo Consulting, LHB, Inc., Kimley-Horn and Associates, Inc., and McComb Group, Ltd. (February 2011). These reports contain guidelines for preserving the landscape.

In the 2003 document for Area J and Officers' Row, the consultants noted that: "The original Upper Bluff displayed formal landscaping that was primarily limited to boulevard trees along the major avenues and tree clusters between Taylor Avenue and the residences of Officers' Row. There was little shrub plantings around the building foundations." (Fort Snelling State Park Upper Bluff Consultation Team, and Thomas R. Zahn and Associates, 2003.) Although the landscape has not been regularly maintained in the last two decades, historic features are extant and the landscape retains historic integrity. The historic roads and sidewalks maintain the circulation patterns. Several mature oak trees and evergreen trees continue to be recognizable as historic plantings in the Project Area. While the tree canopy is historic, the ground vegetation is overgrown and some plants, including buckthorn and briars, have concealed landscape features, especially along the bluff edge. As additional historic landscape analysis is completed, it will be reviewed and consulted upon as part of the Section 106 and historic tax credit processes.

Proposed Work under Rehabilitation Project

The historic rehabilitation work would preserve historic character-defining features and materials on all of the buildings and within the landscape. On the building exteriors, the masonry would be repointed and wood trim would be repaired, or restored if it is missing. The majority of the historic windows (over 90 percent) still exist and would be repaired. Storm windows would be installed to improve energy efficiency and noise attenuation. Masonry porches would be repaired and reused. Historic wood porches that are failing, like those on the rear facades of the officers' quarters, would be reconstructed and maintain the same footprint. Historic porches that were removed from Buildings 55, 101, 102, and 103, would be reconstructed. New roofs would be installed if the existing roofing material is failing and/or is determined to contain asbestos.

The interiors of the buildings would be used mostly for residential purposes, and at this time a total of 207 apartment units are proposed. The table below summarizes the historic and proposed uses for each building, and includes the number of proposed apartment units. Some of the buildings, including Buildings 62 (Morgue) and 112 (Bakery) were converted to residential use during the historic period of significance. The proposed number of units are based on architectural plans that are currently under development. It is possible that the number may change as the plans are reviewed and revised during the historic tax credit and Section 106 consultation processes.

Historic interior finishes, including plaster walls and ceilings would be repaired, or replaced with new gypsum board if the plaster is too damaged for repair. Historic wood floors would be restored, if possible, and new wood, vinyl tile, and carpet may be installed in residential units. Historic staircases that meet code would be retained where possible, and new staircases would also be added. In Buildings 55, 65, and 101, new elevators would be installed so the buildings are accessible. The elevators would either reuse

existing elevator shafts (Building 55) or would be sensitively located so the elevators do not block or damage historic features on the exteriors and interiors of the buildings (Buildings 65 and 101).

For the Project Area, historic roads and sidewalks are in poor condition and would be resurfaced and rehabilitated, as appropriate. Some sidewalks may be widened and the grade modified to allow for accessible use. New driveways, sidewalks/trails, parking lots, and garages would be built to accommodate residents. New playgrounds would be constructed in several locations within the Project Area. New lighting, directional signage, and other furnishings would also be installed. The locations of new features are being determined in consultation with MN DNR, SHPO, and NPS as part of the Section 106 and tax credit review processes.

The proposed Project has the potential to directly impact the historic properties in the Upper Post section of both the NHL and NHRP Fort Snelling Historic Districts. The scope of work for the buildings and landscape is still being developed, and at this time it is not possible to fully determine what impacts may occur to historic properties. Under the PA executed in 2016 and as required per the Historic Monument Program deeds restriction, MN DNR would require and assure that the proposed project meets the Secretary's Standards and would result in no adverse effects to historic properties. The project would be reviewed by the MN DNR, SHPO, and NPS under the Section 106 process and the historic tax credit process, as outlined in the PA. The NPS would lead consultation with the tribes for the proposed work.

Table 9. Historic and Proposed Uses for Buildings in the Upper Post

Property Name	*Historic Use*	*Proposed Use*	*Number of Proposed Residential Units*
Building 53 (Gymnasium)	Recreational	Residential	11
Building 54 (Medical Detachment Barracks)	Residential	Residential	12
Building 55 (Post Hospital)	Medical	Residential	32
Building 56 (Hospital Steward's Quarters)	Residential	Residential	1
Building 57 (Band Barracks)	Residential	Residential	6
Building 62 (Morgue)	Residential	Residential	1
Building 64 (Fire Station House)	Fire station / Residential	Residential	2
Building 65 (Post Guard House)	Jail	Community Space	0
Building 66 (Telephone Exchange)	Telephone exchange / Residential	Residential	3
Building 67 (Post Headquarters)	Administration	Residential	8
Building 76 (Civilian Employees Quarters)	Residential	Residential	4
Building 101 (Barracks)	Residential	Residential	26
Building 102 (Barracks)	Residential	Residential	26
Building 103 (Barracks)	Residential	Residential	26
Building 112 (Bakery)	Residential	Residential	2
Building 151 (Bachelors Officers Quarters)	Residential	Residential	14
Building 152 (Officer's House)	Residential	Residential	2
Building 153 (Officer's House)	Residential	Residential	3
Building 154 (Officer's House)	Residential	Residential	3
Building 155 (Officer's House)	Residential	Residential	3
Building 156 (Officer's House)	Residential	Residential	4
Building 157 (Officer's Double House)	Residential	Residential	6

Property Name	*Historic Use*	*Proposed Use*	*Number of Proposed Residential Units*
Building 158 (Officer's House)	Residential	Residential	3
Building 159 (Officer's House)	Residential	Residential	3
Building 160 (Officer's House)	Residential	Residential	3
Building 161 (Officer's House)	Residential	Residential	3
		TOTAL	**207 (up to 215)**

15. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The Upper Post buildings are situated west of Snelling Lake and the Minnesota River, with Minnesota Highway 5 located between the waterbodies and the Project Area. The redevelopment of the area would clear out some of the brush, and make the river and lake visible from some of the historic buildings once again. Although the highway and the airport have changed the view-shed of the historic property, the redevelopment would improve the visual state of the buildings and return views from the Project Area closer to their original state.

The construction phase of the Project would occur during typical daylight working hours, and lighting associated with this phase would be need-based, localized, and non-permanent and would not interfere with nearby airport operations.

Upon completion of the Project, the buildings would be occupied residences. In their current state, the buildings are vacant and do not give off any light. The additional lighting from residential activities in the buildings and parking areas would have a minimal impact on the area as it is currently bound by lighted highways and the MSP International Airport with associated lighted runways. There are no known restrictions on the type of lighting that can be used for a residential development in close proximity to the airport. Lighting for the proposed development is not anticipated to be a design that would cause interference with airport operations.

The additional lighting from the completed Project would not change the experience of Fort Snelling State Park to visitors or alter the view of the Upper Post parcel from nearby waters. The additional lighting would typically only be in use after Fort Snelling State Park is closed to visitors. Additionally, the lights along highways in the vicinity separate the Project Area from park visitor areas and likely give off greater illumination than the completed Project would.

16. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that would be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

No major new stationary source emissions such as boilers or exhaust stacks are anticipated with the redevelopment of the Upper Post.

The boilers that are currently in the buildings are planned to be abandoned and replaced with individual natural gas systems in each unit. Air emission impacts would be as typical from multi-family residential natural gas heating and cooling systems.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that would be taken to minimize or mitigate vehicle-related emissions.

The redevelopment includes the addition of approximately 720 total parking spaces (garage stalls, surface spaces and parallel street spaces), but is not expected to noticeably affect traffic in the vicinity nor add substantially to vehicle emissions. The additional vehicles would be for tenants of the buildings and would generally be parked if present. Tenant vehicles are not expected to affect the air quality of the area.

Construction-related vehicle emissions would be minor and temporary in nature and are not expected to affect air quality in the vicinity.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that would be taken to minimize or mitigate the effects of dust and odors.

The construction phase of the Project is expected to generate standard construction dust, and best practices such as watering would be used to reduce these emissions throughout the construction process. The construction phase would include asbestos and lead-based paint removal and/or abatement. Amended water would be used to keep dust down during both indoor and outdoor abatement. Excess amended water used during abatement work, would be filtered within the Project Area down to an asbestos concentration of 0.5 microns and discharged to the sanitary sewer per MDH guidance. During indoor abatement, containments would be built using polyethylene or glove-bags, HEPA vacuums and negative air machines would be used to remove dust. During abatement activities air monitoring and clearance lead samples would be taken by licensed professionals. All abatement activities would be conducted by licensed professionals to the standards set forth by the MDH.

Nearby entities include the MSP International Airport, Minnesota Highway 5, Neiman Sports Complex, and the Fort Snelling Golf Course. The small amount of dust emissions generated during construction are not expected to affect these entities or their users, and would be minimal in comparison to airport and highway dust and odor emissions. Fugitive dust is not expected to continue once the construction phase of the Project is completed.

Odors are not expected to be generated during either the construction phase or after the Project is complete and occupied.

17. Noise:

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that would be taken to minimize or mitigate the effects of noise.

Project Noise Impacts

Construction activities would temporarily generate increased noise in the Project Area and surrounding vicinity. The noise would be associated with machinery, drilling, pounding, and other construction activities. These activities would occur during normal working daylight hours (7:00 AM – 6:00 PM) and adhere to state noise standards as provided in Minnesota Rules, 7030.0040. Noise would be managed by ensuring that the proper controls such as mufflers are used on heavy equipment operating within the Project Area.

Once the redevelopment is completed and operational these increased noise levels would no longer be present. On a long term basis, occasional noise may occur from repair projects and landscape maintenance. Such activities would be completed during normal working day time hours and would be temporary so any contributions of noise to the area would be minor. Residential noise levels are minimal in comparison to airport or highway traffic. The neighboring office buildings along Bloomington Road or employees at Fort Snelling State Park would not be disturbed by the proposed Project, nor would the new residents be disturbed by these entities. A change in overall noise levels in the vicinity of the Project Area would be unnoticeable due to its close proximity to the airport and major highways.

Noise Impacts on the Project from MSP International Airport and Highway 5

The Project Area is bound to the south and west by the MSP International Airport, and MN Highway 5 to the east. These existing features generate high noise levels on parts of the Project Area. The Metropolitan Airports Commission (MAC) 2016 Annual Noise Contour Report indicates that the redevelopment area ranges from 60 to over 70 DNL (day-night average sound level). Approximately 20 units among four of the southern-most buildings are located within the modeled 70-75 DNL noise contour and the MPCA noise area classification (NAC) 2: two Officer's Row houses (Buildings 160, 161); half of one of the barracks (Building 103); and the bakery (Building 112). The Federal Aviation Administration (FAA) suggests that noise levels above 65 DNL are not recommended for residential use; however, the FAA indicates that it may be permitted with suitable mitigation (see footnote 1 to Part 150, Appendix A, Table; also see Veneklasen Associates (VA) Noise Study, provided as EAW Attachment C). The Minnesota Pollution Control Agency also has Noise Area Classification guidelines that indicate the noise levels for a portion of the site closest to the Airport and Highway 5 will require mitigation. The Metropolitan Council has adopted guidelines based on the FAA standard, which also indicate that noise levels between 70-75 DNL are not generally compatible with residential use, but allow it, with suitable mitigation, if residential use is already present in the area.

This portion of Fort Snelling continued to be in residential use long after the modern airport era resulted in higher noise levels. The primary area of noise impact is adjacent to MSP International Airport runway R30/L12 and is impacted when that runway is in use. It is located in safety land classification C (in the MAC guidance) where residential may be permitted when the local community determines appropriate. The State, in its legislative determination finding the project as proposed to be a strategic priority, and the MN DNR, under its National Landmark land acceptance requirements, have found this to be a unique situation warranting residential rehabilitation and use of all buildings in the Project Area to accomplish preservation of this unique cultural and historic property. However, substantial noise mitigation is warranted in project design and construction as discussed more fully below.

Due to the proposed Project being a residential use, the developer (Dominium) retained Veneklasen Associates (VA), a nationally recognized noise consultant, to undertake area ambient noise monitoring and recommend mitigation measures for the proposed Project. The MN DNR will require suitable noise mitigation under its Lease with Dominium and this will be a specific focus of attention during MN DNR's site plan and individual building review for the project to ensure suitable mitigation is implemented. Upon completion, MN DNR will require testing to confirm the required levels of noise mitigation are

attained in all units. If any units do not meet the noise levels required, additional attenuation will be required. Costs of noise mitigation will be a project cost and neither MnDOT nor the MAC will be looked to for contribution.

The VA noise monitoring study included on-site monitoring of noise (see Attachment C, incorporated herein, which should be reviewed in connection with this discussion), showed 71 DNL at the airport boundary (slightly lower than predicted by the MAC modeling which shows a more expansive 70-75 DNL contour), and 66 DNL at the northern boundary, where noise is determined by proximity to Highway 5. In development of its mitigation recommendations, VA considered the MPCA Noise Area Classification (NAC) guidelines - Minn. Rules. Section 7030.040, the Federal Aviation Administration, Part 150, Appendix A guidelines, and the recently adopted Regional 2040 Transportation Policy Plan (TPP) - Appendix L: Aviation Land Use Compatibility Guidelines. All of these are discussed in the VA documents in Appendix C and discourage residential use in high noise areas. These guidelines all recognize that residential use can be made acceptable in higher noise situations such as this, provided substantial noise attenuation is accomplished in the exterior unit walls and the interior is fully climate conditioned/controlled.

- The State guidance indicates that residential use may be permitted in a noise intensive area if there is noise attenuation of 30 dBA in the exterior walls with full climate control, and no areas "intended for outdoor activity." The residential units in the Project are proposed to have attenuation greater than 30 dBA, full climate control, and no areas within NAC 2 that are "intended for outdoor recreation."
- Both the FAA guidance and the 2040 TPP find noisier locations acceptable if interior noise levels are mitigated to 45 DNL or less. The developer and MN DNR have agreed to meet this standard whether the noise is caused by the Airport or Highway 5 and will confirm attainment by post construction testing.
- The developer and MN DNR agree to enter into a Memorandum of Agreement with the MAC to not seek noise mitigation funding from the MAC. Noise levels from Highway 5 are lower, but in this portion of the site, an interior noise level of 45 DNL will be attained without any imposition on MnDOT for mitigation assistance.

In addition, studies have also shown that short duration louder noises can interrupt sleep (levels over 55 dBA). VA has recommended noise attenuation to prevent such levels inside the units, again by exterior wall noise attenuation. This is a more stringent test than attainment of the 45 DNL or the 30 dBA attenuation and will, in some buildings nearest to the Airport runway, require more attenuation. DNR will require and Dominium has agreed to also mitigate to meet this standard.

VA has recommended various noise attenuation measures to ensure all proposed units would meet or fall below the 45 DNL interior noise standard and the avoidance of sleep interrupting incidents over 55 dBA. Dominium has agreed to implement VA's recommended construction techniques as needed and appropriate for each building to mitigate exterior noise inside the buildings. These techniques include:

- Restoring existing single-glazed windows to an air-tight condition.
- Addition of new storm windows and double glazing as needed.
- Air-tight construction of all windows, exterior walls and roofs (roofs would be non-vented).
- Repair or additions of plaster to wood/masonry interior walls, creation of sound channels and filling void spaces with sound insulation.
- Closed cell spray foam insulation would be used to fill void spaces in wooden roof trusses or partitions (attics).

- Gypsum board ceilings and sound channels added in roof trusses.
- Separation of floors between different units would include plaster repair to existing ceilings or damaged ceilings would be replaced and sound batt insulation placed in trusses.
- New dropped ceilings would be installed to conceal utilities (pipes, electrical etc.), meet fire code and may assist in noise reduction.
- All buildings would have central air conditioning for occupied interior spaces.

The above noise mitigation techniques would be applied in each building as needed and will result in a noise reduction from the exterior envelope of all buildings that are subject to ambient noise above the FAA and TPP guidelines, whether from road or airport, to a 45 DNL interior level and to avoid the sleep interruption short duration impacts. Implementation of these mitigation techniques would ensure interior noise levels are appropriate for residential use. Similar noise mitigation techniques were successfully implemented in the nearby CommonBond Veterans housing project, which also experiences high noise levels. Building 65, which is planned to be a recreational or community use space would also receive noise mitigation improvements comparable to those planned for the residential buildings to attain the 45 DNL level.

The proposed design for exterior recreational amenities includes a playground area, swimming pool, and outdoor picnic and assembly areas, which are located in the north central portions of the Project Area where sound levels are lower. In addition, the Project Area is in close proximity to other recreational facilities including Fort Snelling State Park with recreational trails, swimming and picnic areas; the Minneapolis Park and Recreation Board's athletic fields and golf course; and Historic Fort Snelling operated by the Minnesota Historical Society. If noise near the active use areas of the Project are found bothersome, suitable mitigation measures will be considered for the new exterior recreation areas. These would include limited noise barriers or include smaller-scale features such as berms, brick walls, awnings, roofing or other overhead features that may help reduce noise experienced at ground level in the designated outdoor recreation areas. For example, a structure with a roof or large overhang in the pool area would provide shade as well as a noise barrier to the outdoor space. The design of noise barriers for exterior recreation areas, if needed, will be incorporated into and considered as part of the overall design for the rehabilitation of landscape/site as part of the Section 106 and tax credit processes.

The MN DNR and the project developer have considered noise impacts for both the long term and recreational use of the Project Area. The State of Minnesota has enacted legislation to support a reuse of the Project Area for residential development, and in 2018 a legislative measure was passed specifically declaring redevelopment and preservation of the historic buildings in the Project Area to be a "strategic priority of the state" (Minnesota Statutes Section §474A.22). It should be noted that the surrounding area includes outdoor athletic fields, a golf course, and the CommonBond veteran's residential development and no problems with noise levels have been reported.

Elimination of certain buildings is not a viable option. This would prevent protection of a material part of the National Historic Landmark, with violation of regulatory requirements and very likely causing loss of historic tax credit eligibility. Dominium has also indicated that reducing the unit count causes all overhead and general costs to be spread over fewer units making the project financing not feasible. On balance, with the mitigation proposed, the MN DNR believes the noise impacts of the Airport and Highway 5 will be adequately attenuated. Failure to proceed with the Project, or its material limitation by eliminating the four buildings in NAC 2 and the 70-75 LDN contours, would however, be a material loss of this National Landmark historical and cultural resource and would pose a potentially significant adverse impact to the National Historic Landmark. MN DNR will continue to coordinate and consult with

MAC and SHPO regarding implementation of suitable mitigation measures for the proposed project.

18. Transportation:

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

To accommodate the planned apartment units (up to 215), the proposed Project would add approximately 720 total parking spaces to the Project Area in the form of 93 single stall garage spaces, 287 surface lot spaces and an additional 340 spaces on as on street (parallel) parking. Currently there are no official designated parking areas at the Project Area, primarily due to the poor condition of existing pavement. The construction of parking garages and surface lots would provide infrastructure to accommodate an increased number of vehicles.

Given the proposed Project is a residential development, peak traffic volumes and trips would occur Monday-Friday during the prime commute hours (typically 6-9am and 3-6pm). The Institute of Transportation Engineers (ITE) trip generation methods were used to estimate a total of 1,142 new daily trips (571 entering, 571 exiting) from the Project Area as a result of the proposed project. Peak hour trips were estimated to be 20 entering, 56 exiting per hour for peak morning travel hours and 56 entering, 36 exiting for peak afternoon/evening hours (Spack Consulting 2019). Weekend traffic patterns are expected to be highly variable and would generate less overall trips than during the week. These weekend trips are also anticipated to be spread out over the entire day and not concentrated during peak travel times created by typical work-week schedules.

Overall the proposed Project would increase the number of trips around the Upper Post vicinity. However, given the proposed Project is a residential development, the broad availability of public transit options in the area and the development plans for improved parking, daily trips to and from the Project Area would have minor impact on regional traffic.

Public transportation options are abundant within 0.75 mile of the Project Area. There is one local Metro Transit bus route with four stops in the vicinity: one at the Fort Snelling Visitor Center (Tower Avenue and Fort Snelling Drive); two along Airport Service Road (one at Bloomington Road and one at Minnehaha Avenue); and one at the Fort Snelling Station. Fort Snelling Station has a park and ride lot and also serves the Blue Line LRT. The Blue Line LRT offers rapid rail transit to downtown Minneapolis, MSP International Airport and the Mall of America with several stops for destinations in between.

Bicycle and pedestrian travel is also accessible in the vicinity of the Project Area. Designated bicycle/pedestrian trails are present from Taylor Avenue traveling around the adjacent Neiman Sports complex. These trails merge to travel along Bloomington Road and continue under State Highway 55 where they connect to the Minnehaha Trail. The Minnehaha Trail offers access to Fort Snelling State Park and Minnehaha Regional Park. Both of these parks offer access to other regional trail systems including the Minnesota Valley State Trail, Big Rivers Regional Trail, Minnehaha Trail and West River Parkway Trail.

Trail improvements to better link the Project Area to the existing trails were funded in 2017 in the state bonding bill and are scheduled to be constructed by the MPRB in the next year. These local and regional trail systems provide access throughout the greater Minneapolis/St. Paul area and are connected to smaller local trails that travel into both Minneapolis and St. Paul. New sidewalks are

planned as part of the proposed Project and would provide improved pedestrian access around the area.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.

The existing road network near the proposed Project Area consists of the local streets (Taylor, Leavenworth and Colville Avenues), Bloomington Road, and three Minnesota State Highways (5, 62 & 55). State Highways 62 and 55 share a common roadway located directly north of the Project Area. Highway 62 provides primary access to regional east and westbound travel from the Project Area to Minneapolis and its suburbs. Highway 55 provides northbound access to downtown Minneapolis and also travels to the southeast through Dakota County. State Highway 5 is located directly east of the Project Area and provides northbound access to St. Paul. Traveling southbound, Highway 5 also provides access to the MSP International Airport and Interstate 494 which travels through the southern half of the Twin Cities metropolitan area.

As discussed in Item 6, Taylor Avenue may be reconstructed as an asphalt street with curbs as part of the Project. Reconstruction of the existing portions of Taylor Avenue and Leavenworth Avenue would be approximately 3,500 linear feet in length.

Bloomington Road and Minnehaha Avenue (located outside the proposed Project Area) are scheduled for reconstruction in 2019 by Hennepin County (existing width and geometry). The Bloomington/Minnehaha project is approximately 2,700 linear feet in length and is independent of the proposed Project.

All three state highways in the Project vicinity currently support high volumes of traffic traveling throughout the Twin Cities area. Closer to the Project Area, Bloomington Road already supports a large flow of traffic for several large government and business office buildings, along with the Fort Snelling Station transit center. While the amount of traffic on the local roads would increase from the proposed Project, these traffic increases would have minor impact on the local and regional transportation systems. Improvements to local roadways outside of those planned as part of the proposed Project are not expected to be necessary.

c. Identify measures that would be taken to minimize or mitigate project related transportation effects.

The proposed Project would provide an organized system for traffic flow and vehicle parking on in the Project Area. This would be an improvement from existing conditions, which currently do not provide a modern system of roads or parking facilities for the property. Additionally, abundant public transportation options are available in close proximity to the Project Area and are described above, in Item 18.a. Despite the increase in local traffic from the proposed Project, mitigation measures for additional vehicles traveling in the area are not anticipated to be required.

19. Cumulative Potential Effects:

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

As discussed in the sections above, the proposed development would primarily have temporary environmental effects during construction. Construction activities are expected to begin in fall 2019 and be complete by fall 2021. The reconstruction of Taylor and Leavenworth Avenues existing alignments are expected to begin in the fall of 2020. Where needed, vegetation would be cut or cleared between November 1 and March 31, during winter months in order to avoid impacts to rare species that may be utilizing the area (see Item 13d).

Construction effects would include increased noise, dust, the generation of demolition debris and waste from hazardous building materials, heavy equipment traffic, soil disturbance for earthwork, vegetation and tree removal, potential erosion and sedimentation, and potential impacts to fish and wildlife. There is potential for erosion and sedimentation and impacts to fish and wildlife to extend minimally beyond the Project Area boundary. All of the other potential effects associated with construction would be expected to be confined to the Project Area.

Potential effects expected to extend over the life of the Project would include an increase in impervious surface area and associated small increase in stormwater runoff. Positive effects include improved stormwater management and restoration of native vegetation. Any or all of these effects could potentially interact in a limited way with other projects in the vicinity to result in cumulative effects.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Reasonably foreseeable projects identified within the environmentally relevant area of the proposed Project are the Bloomington Road reconstruction by Hennepin County and the Minnesota Department of Transportation, and various projects at MSP International Airport.

Hennepin County, in partnership with the Minnesota Department of Transportation, plans reconstruction of Bloomington Road (County Roads 204 and 205) and Minnehaha Avenue (County Road 204) in Fort Snelling in 2019. According to the County's webpage, improvements will include "new pavement for a smoother ride, additional trail segments and widened trails for improved connectivity and flow, improved accessibility for people with disabilities at pedestrian crossings, and better stormwater management. Environmental impacts associated with Hennepin County's road projects would likely be similar to those of the proposed Project development and during construction, include erosion and sedimentation, soil disturbance for earthwork, vegetation and tree removal, heavy equipment traffic, noise and dust. In addition, local traffic would be delayed during construction and there may be an increase in travel times to and from the Project Area on a temporary basis.

Construction projects are ongoing at the adjacent MSP International Airport and its primary current project is the renovation of Terminal 1, scheduled to be completed in 2022. A new parking ramp for 5,000 vehicles is also under construction at the airport, with completion anticipated in 2020 and an outbound roadway has been realigned. The airport is a large property and construction of the renovation and parking ramp is confined within the airport terminal areas. Environmental effects were assessed in the Metropolitan Airports Commission published "Assessment of Environmental Effects Seven-Year Capital Improvement Program 2018-2024" report which found "no potential significant environmental effects" for all of the proposed airport projects during that timeframe. The report identifies that "Typical mitigation measures would be used during construction to minimize potential adverse environmental effects, such as noise, dust, and erosion caused by the construction process. The environmental effects of construction are temporary and do not constitute long-term cumulative potential effects."

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

For the proposed Project and reasonably foreseeable projects identified in Item 19b, the effects of noise, dust, heavy equipment traffic, soil disturbance for earthwork, and removal of vegetation and trees would be limited to the construction phase of each project. The effects would be minimal and confined to each project site.

Demolition debris and waste from hazardous building materials, and impacts to fish and wildlife are environmental effects identified for the proposed Project but not for the reasonably foreseeable projects. Therefore these effects would not overlap such that there is potential for cumulative effects.

Erosion and sedimentation is a temporary effect that would be anticipated from the proposed Project and the reasonably foreseeable projects identified during construction.

The County project is expected to be completed during the 2019 construction season, and therefore, because the construction schedules would not overlap, any interaction with the proposed Project development would be limited.

While the timing of the airport projects would overlap with the proposed Project development, the geographic scales of environmental impacts associated with the proposed Project and the airport projects are not anticipated to interact.

Traffic-related impacts to/from the airport are not anticipated to overlap with the Upper Post project-related traffic impacts. The airport and Project Area locations are separated by roads and other physical barriers, limiting any overlap or accumulation of impacts. The locations are at least 0.5 miles apart geographically, but over 2.5 miles apart via roadways.

Impacts from the airport projects are anticipated to be mainly confined to airport property. Thus although the timing would overlap, it is not anticipated that environmental effects would interact with those of the proposed Project.

The increase in impervious surface area and associated increase in stormwater runoff are longer term effects that would be anticipated from the proposed Project and the reasonably foreseeable projects identified. These effects could potentially interact in a limited way with other projects in the vicinity to result in limited cumulative effects.

Cumulative environmental effects from the interaction of effects of the proposed Project and surrounding developments are not anticipated**.**

20. Other Potential Environmental Effects:

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment would be affected, and identify measures that would be taken to minimize and mitigate these effects.

Potential environmental effects from this Project in addition to those discussed above are anticipated.

RGU CERTIFICATION. *(The Environmental Quality Board would only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Lisa Fay Date August 19, 2019

Title Planner Principal / EAW Project Manager

EAW References

Bloomgren et al., "Depth to bedrock and bedrock topography," *Geologic Atlas - Hennepin County, Minnesota, County Atlas Series, Atlas C-4, Plate 4*, Scale 1:100,000, Balban, N. H., ed., University of Minnesota - Minnesota Geological Survey, 1989.

Braun Intertec, *Additional Environmental Investigation Report, Upper Post Flats, 6409 Taylor Avenue, St. Paul, Minnesota*, Project B1701810.01, In Draft (2018 Additional Environmental Investigation Report).

Braun Intertec, *Limited Phase II Environmental Site Assessment, Fort Snelling Upper Post, 60 Sibley Avenue, St. Paul, Minnesota*, Project B1701810, January 17, 2018 (2017 Limited Phase II ESA).

Braun Intertec, *Phase I Environmental Site Assessment, Fort Snelling Upper Post, 6409 Taylor Avenue, St. Paul,, Minnesota*, Project B1701810.00, December 21st, 2018 (2018 Phase I ESA).

Cornejo Consulting, LHB, Inc., Kimley-Horn and Associates, Inc., and McComb Group, Ltd. *Fort Snelling Light Rail Transit and Upper Post Master Plan.* February 2011.

Fort Snelling State Park Upper Bluff Consultation Team, and Thomas R. Zahn and Associates, "Fort Snelling State Park Area J and Officers' Row Development Design Guidelines" (Winter 2003), 16.

Kanivetsky, R., "Bedrock Hydrogeology," *Geologic Atlas - Hennepin County, Minnesota, County Atlas Series, Atlas C-4, Plate 6*, Scale 1:150,000, Balban, N. H., ed., University of Minnesota - Minnesota Geological Survey, 1989b.

Kanivetsky, R., "Quaternary Hydrogeology," *Geologic Atlas - Hennepin County, Minnesota, County Atlas Series, Atlas C-4, Plate 5*, Scale 1:133,333, Balban, N. H., ed., University of Minnesota - Minnesota Geological Survey, 1989a.

Larew, Marilynn. "Fort Snelling," National Register of Historic Places Nomination Form, March 1978, section 8, pages 1-4.

Metropolitan Airports Commission (MAC), *Minneapolis St. Paul International Airport (MSP) 2016 Annual Noise Contour Report*, "Comparison of the 2016 Actual and 2007 Forecast Noise Contours". MAC Noise Program Office and HNTB Corporation. February 2017.

Metropolitan Council, *Sewer Availability Charge (SAC) Procedure Manual*, Metropolitan Council July 1, 2018.

Minnesota County Well Index, n.d., internet address: http://www.health.state.mn.us/divs/eh/cwi/. Accessed December 2018.

Minnesota Department of Natural Resources, Division of Ecological and Water Resources. 2018. Rare Species Guide: an online encyclopedia of Minnesota's rare native plants and animals [web application]. Minnesota Department of Natural Resources, St. Paul, internet address: www.dnr.state.mn.us/rsg. Accessed December 2018.

Minnesota Department of Natural Resources. 1997. Fort Snelling State Park Management Plan [web version] Minnesota Department of Natural Resources, St, Paul, internet address: https://www.leg.state.mn.us/docs/pre2003/other/970416.pdf. Accessed December 2018.

EAW References

Minnesota Pollution Control Agency. *A Guide to Noise Control in Minnesota. Accoustical Properties, Measurement, Analysis, and Regulation.* 2015.

Minnesota Pollution Control Agency's What's In My Neighborhood, n.d. (internet address: http://pca-gis02.pca.state.mn.us/wimn2/index.html). Accessed December 2018.

Nienow, Jeremy L. "Archaeological Survey, 21HE99, Fort Snelling Upper Post, Hennepin County, Minnesota," December 12, 2018, iii.

Spack Consulting, "Fort Snelling Upper Post- Traffic Generation", *ITE information for a mid-rise apartment (3-10 stories)*, April 15, 2019.

Steenberg, Julia R.; Bauer, Emily J; Chandler, V.W.; Retzler, Andrew J; Berthold, Angela J; Lively, Richard S. (2018). C-45, Geologic Atlas of Hennepin County, Minnesota. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy (internet address: http://hdl.handle.net/11299/200919). Accessed June 2019.

United States Department of Agriculture, *National Cooperative Soil Survey*, Dorset Series, USDA May 2001 (internet address: https://soilseries.sc.egov.usda.gov/OSD_Docs/D/DORSET.html). Accessed December 2018.

United States Department of Interior- Mississippi River Coordinating Commission and National Park Service, *Comprehensive Management Plan: Mississippi National River and Recreation Area*, US Department of Interior 1995 (internet address: https://www.nps.gov/miss/learn/management/loader.cfm?csModule=security/getfile&PageID=3202395). Accessed January 2019.

U.S. Fish and Wildlife Service (USFWS) Ecological Services Program (internet address: https://www.fws.gov/ecological- services/). Accessed December 2018.

U.S. Fish and Wildlife Service (USFWS) Endangered Species Program Midwest Region (internet address: https://www.fws.gov/midwest/endangered/index.html). Accessed December 2018.

U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (internet address: https://ecos.fws.gov/ipac/). Accessed December 2018.

U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (internet address: https://www.fws.gov/wetlands/Data/Mapper.html). Accessed December 2018.

Veneklasen Associates, *Fort Snelling Upper Post; Minneapolis, Minnesota Acoustical Review*; VA Project No. 4332-014. June 18, 2019.

Veneklasen Associates, *Fort Snelling Upper Post; Minneapolis, Minnesota Exterior Noise and Exterior Façade Acoustical Analysis*; Project No. 4332-014. July 29, 2019.

Web Soil Survey: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, (internet address: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). Accessed December 2018.