Appendix A
Stakeholder Correspondence

NEPA Stakeholders	Letter of Intent/Scoping Distribution	Comments Received
US Environmental Protection Agency, Region 7, Office of Public Affairs	Mailed on August 8th	SLJC VAMC within 8-hour non-attainment area for ozone, proximity to one or more toxic release inventory sites, proximity to NRHP buildings, and may have impacts on low income, minority and children.
US Army Corps of Engineers - St. Louis District, Regulatory Division	Mailed on August 8th	determined to have no impact on streams, waters of the US or wetlands, no permit required
Missouri Department of Environmental Quality, Air Pollution Control Program	Mailed on August 8th	NO
Missouri Department of Environmental Quality, Environmental Services Program	Mailed on August 8th	NO
Missouri Department of Environmental Quality, Hazardous Waste Program	Mailed on August 8th	NO
Missouri Department of Environmental Quality, Land Reclamation Program	Mailed on August 8th	NO
Missouri Department of Environmental Quality, Water Protection Program	Mailed on August 8th	NO
Missouri Department of Transportation, St. Louis District	Mailed on August 8th	no impact on MoDOT controlled right away
Natural Resources Conservation Service, Hillsboro Service Center	Mailed on August 8th	NO
Soil and Water Conservation District	Mailed on August 8th	NO
St. Louis Air Pollution Control Department	Mailed on August 8th	no jurisdiction regarding construction or operating permits – contact Mo DNR
St. Louis Building Division	Mailed on August 8th	NO
St. Louis Community Development Association	Mailed on August 8th	NO
St. Louis Cultural Resources Office	Mailed on August 8th	NO
St. Louis Department of Public Utilities	Mailed on August 8th	NO
St. Louis Department of Streets	Mailed on August 8th	NO
St. Louis Department of Forestry	Mailed on August 8th	NO
St. Louis Parks, Recreation, and Forestry	Mailed on August 8th	NO
St. Louis Development Corporation	Mailed on August 8th	NO
St. Louis Water Division	Mailed on August 8th	NO
St. Louis Zoning	Mailed on August 8th	NO
St. Louis Metropolitan Sewer District	Email Communication	Volume Reducing BMPs for stormwater quality are required. Provide detention for type 2 storm event.
East-West Gateway Council of Governments	Mailed on August 8th	NO
US Fish and Wildlife Service, Missouri Ecological Field Office	Mailed on August 8th	No comment pertaining to threatened or endangered species.
US Fish and Wildlife Service, Regional Wetland Coordinator	Mailed on August 8th	NO
Bureau of Indian Affairs, Eastern Regional Office	Mailed on August 8th	NO
Missouri Department of Conservation	Mailed on August 8th	Provided completed Natural Heritage Database Review and Peregrine Falcon BMPs
Missouri Department of Natural Resources, Water Resources Center	Mailed on August 8th	NO
Federal Aviation Administration	Emailed on August 8th	NO
Missouri State Historic Preservation Office	Mailed on August 8th	consultation from 2013 comment identifies areas of NRHP eligible or listed sites and will require mitigation or avoidance. Request updated scope of work with information on these sites and affects.
Missouri Department of Natural Resources, Division of State Parks and Historic Sites	Mailed on August 8th	Will review EA during 30-day comment period
St. Louis Planning and Urban Design Agency	Mailed on August 8th	Will Participate as consulting party

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

September 11, 2019

Mr. Chanda Joshi
Department of Veterans Affairs
Office of Construction & Facilities Management
1425 Tri-State Parkway, Suite 140
Gurnee, IL 60031

RE: **SHPO Number: 061-SLC-11** Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center – John Cochran Division, 915 North Grand Boulevard, St. Louis City, MO (VA)

Dear Mr. Joshi:

Thank you for submitting information about the above-referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

This project was originally submitted to our office for review and comments with a similar scope of work in April of 2013. This consultation identified many properties within the area of potential effects (APE) which are eligible for inclusion in the National Register of Historic Places (NRHP) and found that the project as proposed would have an adverse effect on historic properties. Our records do not indicate that these adverse effects were resolved through avoiding, minimizing, or mitigating the adverse effects. Please provide an updated scope of work that outlines the historic properties in the APE and how they will be affected by this project. Once we have this information we will be able to continue to review and comment on the effects of the project on historic properties.

If you have any questions please write Missouri Department of Natural Resources, State Historic Preservation Office, Attn: Review and Compliance, P.O. Box 176, Jefferson City, Missouri 65102, or call Amanda Burke (573) 522-4641.

Recycled paper

Please be sure to include the **SHPO Project Number (061-SLC-11)** on all future correspondence relating to this project. If the information is provided via telephone call, please follow up in writing for our files.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Toni M. Prawl

Toni M. Prawl, PhD
Director and Deputy
State Historic Preservation Officer

TMP:ab

c: Mr. Doug Pulak, VA

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

REPLY TO ATTENTION OF:

September 4, 2019

Regulatory Branch
File Number: MVS-2012-496

Mr. Chanda Joshi
VA Project Manager
Department of Veterans Affairs
Office of Construction & Facilities Management
1425 Tri-State Parkway, Suite 140
Gurnee, Illinois, 60031

Dear Mr. Joshi:

We have reviewed your submittal in regard to the proposed expansion and renovation of the existing St. Louis VA Medical Center – John Cochran Division. The VA is considering two alternatives for the new project. The preferred Alternative A includes land acquisition south of the VMAC campus between Enright Avenue and Delmar Boulevard. Alternative B does not include land acquisition. The project is located in an existing commercially developed area, in Section 11, Township 2, Range 10 West of the Fifth Principal Meridian, St. Louis County, Missouri.

Based upon our review of the U.S. Geological Survey 7.5-minute topographical map, the National Wetland Inventory maps, USDA's Web Soil Survey, aerial photos and the submitted project plans; we have determined that the project will not impact streams or wetlands. Since the project will not be completed within waters of the U.S., a Department of the Army permit is **not** required for the proposed work. If work may infringe on areas believed to be within jurisdictional waters, you are instructed to contact the Corps of Engineers Regulatory Branch for guidance.

This determination is applicable only to the permit program administered by the Corps of Engineers Regulatory Branch. It does not eliminate the need to obtain other federal, state or local approvals before beginning work. You are reminded that although your proposal does not need a Section 404 permit, based on your submitted plans, any revisions to your proposal may be subject to Section 404 and require subsequent authorization from this office.

If you have any questions, please contact Katie Steinmetz at (314) 331-8593. Please refer to file number **MVS-2012-496**. The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to go to our Customer Service Survey found on our web site at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Sincerely,

Katie Steinmetz
Project Manager
Regulatory Branch

From: Tilley, Amber <Tilley.Amber@epa.gov>
Date: Thursday, Aug 22, 2019, 4:30 PM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Subject: [EXTERNAL] EPA Scoping Comments for Proposed Seismic Upgrade & Expansion for the St. Louis VA Medical Center-John Cochran Division

Good afternoon Mr. Joshi,
I hope your day is going well. We have received from your office a correspondence regarding a *Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center-John Cochran Division* in St. Louis, Missouri. We appreciate your coordination with our office and the early notification regarding the intent to prepare NEPA compliance documentation for the proposed project.

We performed a cursory desktop review of the project area using NEPAssist (https://nepassisttool.epa.gov/nepassist/nepamap.aspx) and have identified the following environmental conditions:

- NEPAssist shows that the project location is within an 8-hour non-attainment area for Ozone
- Project location is in proximity to one or more Toxic Release Inventory (TRI) site, RCRA facility and air emission facility
    - The John Cochran VAMC itself is listed as a RCRA & Air Emissions facility
- Project location is in proximity to a building listed or eligible for listing on the National Register of Historic Places; we recommend coordinating with the Missouri State Historic Preservation Office
- EPA's EJ Screen tool (https://ejscreen.epa.gov/mapper) shows that the project area may be located within an Environmental Justice area for both low-income and minority populations. The NEPA Committee of the Interagency Working Group (IWG) on Environmental Justice released the *Promising Practices for EJ Methodologies in NEPA Reviews* report. The report contains a compilation of methodologies used across the federal government for EJ analyses in the NEPA process. While use of the report is not compulsory, we recommend it be considered in conjunction with CEQ and the VA's guidance on EJ, as appropriate. The report can be accessed here. EPA recommends lead agencies developing NEPA documentation consult the report in development of their EJ strategy and analysis. We also recommend that any specific methodologies referenced in the report should be appropriately cited in the forthcoming NEPA document.
- Additionally, based on current EPA policy and guidance, an analysis of impacts to children from construction and operation of the proposed project facilities should be included in a NEPA analysis if there is a possibility of disproportionate impact on children related to the proposed action. EPA views childhood as a sequence of lifestages. Therefore, exposures to children at each life stage, as well as pregnant and nursing women, are relevant and should be considered when addressing health and safety risks for children. Because children can be more susceptible to noise levels, mobile source air pollution, construction dust, and the chemicals associated with building and construction materials, we recommend that the NEPA analysis specifically address the potential direct, indirect, and cumulative impacts of the proposed project on children's health, including consideration of prenatal exposures (exposures that may be experienced by pregnant women). Please contact LaTonya Sanders, EPA Region 7's Children's Environmental Health Coordinator, at 913-551-7555 with any questions regarding the consideration of Children's Health issues.

Again, we thank you for the notification and opportunity to provide early feedback on this project. We request that the Region 7 NEPA Program be added to the notification list for any future updates to the project as it progresses, as well as the opportunity to review the draft environmental document. I would be glad to discuss with you any questions or concerns you may have, and if I can be of further assistance as the scoping process commences, please feel free to contact me. Thank you, and have a great afternoon.

Amber Tilley
NEPA Project Manager-Office of Intergovernmental Affairs-Office of the Regional Administrator

P: 913-551-7565
tilley.amber@epa.gov - www.epa.gov
11201 Renner Blvd, Lenexa, KS 66219

The environment is where we all meet; where all have a mutual interest; it is the one thing all of us share.
~ Lady Bird Johnson

Please consider the environment before printing this e-mail

From: John Alexander [mailto:JCALEX@stlmsd.com]
Sent: Monday, April 15, 2019 12:44 PM
To: Ben Hodapp <BHodapp@AE-MN.COM>
Subject: RE: VAMC John Cochran - Campus Improvements- 915 Grand Blvd., St Louis

This project is in the "Western Mill" City Watershed, which has a blanket restriction requiring all disturbance use a "back to grass" existing condition to establish the 20 year – 20 minute differential.
MSD did a conceptual review for the demo site that is just north of the current hospital building in 2017 and more recently approved the follow up formal project submittal a few months ago.
To view the previous conceptual letter you will need to set up a user account in our plan review/permitting application called "ACCELA".
Being that your site is in the immediate area you will have the same requirements. The previous conceptual project number is 17CNCPB-00017, the formal submittal made after that was project number 18MSD-00245.

Ben-
I was reading the 17CNCPB-00017 conceptual letter and noticed that the reviewer stated the project would be eligible for our green Infrastructure reimbursement program, that is incorrect the Federal Government is not eligible for the program.
Water Quality (WQ) is not required since the site is in the combined sewer area.
However Volume Reducing (VR) BMP's for stormwater "quantity" management are required and these VR BMP's are identical to WQ BMP's.

Basically your improvements will have to provide flood detention (2 & 100 year - 24 hour, type II storm event) since your differential will be over 2cfs and supplement the flood protection with VR type BMPs as well.

If you wish to have your own specific conceptual letter written for your proposed improvements you will need to set up a conceptual project record in ACCELA.
Being that this is a federal facility there will be no submittal charge however it does need to be formally submitted not just emailed to me.

Anyone can set up and submit a project it does not have to be the project engineer. Please go to our website "stlmsd.com" and at the **middle** of the home page click on the link "I need a Plan Review or a Permit" (which is just under the lady wearing a yellow hard hat). Then click on "I would like to submit development plans for review and approval". Then click on "MSD Accela ACA User Guide 2019" it contains tutorial information on how register for an account, how to navigate in the new ACCELA system and how to set up an application for a project. There is another link to assist you with FAQ's.
After you set up your account you can search any project and view all the documents associated with them.

Thank you,

John Alexander, P.E.
Principal Engineer – Development Review
Metropolitan St. Louis Sewer District (MSD)
2350 Market Street
St. Louis, Mo. 63103-2555
(314) 768-2707
jcalex@stlmsd.com

From: Marquardt, Shauna <shauna_marquardt@fws.gov>
Date: Monday, Aug 19, 2019, 4:45 PM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Subject: [EXTERNAL] Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center

The U.S. Fish and Wildlife Service has reviewed your August 12, 2019 letter, requesting review of the proposed Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center - John Cochran Division - 915 North Grand Boulevard project (*Consultation Code: 03E14000-2019-SLI-2546*) in St. Louis, Missouri, and submits these comments pursuant to he Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Based on the information submitted the Service has no comments pertaining to threatened and endangered species. Should the scope, timing, or manner of activity change, please contact this office.

Thank you for the opportunity to review the proposed project.

Shauna Marquardt
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A, Columbia, MO 65203
O: 573-234-2132 x174 // M: 573-239-3293 // F: 573-234-2181

From: Arrighi, Jeanine <arrighij@stlouis-mo.gov>
Date: Tuesday, Aug 13, 2019, 12:05 PM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Subject: [EXTERNAL] VA Medical Center - John Cochran Division

Mr. Joshi,

In response to the attached correspondence, our air pollution program does not have any jurisdiction regarding construction or operating permits for air pollution control. I imagine that you have also contacted the Missouri Department of Natural Resources, which has jurisdiction in regard to these concerns.

Thank you,

Jeanine

Jeanine S. Arrighi, MS, MPPA
Health Services Manager II, Environmental Health Services
City of St. Louis Department of Health
1520 Market, Suite 4051
St. Louis, MO 63103
Voice 314-657-1507
Fax 314-612-5367
ArrighiJ@stlouis-mo.gov

From: Hunt, Rob <Rob.Hunt@dnr.mo.gov>
Sent: Friday, August 16, 2019 2:05 PM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Cc: Newman, Missy <Missy.Newman@dnr.mo.gov>
Subject: [EXTERNAL] Proposed Seismic Upgrade and Expansion of St. Louis VA Medical Center

Hello Mr. Joshi,

Thank you for the early notice on the Proposed Seismic Upgrade and Expansion of St. Louis VA Medical Center – John Cochran Division. We look forward to reviewing the EA during the 30 day public comment period. Please send future correspondence directly to me and I can ensure distribution within the Missouri Department of Natural Resources for comment.

Rob Hunt
Planning Coordinator
Missouri Department of Natural Resources
Phone (573) 522-2656
rob.hunt@dnr.mo.gov
We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From: Janet Sternburg <Janet.Sternburg@mdc.mo.gov>
Date: Monday, Sep 23, 2019, 7:46 PM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Cc: Natural Heritage Review <NaturalHeritageReview@mdc.mo.gov>, Janet Sternburg <Janet.Sternburg@mdc.mo.gov>
Subject: [EXTERNAL] MDC Natural Heritage Review - St. Louis VA Medical Center Expansion at 915 N. Grand Boulevard, St. Louis, MO

Hello,

Attached please find the MO Natural Heritage Review for the project referenced above. If you have any questions about the report, please let me know.

We are in the process of replacing the vacant Environmental Review Coordinator Position held by Brittnie Brauner. She left the position at the end of July. Because of the vacancy, we are behind in fulfilling these requests. We hope to be fully staffed by the beginning of November.

Thank you for your patience,

Janet

Janet Sternburg
Resource Science Supervisor
MO Dept. of Conservation
2901 W. Truman Blvd./Jefferson City, MO 65109 (street)
PO Box 180/Jefferson City, MO, 65102
573-522-4115 ext 3372
FAX:573-526-5582

From: JOHN "JAY JAY" BRADEN <John.Braden@modot.mo.gov>
Date: Monday, Aug 19, 2019, 7:07 AM
To: Joshi, Chanda P. (CFM) <Chandrashekhar.joshi@va.gov>
Subject: [EXTERNAL] 08-19-19 - proposed upgrade VA Medical Center

Mr. Chanda Joshi,

After a review of the proposed plan for the VA upgrade in St. Louis City MoDOT has no comments. This development has no impact on MoDOT controlled right of way. Thank you for the opportunity to comment. If you have any questions or comments feel free to contact me.

Jay-Jay Braden
Missouri Department of Transportation
Sr. Traffic Specialist - St. Louis County
2620 Adie Road, Maryland Heights, MO 63043
Mobile: 636.628.5867 **Fax:** 573.522.6491

St. Louis Permits Home Page https://www.modot.org/st-louis-district-permit-specialist-map
Permit request formhttps://www6.modot.mo.gov/Permitting/PermitRequest.aspx
Lane Closure request form https://www.modot.org/form/lane-closure-request-form

MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180

Telephone: 573-751-4115 ▲ www.MissouriConservation.org

SARA PARKER PAULEY, Director

January 22, 2020

Department of Veterans Affairs
Office of Construction & Facilities Management
Attn: Mr. Chanda Joshi
1425 Tri-State Parkway, Suite 140
Gurnee, Illinois, 60031
(sent by email)

Dear Mr. Joshi:

RE: Proposed Expansion and Improvements of the St. Louis VA Medical Center – John Cochran Division – 915 North Grand Boulevard, St. Louis, Missouri

Thank you for contacting the Missouri Department of Conservation (Department) to request concurrence regarding the Natural Heritage Review Report that you received. The Department is the state agency responsible for Missouri's fish, forest and wildlife resources. As such, the Department participates in project review when a project might affect these resources. The attached comments are for your consideration to help avoid, minimize and mitigate project impacts in Missouri.

It is important to clarify that the Natural Heritage Review Report is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. The recommendations included in the report provide Best Management Practices regarding species of conservation concern which are supported by the latest research, the department's taxa experts, and regulatory policies.

Given your acknowledgement of these recommendations and if they are followed during the project activities, then we at the Department agree that the potential for adverse effects towards fish and wildlife will be reduced.

COMMISSION

DON C. BEDELL
Sikeston

STEVEN D. HARRISON
Rolla

MARK L. McHENRY
Kansas City

WM. L. (BARRY) ORSCHELN
Columbia

Should project activities appear to have the potential to impact the species listed in the Natural Heritage Review Report, please coordinate with the following contacts:

- **Indiana bat (*Myotis sodalis*) or Northern long-eared bat (*Myotis septentrionalis*):** U.S. Fish and Wildlife Services (Ecological Services, 101 Park Deville Drive, Suite A, Columbia Missouri 65203-007; Phone 573-234-2132 Ext. 100
- **Peregrine Falcon (*Falco peregrinus*):**
    - Joe DeBold – Missouri Department of Conservation Urban Wildlife Biologist & Peregrine Falcon Recovery Lead; Joseph.DeBold@mdc.mo.gov; Phone (816)-759-7305 Ext. 1130

Thank you for the opportunity to follow up on the Natural Heritage Review Report you received. If I may be of further assistance, please contact me by phone at 573-522-4115, extension 3182 or by email at Jordan.Meyer@mdc.mo.gov, or my supervisor Janet Sternburg by phone at 573-522-4115, extension 3372 or by email at Janet.Sternburg@mdc.mo.gov.

Sincerely,

JORDAN J. MEYER
ENVIRONMETNAL REVIEW COORDINATOR

Attachment

c: Joseph DeBold, Janet Haslerig, and Janet Sternburg, Missouri Department of Conservation (by email)

Appendix B
Tribal Consultation

NHPA Consulting Parties	Letter Sent USPS Certified	USPS Delivery Receipt	Comments Received	CP Meeting Invite emailed
Apache Tribe of Oklahoma	9/13/19	9/19/2019		10/22/19
Miami Tribe of Oklahoma	9/13/19	9/19/2019		10/22/19
Osage Nation	9/13/19	9/19/2019	Requests individual consultation from VA 10/23/2019	10/22/19
Quapaw Tribe of Indians	9/13/19	9/19/2019		10/22/19
Seneca-Cayuga Nation	9/13/19	9/19/2019		10/22/19
Missouri Alliance for Historical Preservation	9/13/19	9/23/19		10/22/19
City of St Louis Cultural Resource Office	9/13/19	9/23/19	Accepted 10/4/2019	10/22/19
National Trust for Historical Preservation	9/13/19	9/19/2019		10/22/19
Landmarks Association of St. Louis	9/13/19	9/23/19		10/22/19
Grand Center, Inc.	9/13/19	10/3/19	Accepted 10/11/2019	10/22/19
Missouri State Historical Preservation Office	9/18/19	9/23/19	Accepted 10/18/2019	10/22/19
Advisory Council on Historic Preservation			Accepted 10/4/2019	10/22/19

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Quapaw Tribe of Indians
Everett Bandy, Tribal Historic Preservation Officer
PO Box 765
Quapaw, OK 74363-0765

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Bandy,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Quapaw Tribe of Indians to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Quapaw Tribe of Indians reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Apache Tribe of Oklahoma
Bobby Komardly, Chairman
P.O. Box 1330
Anadarko, OK 73005

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Chairman Komardly,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Apache Tribe of Oklahoma to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Apache Tribe of Oklahoma reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Miami Tribe of Oklahoma
Diane Hunter, Tribal Historic Preservation Officer
PO Box 1326
Miami, OK 74355

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Ms. Hunter,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Miami Tribe of Oklahoma to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Miami Tribe of Oklahoma reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Seneca-Cayuga Nation
William Tarrant, Tribal Historic Preservation Officer
PO Box 453220
Grove, OK 74344

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Tarrant,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Seneca-Cayuga Nation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Seneca-Cayuga Nation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Osage Nation
Dr. Andrea Hunter, Tribal Historic Preservation Officer
627 Grandview Avenue
Pawhuska, OK 74056

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Dr. Hunter,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Apache Tribe of Oklahoma to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Apache Tribe of Oklahoma reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

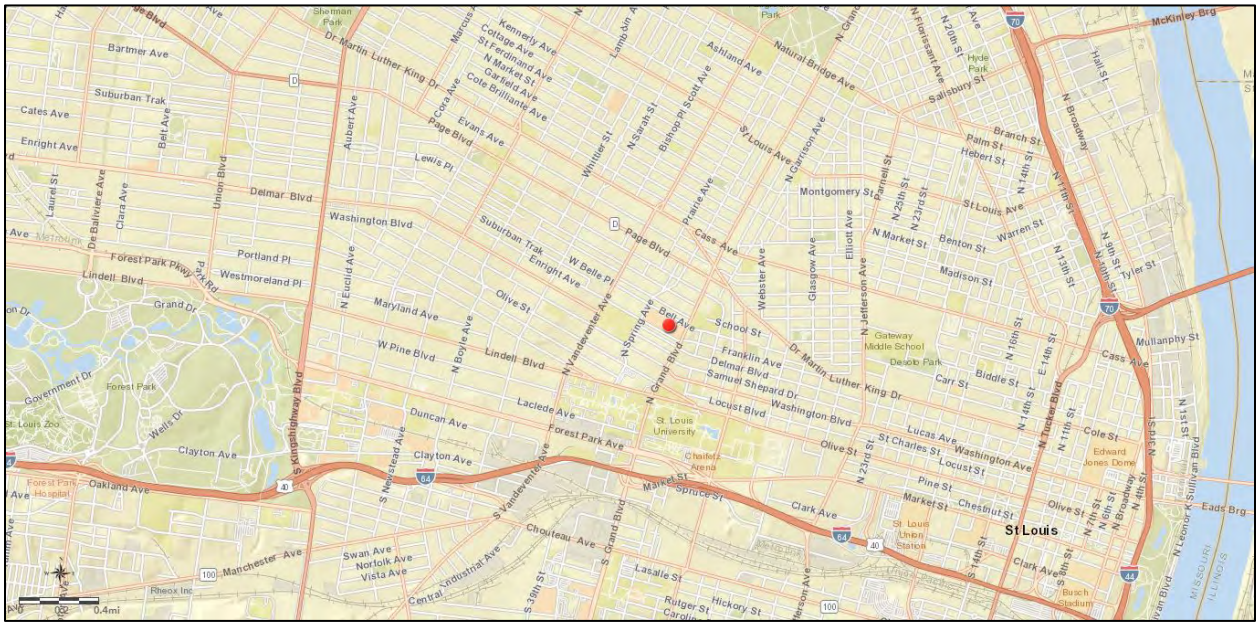
Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

Area of Potential Effect

SLJC VAMC	915 North Grand Boulevard		
Area of Potential Effect			
Historic Property	*Address*	*Status*	*Depiction*
Midtown Historic District	Lindell and Grand Boulevards	District Listed in the National Register	
Welfare Finance Company Building	1027-1029 N. Grand Boulevard	Listed Individually in the National Register	
Powell Theater	527 N. Grand Boulevard		
Palladium	3618 Enright Avenue	Determined Eligible for Listing in the National Register	
3514 Delmar Blvd.	3514 Delmar Boulevard		
1023 N. Grand Blvd.	1023 N. Grand Boulevard		



Mr. Drikow,
As the Osage Nation is a sovereign nation, the VA is responsible for conducting a government to government consultation with the Osage Nation as it has expressed an interest in your federal project. The federally-recognized tribes are not public stakeholders and are not subject to public meetings. Please discuss the scheduling and logistics of a tribal consultation meeting with the Osage Nation with Ms. Jackie Rodgers, the archaeologist who reviews VA cases. Ms. Rodgers is currently out of state at a consultation meeting and will return next week.

Thank you,

Dr. Andrea A. Hunter
Director/THPO
Osage Nation Historic Preservation Office
627 Grandview Avenue
Pawhuska, OK 74056

Office phone: (918) 287-5328
Office fax: (918) 287-5376
Email: ahunter@osagenation-nsn.gov

Appendix C
Section 106 Consultation

NHPA Consulting Parties	Letter Sent USPS Certified	USPS Delivery Receipt	Comments Received	CP Meeting Invite emailed
Apache Tribe of Oklahoma	9/13/19	9/19/2019		10/22/19
Miami Tribe of Oklahoma	9/13/19	9/19/2019		10/22/19
Osage Nation	9/13/19	9/19/2019	Requests individual consultation from VA 10/23/2019	10/22/19
Quapaw Tribe of Indians	9/13/19	9/19/2019		10/22/19
Seneca-Cayuga Nation	9/13/19	9/19/2019		10/22/19
Missouri Alliance for Historical Preservation	9/13/19	9/23/19		10/22/19
City of St Louis Cultural Resource Office	9/13/19	9/23/19	Accepted 10/4/2019	10/22/19
National Trust for Historical Preservation	9/13/19	9/19/2019		10/22/19
Landmarks Association of St. Louis	9/13/19	9/23/19		10/22/19
Grand Center, Inc.	9/13/19	10/3/19	Accepted 10/11/2019	10/22/19
Missouri State Historical Preservation Office	9/18/19	9/23/19	Accepted 10/18/2019	10/22/19
Advisory Council on Historic Preservation			Accepted 10/4/2019	10/22/19

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Missouri Alliance for Historic Preservation
Bill Hart, Executive Director
319 N 4th St, Room 850
St. Louis, MO 63102

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Hart,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Missouri Alliance for Historic Preservation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Missouri Alliance for Historic Preservation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Grand Center, Inc.
Rich Simmons, Executive Director
3526 Washington Ave
St Louis, MO 63103

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Simmons,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Grand Center Arts District to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Grand Center Arts District reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Landmarks Association of St Louis
Andrew Weil, Executive Director
3115 S Grand Blvd, Suite 700
St Louis, MO 63118

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Weil,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Landmarks Association of St Louis to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from your organization, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium*, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Landmarks Association of St Louis reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

National Trust for Historic Preservation
David Brown, Executive Vice President & Chief Preservation Officer
The Watergate Office Building
2600 Virginia Avenue NW, Suite 1100
Washington, DC 20037

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Brown,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the National Trust for Historic Preservation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium*, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the National Trust for Historic Preservation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

City of St Louis Cultural Resource Office
Daniel Krasnoff, Director
1520 Market Street, Suite 2000
St Louis, MO 63103

RE: Continuation of National Historic Preservation Act Section 106 Consultation
Redevelopment of the John Cochran Division, VA St Louis Health Care System
915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Krasnoff,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) is continuing consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). This letter is an update to the St Louis Cultural Resources Office, which previously responded that it does not participate in the section 106 consultation process unless requested by the Missouri State Historic Preservation Office (SHPO). JSSLVA is not aware of such a request being made and is resuming consultation with the SHPO.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri SHPO and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests the City of St Louis Cultural Resource Office reply to this letter if it would like to join in the ongoing consultation.

Thank you for your commitment to the historic resources of St Louis. If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 17, 2019

Toni M. Prawl, PhD
Deputy State Historic Preservation Officer
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, MO 65102

RE: Continuation of National Historic Preservation Act Section 106 Consultation
Redevelopment of the John Cochran Division, VA St Louis Health Care System
915 N Grand Blvd, City of St Louis, Missouri, 63106 (SHPO Project No. 061-SLC-11)

Dear Dr. Prawl,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) is continuing consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108) and submitting a Missouri State Historic Preservation Office (MO SHPO) Section 106 Project Form (Attachment 1).

JCSLVA initiated consultation with the MO SHPO in 2011 and continued consulting through 2013 (SHPO Project No. 061-SLC-11). In addition, JCSLVA invited the following parties to consult: Apache Tribe of Oklahoma, Miami Tribe of Oklahoma, Osage Nation, Peoria Tribe of Indians of Oklahoma, Quapaw Tribe of Indians, Seneca-Cayuga Nation, United Keetowah Band of Cherokee Indians in Oklahoma, St Louis Cultural Resources Office, Landmarks Association of St Louis, Grand Center Arts District, Missouri Alliance for Historic Preservation, and National Trust for Historic Preservation. JCSLVA is notifying the Advisory Council on Historic Preservation (ACHP) of this ongoing consultation via copy of this letter and inviting its participation.

Undertaking

JCSLVA established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, to include Bell and Enright Avenue between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect

JCSLVA has determined the current Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (Attachment 2).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts since 2012, with involvement from the Landmarks Association of St Louis, your office and preservation consultants.

Based on these efforts, JCSLVA has identified six historic properties within the current APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP. The City of St Louis found the Palladium unsafe and condemned the structure via letter to the property owner on March 14, 2018 (Attachment 3).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at your office also indicated no records of any archaeological sites within the APE. Your office previously concurred on these historic property identification results.

Finding of Adverse Effect

JCSLVA recently contracted for an updated cultural resources study of the proposed activities to assist in ongoing NHPA compliance efforts. The report provides additional information about the undertaking and analyzes its possible effects on historic properties (Attachment 4).

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to the historic properties within the APE. As the project is still in design with multiple alternatives being analyzed, JCSLVA will use a phased process in applying the criteria of adverse effect, per 36 CFR § 800.5(a)(3), and seeks to negotiate a programmatic agreement with your office and other consulting parties, per § 800.14(b)(1)(ii) following § 800.6, as effects on historic properties cannot be fully determined prior to approval of the undertaking.

JCSLVA anticipates that the agreement will establish a process for review of the design as it develops based on the reconfiguration alternative selected in order to resolve any adverse effects that are found and provide for mitigation if they cannot be avoided or minimized.

JCSLVA looks forward to receiving comments from your office on its consultation efforts to date and proposal to execute an agreement to guide future review of the reconfiguration as details are determined.

Thank you for your commitment to the historic resources of Missouri. If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

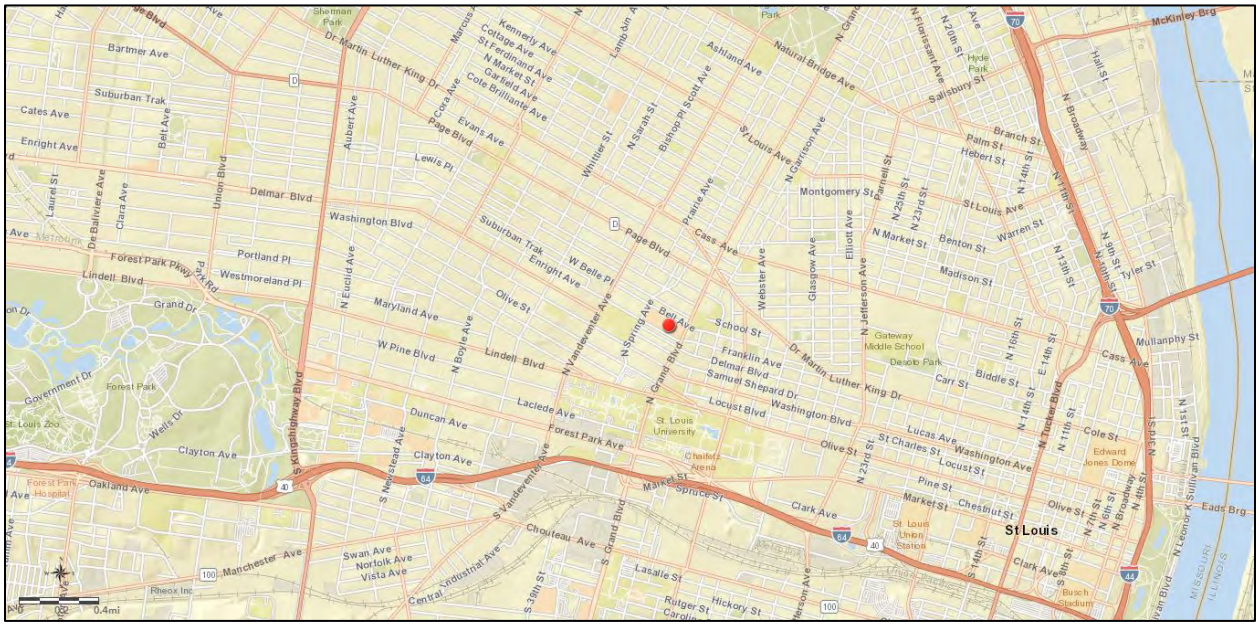
Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Attachments:
1. MO SHPO Section 106 Project Form
2. APE and Historic Properties
3. City of St Louis Condemnation Notice, March 14, 2018
4. Preliminary Cultural Resources Impact Report, September 2019

Cc: Angela McArdle, ACHP Program Analyst and VA Liaison
Amanda Burke, MO SHPO Historic Preservation Specialist
Doug Pulak, VA Federal Preservation Officer

Area of Potential Effect

SLJC VAMC	915 North Grand Boulevard		
Area of Potential Effect			
Historic Property	*Address*	*Status*	*Depiction*
Midtown Historic District	Lindell and Grand Boulevards	District Listed in the National Register	
Welfare Finance Company Building	1027-1029 N. Grand Boulevard	Listed Individually in the National Register	
Powell Theater	527 N. Grand Boulevard		
Palladium	3618 Enright Avenue	Determined Eligible for Listing in the National Register	
3514 Delmar Blvd.	3514 Delmar Boulevard		
1023 N. Grand Blvd.	1023 N. Grand Boulevard		



Hon. Aimee K. Jorjani
Chairman

Leonard A. Forsman
Vice Chairman

John M. Fowler
Executive Director

Preserving America's Heritage

October 4, 2019

The Honorable Robert L. Wilkie
Secretary
Department of Veterans Affairs
810 Vermont Avenue, NW, Room 1000
Washington, DC 20420

Ref: *Redevelopment of John Cochran Veterans Hospital - VA St. Louis Health Care System*
St. Louis, St. Louis County, Missouri
ACHPConnect Log Number: 014561

Dear Secretary Wilkie:

In response to the recent notification by the Department of Veterans Affairs (VA), the Advisory Council on Historic Preservation (ACHP) will participate in consultation to develop a Section 106 agreement document for the referenced undertaking. Our decision to participate in this consultation is based on the *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, contained within the regulations, "Protection of Historic Properties" (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act. The criteria are met for this proposed undertaking because it has substantial impacts on important historic properties and has the potential for presenting procedural problems.

Section 800.6(a)(1)(iii) of these regulations requires that we notify you as the head of the agency of our decision to participate in consultation. By copy of this letter, we are also notifying Gary P. Drikow, VA St. Louis Health Care System Service Chief, of this decision.

Our participation in this consultation will be handled by Ms. Angela McArdle, who can be reached at (202) 517-0221 or via email at amcardle@achp.gov. We look forward to working with your agency and other consulting parties to reach agreement on ways to avoid, minimize, or mitigate adverse effects on historic properties.

Sincerely,

John M. Fowler
Executive Director

CITY OF ST. LOUIS
PLANNING & URBAN DESIGN AGENCY

October 1, 2019

Mr. Chanda Joshi
Project Manager
Veterans Administration

Dear Mr. Joshi,

The purpose of this letter is to inform you that the Cultural Resources Office of the City of St. Louis wishes to be a consulting party regarding a proposed construction of a building of approximately thirteen (13) stories at the John Cochran Veterans Administration health facility.

Sincerely,

Daniel Krasnoff
Cultural Resources Director

Lyda Krewson
Mayor

Donald W. Roe
Executive Director, Planning & Urban Design Agency

314.657.3700
planning@stlouis-mo.gov
http://www.stlouis-mo.gov/planning

1520 Market Street, Suite 2000
St. Louis, Missouri 63103

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

October 22, 2019

Department of Veterans Affairs
Office of Construction & Facilities Management
Attn: Chanda Joshi, Project Manager
1425 Tri-State Pkwy, Suite 140
Gurnee, IL 60031

RE: **SHPO Number: 061-SLC-11** – Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center – John Cochran Division, St. Louis County, Missouri

Dear Ms. Joshi:

Thank you for submitting information about the above-referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

Our office received a letter dated September 17, 2019 along with a preliminary cultural resources report. In the letter your office found that due to the complexity of the project and range of alternatives a Programmatic Agreement (PA) should be developed to address the project. Our office looks forward to participating in the development of the PA.

Based on a review of the information provided in the *Preliminary Cultural Resources Impact Report for the John Cochran Division, VA St. Louis Health Care System*, we concur that the Midtown Historic District, St. Louis Theater, Welfare Finance Company Building, The Palladium, 3514 Delmar Boulevard and 1023 North Grand Boulevard are listed on or have been previously determined eligible for listing in the National Register of Historic Places (NRHP) and the affects of the project on these properties should be addressed in the PA. Before development of the PA we have the following concerns which will need to be addressed:

- We were unable to determine the eligibility of 911-15 North Spring Street or 3641-3705 Grendel Square. In order to aid in the determination of eligibility please submit detailed photographs of the properties both interior and exterior, and a brief history of the buildings including the construction date, architect, significant occupants, and original use.
- In regards to the likelihood of remaining archaeological resources within the project area, the 2012 Landmark Preliminary Report states that many of the homes built in the area after the Civil War would have relied on cisterns for water and privies for sanitation and that there is the potential for sealed, intact archaeological deposits to exist. Based on our knowledge of the historic St. Louis City area, this is true since construction methods left

Recycled paper

previous deposits intact and built on top of them. The Cultural Resources Impact Report submitted misstates this finding that "the study addressed the potential for archaeological sites as unlikely due to intensive land use." We agree with the evaluation in the 2012 report and look forward to discussing possible monitoring with data recovery for the project.

We look forward to receiving this additional information and working with your office to develop the PA. If you have any questions please write Missouri Department of Natural Resources, State Historic Preservation Office, Attn: Review and Compliance, P.O. Box 176, Jefferson City, Missouri 65102, or call Amanda Burke (573) 522-4641 or Amy Rubingh (573) 751-4589. Please be sure to include the **SHPO Project Number (061-SLC-11)** on all future correspondence relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Toni M. Prawl

Toni M. Prawl, PhD
Director and Deputy
State Historic Preservation Officer

TMP:ar/ab

c: Ms. Angela McArdle, ACHP
Mr. Doug Pulak, VA

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE

SECTION 106 PROJECT INFORMATION FORM

Submission of a completed Project Information Form with adequate information and attachments constitutes a request for a review pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). We reserve the right to request more information. **Please refer to the CHECKLIST on Page 2 to ensure that all basic information relevant to the project has been included.** For further information, refer to our website at: http://dnr.mo.gov/shpo and follow the links to Section 106 Review.

NOTE: Section 106 regulations provide for a 30-day response time by the Missouri State Historic Preservation Office from the date of receipt.

PROJECT NAME 061-SLC-11: Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center - John Cochran Division	
FEDERAL AGENCY PROVIDING FUNDS, LICENSE, OR PERMIT U.S. Department of Veterans Affairs (VA)	
APPLICANT VA St. Louis Health Care System – John Cochran Division (SLJC VAMC)	TELEPHONE
CONTACT PERSON Chanda Joshi, Project Manager	TELEPHONE (224) 610-7321
ADDRESS FOR RESPONSE Office of Construction & Facilities Management 1425 Tri-State Pkwy, Suite 140 Gurnee, IL 60031 Email: Chandrashekhar.joshi@va.gov	

LOCATION OF PROJECT

COUNTY St. Louis	
STREET ADDRESS 915 North Grand Blvd	CITY St. Louis

LEGAL DESCRIPTION OF PROJECT AREA (TOWNSHIP, RANGE, SECTION, ¼ SECTION)

USGS TOPOGRAPHIC MAP QUADRANGLE NAME (SEE MAP REQUIREMENTS ON PAGE 2)

Granite City, IL, MO

YEAR	TOWNSHIP	RANGE	SECTION
2018	45N	7E	16

PROJECT DESCRIPTION

DESCRIBE THE OVERALL PROJECT IN DETAIL. IF IT INVOLVES EXCAVATION, INDICATE HOW WIDE, HOW DEEP, ETC. IF THE PROJECT INVOLVES DEMOLITION OF EXISTING BUILDINGS, MAKE THAT CLEAR. IF THE PROJECT INVOLVES REHABILITATION, DESCRIBE THE PROPOSED WORK IN DETAIL. USE ADDITIONAL PAGES IF NECESSARY.

SLJC VAMC has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13 story bed tower meeting current seismic resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, include the portion of Bell and Enright Avenue between North Grand Boulevard and North Spring Avenue.

For additional information, please see the Preliminary Cultural Resources Impact Report - September 2019, included with this submission.

ARCHAEOLOGY (EARTHMOVING ACTIVITIES)

HAS THE GROUND INVOLVED BEEN GRADED, BUILT ON, BORROWED, OR OTHERWISE DISTURBED? PLEASE DESCRIBE IN DETAIL (USE ADDITIONAL PAGES, IF NECESSARY) PHOTOGRAPHS ARE HELPFUL:

The project site is located in downtown St. Louis, a highly urban setting. The parcels under review have had extensive ground disturbance due to multiple previous construction campaigns, most notably in the early 1950s with the construction of the VA Medical Center as well as other structures within the APE. For further information please refer to the Preliminary Cultural Resources Impact Report - September 2019, included with this submission.

WILL THE PROJECT REQUIRE FILL MATERIAL? ☐ YES ☐ NO

IF **YES**, INDICATE PROPOSED BORROW AREAS (SOURCE OF FILL MATERIAL) ON TOPOGRAPHIC MAP

ARE YOU AWARE OF ARCHAEOLOGICAL SITES ON OR ADJACENT TO PROJECT AREA? ☐ YES ☐ NO

IF **YES**, IDENTIFY THEM ON THE TOPOGRAPHIC MAP

STRUCTURES (REHABILITATION, DEMOLOTION, ADDITIONS TO, OR CONTRUCTION NEAR EXISTING STRUCTURES)

TO THE BEST OF YOUR KNOWLEDGE, IS THE STRUCTURE LOCATED IN ANY OF THE FOLLOWING?

☐ AN AREA PREVIOUSLY SURVEYED FOR HISTORIC PROPERTIES.

IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT:

☑ A NATIONAL REGISTER DISTRICT

IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT:

Midtown Historic District

☐ A LOCAL HISTORIC DISTRICT

IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT:

- PLEASE PROVIDE PHOTOGRAPHS OF ALL STRUCTURES, SEE PHOTOGRAPHY REQUIREMENTS
- **NOTE:** ALL PHOTOGRAPHS SHOULD BE LABELED AND KEYED TO ONE MAP OF THE PROJECT AREA
- PLEASE PROVIDE A BRIEF HISTORY OF THE BUILDING(S), INCLUDING CONSTRUCTION DATES AND BUILDING USES. (USE ADDITONAL PAGES, IF NECESSARY.)

ADDITIONAL REQUIREMENTS

Map Requirements: Attach a copy of the relevant portion (8 ½ x 11) of the current USGS 7.5 min. topographic map **and**, if necessary, a large scale project map. Please do not send an individual map with each structure or site. While an original map is preferable, a good copy is acceptable. For a list of sites from which to order, download or print the required USGS 7.5 min. topographic maps at little or no cost, consult http://dnr.mo.gov/shpo/sectionrev.htm .

Photography Requirements: Clear black and white or color photographs (minimum 3" x 5") are acceptable. Polariods, photocopies, emailed or faxed photographs are not acceptable. **Good quality photographs are important for expeditious project review**. Photographs of neighboring or nearby buildings are also helpful. All photographs should be labeled and keyed to one map of the project area.

CHECKLIST-DID YOU PROVIDE THE FOLLOWING INFORMATION?

☑ Topographic map 7.5 min. (per project, not structure)

☑ Thorough description (all projects)

☑ Photographs (all structures)

☑ Other supporting documents (If necessary to explain the project)

☐ For new construction, rehabilitations, etc., attach work write-ups, plans, drawings, etc.

☑ Is topographic map identified by quadrangle and year?

Return this Form and Attachments to:

MISSOUR DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
Attn: Section 106 Review
P.O. BOX 176
JEFFERSON CITY, MISSOURI 65102-0176

APE	
VAMC SLJC	

SLJC VAMC	915 North Grand Boulevard		
Area of Potential Effect			
Historic Property	*Address*	*Status*	*Depiction*
Midtown Historic District	Lindell and Grand Boulevards	District Listed in the National Register	
Welfare Finance Company Building	1027-1029 N. Grand Boulevard	Listed Individually in the National Register	
Powell Hall	527 N. Grand Boulevard		
Palladium	3618 Enright Avenue	Determined Eligible for Listing in the National Register	
3514 Delmar Blvd.	3514 Delmar Boulevard		
1023 N. Grand Blvd.	1023 N. Grand Boulevard		

JIMMIE M. EDWARDS
DIRECTOR OF PUBLIC SAFETY

City of St. Louis

DEPARTMENT OF PUBLIC SAFETY
DIVISION OF BUILDING AND INSPECTION
LYDA KREWSON
MAYOR

FRANK OSWALD
BUILDING COMMISSIONER

Wednesday, March 14, 2018

FIVE STAR REALTY INC
767 SUMMER TOP CIR
FENTON, MO 63026

Inspection Date: 3/14/2018 8:00:00 AM

NOTICE OF CONDEMNATION

You are hereby notified; pursuant to Section 119.0 of Ordinance #68788, being the Condemnation provisions of the Building Code of the City of St. Louis, that I have caused an inspection of the structure(s) and premises known as:

3617 Delmar Blvd, St. Louis, MO 63108
Parcel No. 228819080

The inspection revealed that the structure(s) and/or premise(s) are in a condition which endangers the health, and/or lives, and/or safety and welfare, of persons or property; and further that they cannot be made reasonably safe without the repair or demolition and removal of the above referenced property of the unsightly and hazardous conditions listed on the following page. You are hereby ordered to have the above referenced structure(s) repaired or removed and the premises cleared of said conditions on or before March 24, 2018 (and have structure(s) maintained secured when vacant).

RIGHT OF APPEAL

You or any person aggrieved by this decision may appeal same to the Board of Building Appeals of the City of St. Louis by filing such appeal within ten (10) days of this notice specifying the grounds thereof, and accompanied by a one hundred fifty dollar ($150.00) filing fee. This appeal must be filed with the Secretary of the Board of Building Appeals in Room 400, City Hall, Tucker and Market Streets, St. Louis, Missouri. Forms are available in Room 400.

Should you fail to act as ordered above, or properly appeal within the time specified, I will proceed under authority of the Building Code to have the above mentioned conditions abated by demolition work and/or whatever work deemed necessary to secure public health, safety and welfare, with the cost thereof plus a 10% administration fee, to be billed you and if unpaid, collected by special tax assessment or collected by suit if necessary and/or lien against said property as prescribed by Section 119.5 of the Building Code and refer the file to the City Counselor for court prosecution as described in Section 4 of the Building Code.

The above mentioned structure is unsafe and as such, it is additionally condemned for use and occupancy under Section 119.4. Any and all occupants must vacate the premises until all such conditions that have caused the condemnation have been abated and so certified.

Permits are required for the repair and securing or removal of said structure(s). Permit applications are processed in Room 425, City Hall and shall be accompanied by a copy of this notice. Demolition permits, however, may only be issued to Certified Demolition Contractors. Extensions of the compliance period may be considered if you act immediately and secure a permit within ten (10) days of this notification and proceed immediately as prescribed by the permit conditions and this notice.

In addition, Ordinance #68788 states that any building or structure that has been ordered secured or has been secured by the City, which remains vacant for a period in excess of twelve (12) months, can then be condemned for occupancy and

subsequently demolished.

SO ORDERED:
Michael Wood

For further information, you may contact the inspector between 8:00 a.m. and 9:00 a.m. Please be aware that not all inspectors are not located at City Hall, so please contact the inspector to set up a meeting time and location.

Inspector: Michael Wood, (314) 622-5626, Email: woodm@stlouis-mo.gov, Supervisor: Tony Rolfi, (314) 622-3480

Violations:

Window/s Missing (Major violation [3/13/2018]) [South] Code Reference: Ordinance 68788 Section 119.0
Window/s are missing, building is open to unauthorized entry.

Roof Defect (Major violation [3/13/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.0
Roof is defective.

Roof is leaking (Major violation [3/13/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.0
Roof is leaking.

Plumbing Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Plumbing is inoperable
NO WATER

Electric Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Electric is inoperable.
ELECTRIC TURNED OFF 03/2017

Heating Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Heating is inoperable
GAS TURNED OFF 12/2010

No Water (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Water service inoperable.
WATER TURNED OFF 2012

Sealed Drawings Required (Major violation [3/13/2018]) [Unit] Code Reference: Ordinance 68788 IBC 110.7.1
Building permit with plans sealed by a Registered Design Professional will be required. Contact inspector for information.

Item 7 Section 119.1 (Major violation [3/14/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.1
Any interior or exterior portion, member,appurtenance, ornamentation or any other component of the building or structure is likely to fall, collapse, or become detached or dislodged, and thereby injure persons or damage property.

Preliminary Cultural Resources Impact Report

SEPTEMBER 2019

Row 10
Historic Preservation Solutions

Table of Contents

Executive Summary 1
Project Background and Description 2
Section 106 Glossary 5
Summary of Consultation Efforts to Date 6
Option 1: Additional Acquisition 10
Option 2: No Additional Acquisition 12
Area of Potential Effects 14
Identification of Historic Properties 15
Assessment of Potential Effects 18
Next Steps and Future Consultation 20
Appendix A: Inventory of Built Resources in the APE 22
Appendix B: Letters associated with previous consultation efforts 36
Appendix C: Potential Consulting Parties 44
Appendix D: Letter for MO SHPO and MO SHPO Form 46
Appendix E: Letter for Tribes 52
Appendix F: Letter for Consulting Parties 61
Appendix G: Condemnation of the Palladium (3617 Delmar Blvd.) 72

Executive Summary

The Office of Construction and Facilities Management of the U.S. Department of Veterans Affairs (VA) sought to develop a tool for the organization and management of design and cost data related to future seismic-related construction projects, including the proposed project to replace the bed tower, expand the clinical building Expansion, and construct parking garages at the John Cochran Division of the VA St. Louis Health Care System (VAMC SLJC). The resulting tool, called the Project Book, seeks to collate all the necessary pre-design information in order to ensure adequate and accurate subsequent design and cost efforts related to multiple new construction projects, expansion of the facility footprint, and associated site improvements.

As part of this Project Book, VA requested a preliminary cultural resources study regarding the proposed activities at the VAMC SLJC to assist in future compliance efforts in accordance with VA Directive 7545 and the National Historic Preservation Act (NHPA). This study was written and produced by Row 10 Historic Preservation Solutions, LLC (Row 10) under a subcontract agreement with Anderson Engineering of Minnesota. It was prepared for VA.

The following study contains a summary of consultation efforts to date and results of Row 10's preliminary cultural resources study of the VAMC SLJC. The report identifies the potential impact to cultural resources for the proposed project as well as next steps for successful completion of the NHPA consultation process.

Project Background and Description

VA Directive 7545 defines cultural resources as "all aspects of the human environment that have historical, architectural, archaeological, or cultural significance, including, but not limited to, historic properties, archaeological resources and data, Native American ancestral remains and cultural items, religious places and practices, historical objects and artifacts, historical documents, and community identity."

Protection of Historic Properties (36 CFR §800) defines a historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places [NRHP] maintained by the Secretary of the Interior." The term includes properties of traditional religious and cultural importance to an Indian tribe that meet the NRHP criteria. To qualify for listing in the NRHP, a property must be (1) fifty years of age or older, with limited exceptions, (2) significant to the understanding of local, state, or national history, and (3) retain sufficient integrity, i.e. physical features, to convey the importance of the property. Collections of related historic properties, such as a neighborhood or a college campus, may qualify as historic districts. Properties are eligible for listing under the following Criteria:

(A) Association with an event or events that have contributed to the broad patterns of American society;

(B) Association with persons significant to our past;

(C) The embodiment of a distinctive architectural type or style, or is the work of a master; or,

(D) Contain significant research potential (usually applied to archeological sites).

The current VAMC SLJC consists of 20 buildings on a campus in the Grand Center neighborhood of St. Louis, Missouri (see Figure 1). Constructed as part of the Third Generation of Veterans Hospitals, the hospital opened in 1953. The majority of the campus is bounded by Bell Avenue, North Grand Boulevard, Enright Avenue, and North Spring Avenue; one VAMC SLJC building is located across Enright Avenue from the main campus and a surface parking lot is sited across North Grand Boulevard from the main hospital building (see Figure 2). Recently, the VAMC SLJC acquired a parcel to the north, across Bell Avenue from the original campus.

Since the main hospital building of the VAMC SLJC does not meet VA's current seismic requirements, VA seeks to relocate patient care away from the current main hospital building to a new Bed Tower that meets seismic requirements. The proposed project also includes the construction of multiple parking garages, a utility plant, dedicated clinic buildings, substation, and water storage system in order to correct current deficiencies at the VAMC SLJC. The scope of the project may necessitate the demolition of up to 13 campus buildings, acquisition of parcels adjacent to the VAMC SLJC, demolition of the buildings on the acquired parcels, and expansion of the facility footprint. Enlarging the campus may result in the vacation of the portion of Bell Road between North Grand Boulevard and North Spring Avenue. Potential development plans include merging

Enright Avenue with Delmar Boulevard. The stretch of Delmar Boulevard to the southwest of the campus may also be rerouted to accommodate the new construction.

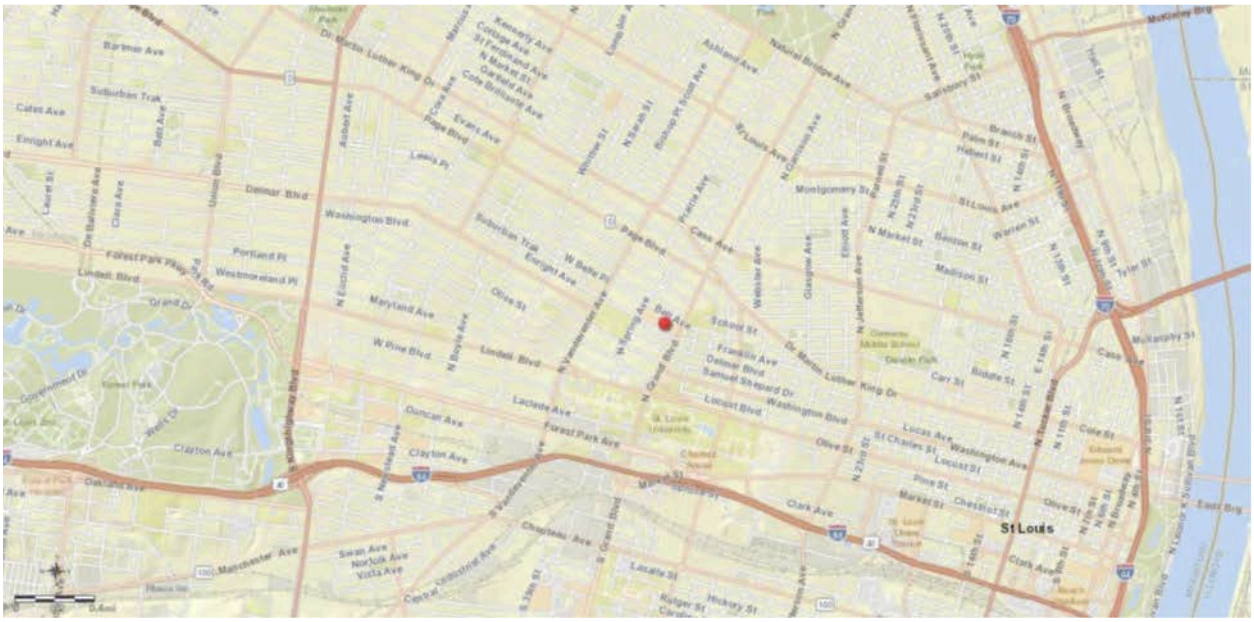


Figure 1: Location of the VAMC SLJC within St. Louis, Missouri.

The former Frank Adam Electrical Company Building on Windsor Place has been acquired and the building demolished. At the time of this study, acquisition plans for additional parcels adjacent to the VAMC SLJC had not been finalized. The acquisition of these parcels will be a key determining factor for the height of the new Bed Tower. Proposed plans for the new Bed Tower call for a building of either 9 stories or 13 stories sited on the western portion of the campus and behind Building 1; the height of the new Bed Tower will be resolved once acquisition of adjacent parcels has been determined. For the purposes of this study, the new Bed Tower was assumed to be 13 stories.

The various components of the proposed project should be treated as a single project for the purposes of future NHPA compliance efforts. At the time of this report, planned acquisition of several of the parcels remained in flux and final project plans had not been determined. Thus, for the following report, each element of the project is addressed individually to allow VA to reference and incorporate the relevant pieces as the project progresses and VA solidifies its future plans for the VAMC SLJC. If VA seeks to acquire and/or demolish parcels or buildings not identified in this report, additional identification and evaluation measures may be required.

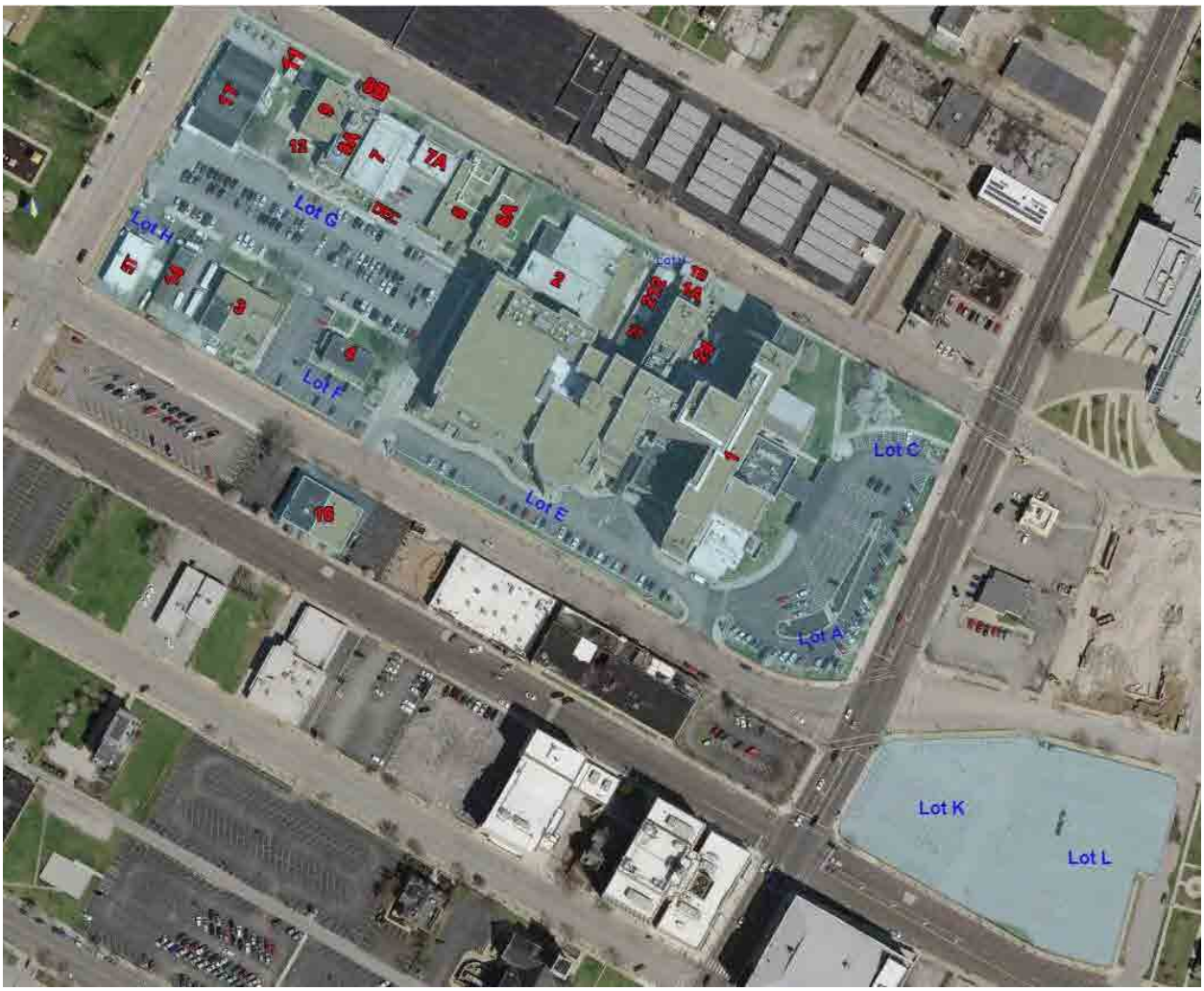


Figure 2: Map of VAMC SLJC.

Section 106 Glossary

Section 106 (54 USC 306108) of the National Historic Preservation Act of 1966, as amended (NHPA), requires federal agencies to consider the effects of their undertakings on historic properties both individually and cumulatively. The following terms are used in the Section 106 consultation effort, including in formal correspondence with organizations such as the Missouri State Historic Preservation Office (MO SHPO).

Adverse Effects: Adverse effects of an undertaking occur when the action directly or indirectly alters the characteristics of a historic property that qualify it for inclusion in the NRHP. Reasonably foreseeable effects that are caused by the undertaking may occur later in time or be farther removed in distance. Under Section 106, cumulative effects also need to be considered.

Area of Potential Effect (APE): The area of potential effect (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties.

Consultation: Consultation is the process of seeking, discussing, and considering the view of other participants, and, where feasible, seeking agreement with them regarding adverse effects to historic properties and potential methods to avoid, minimize, and/or mitigate effects to those resources in accordance with Section 106. Consultation can range from an exchange of letters to multiple in-person meetings; the process is dependent on the subject matter. Generally, Section 106 concludes with the execution of a memorandum of agreement (MOA)when historic properties will be affected. Complicated projects or projects may be resolved through alternatives such as a programmatic agreement (PA).

Consulting Parties: Section 106 of the NHPA requires federal agencies to consult with experts and organizations with special expertise in the affected historic property (or properties), as well as with members of the public. Entities that must be invited to participate in the consultation include the MO SHPO, the Advisory Council on Historic Preservation (ACHP), and federally-recognized Native American Tribes with geographic or cultural affiliation to the project area and representative of local government. The ACHP has the right to decline an invitation to participate in consultation and only review the agreement to resolve adverse effects at the end of a consultation process. Native American Tribes similarly have the right to decline to participate or participate only in portions of the consultation that pertain to their areas of interest. Consulting Parties also include public officials and organizations in the area with specific interest or expertise in the affected historic properties. Appendix C contains the list of consulting parties suggested for future Section 106 efforts for this project.

Once VA enters into consultation, additional organizations may request consulting party status or may be suggested as consulting parties. Neither the NHPA nor its implementing regulations restrict the number of consulting parties nor limit when a party may be added to consultation.

Summary of Consultation Efforts to Date

In 2010, VA initiated a Section 106 consultation effort regarding the expansion of the VAMC SLJC. Development plans included possible acquisition of parcels adjacent to the VAMC SLJC; property under consideration for acquisition included parcels to the north of Bell Avenue and to the south of Enright Avenue. VA consulted with the MO SHPO and Native American Tribes regarding the Undertaking, including establishment of the APE and identification of historic properties. The MO SHPO recommended a finding of Adverse Effect regarding the potential impact to historic properties. The consultation effort proceeded intermittently as VA solidified development plans and acquired adjacent properties, including the former Frank Adams Electric Company Building (3632 Windsor Place).

Correspondence related to the previous consultation effort is available in Appendix B.

As of 2013, the consultation effort had resulted in the following findings:

Identification efforts undertaken by VA

- 2012: VA retained the Landmarks Association of St. Louis to conduct a preliminary cultural resources study. The study addressed the following:

    - Areas to the north of the campus contain typical construction for late 19th and early 20th centuries that is unlikely to be eligible either individually or as a historic district to the NRHP.

    - The study identified 6 NRHP-listed properties within 1,500 feet of the parcels slated for acquisition:
        - Midtown District
        - West Locust and Olive Street District
        - Cook Avenue Methodist Church (3680 Cook Avenue)
        - Robert Henry Stockton House (3508 Samuel Shepherd Drive)
        - Frederick Newton Judson House (3733 Washington Avenue)
        - Pendennis Club (3737 Washington Avenue)
        - William Cuthbert Jones House (3724 Olive Street)
        - Henry L. Wolfner Library for the Blind (3842-44 Olive Street)

    - The study identified 9 NRHP-eligible properties within 1,500 feet of the parcels slated for acquisition:
        - Frank Adam Electrical Company Building (3632 Windsor Place)
        - St. Louis Palladium (3617 Delmar Avenue)
        - Dr. John Joseph Kane House and Doctor's Office (1117 North Grand Boulevard)
        - St. Louis Juvenile Services Center (910-930 North Vandeventer Avenue)

        - St. Alphonsus (Rock) Church (3510 Cooke Avenue)
        - St. Louis Public School's (SLPS) Facilities Maintenance Building and Warehouse Complex (3416 Cook Avenue)
        - Southwestern Bell Telephone, Jefferson Station (3800 Washington Avenue)

    - The study addressed the potential for archaeological sites as unlikely due to intensive land use.

- 2013: VA retained R. Christopher Goodwin & Associates to identify historic properties in conjunction with the potential acquisition of parcels adjacent to the VAMC SLJC. This study determined:
    - The Frank Adam Company Building (3632 Windsor Place) was not eligible for inclusion in the NRHP.
    - The St. Louis Palladium (3617 Delmar Avenue) is eligible for inclusion in the NRHP.

- 2013: VA retained R. Christopher Goodwin & Associates to conduct a NRHP determination of eligibility for the VAMC SLJC; the property was found to be not eligible for inclusion in the NRHP.

Consultation with the MO SHPO

- In 2011, VA initiated consultation efforts with the MO SHPO. The MO SHPO requested additional information and assigned the project SHPO No. 061-SLC-11.

- In 2013, MO SHPO concurred with VA's findings, based on additional cultural resource survey efforts undertaken by VA.[1]
    - Eight properties within the APE were listed in the NRHP:
        - Midtown District
        - West Locust and Olive Street District
        - ABC Auto Sales and Investment Company Building (3519 Page Boulevard)
        - Cook Avenue Methodist Church (3680 Cook Avenue)
        - Robert Henry Stockton House (3508 Samuel Shepherd Drive)
        - Frederick Newton Judson House (3733 Washington Avenue)
        - William Cuthbert Jones House (3724 Olive Street)
        - Henry L. Wolfner Library for the Blind (3842-44 Olive Street)

    - Nine properties within the APE were eligible for listing in the NRHP:
        - St. Louis Palladium (3617 Delmar Avenue)
        - Duncker House (3636 Page)

[1] Mark A. Miles, Letter to Caitlin Cunningham, 29 August 2013.

        - Dr. John Joseph Kane House and Doctor's Office (1117 North Grand Boulevard)
        - St. Louis Juvenile Services Center (910-930 North Vandeventer Avenue)
        - St. Alphonsus (Rock) Church (3510 Cooke Avenue)
        - St. Louis Public School's (SLPS) Facilities Maintenance Building and Warehouse Complex (3416 Cook Avenue)
        - Southwestern Bell Telephone, Jefferson Station (3800 Washington Avenue)
        - 1027-35 North Grand Boulevard
        - 1023 North Grand Boulevard

- Twenty-eight properties within the APE were not eligible for listing in the NRHP:
    - John Cochran VA Medical Center Campus (915 North Grand Boulevard)
    - Frank Adam Electrical Company Building (3632 Windsor Place)
    - 1015 North Grand Boulevard
    - 3632-56 Windsor Place
    - 3653 Windsor Place
    - 3655 Windsor Place
    - 3659 Windsor Place
    - 3669 Windsor Place
    - 3705 Windsor Place
    - 3709 Windsor Place
    - 3653 Delmar Boulevard
    - 3710 Enright Avenue
    - Vacant / parking lots located at:
        - 3635-37 Windsor Place
        - 3639-43 Windsor Place
        - 3661 Windsor Place
        - 3665 Windsor Place
        - 3711 Windsor Place
        - 3715 Windsor Place
        - 3717 Windsor Place
        - 3719 Windsor Place
        - 3723-35 Windsor Place
        - 3739 Windsor Place
        - 3678 Enright Avenue
        - 3718 Enright Avenue
        - 3738 Enright Avenue
        - 807-15 North Grand Boulevard
        - 3741 Delmar Boulevard
        - 3745 Delmar Boulevard

- The SHPO letter (included in Appendix B) does not address archaeological concerns.

Consultation with Native American Tribes[2]

- Letters sent in August 2012 requesting information to the following tribes.
  - Eastern Shawnee Tribe of Oklahoma
  - Iowa Tribe of Kansas and Nebraska
  - Iowa Tribe of Oklahoma
  - Omaha Tribe of Nebraska
  - Osage Nation, Oklahoma
  - Otoe-Missouria Tribe of Indians
  - Peoria Tribe of Indians of Oklahoma
  - Sac and Fox Nation of Missouri in Kansas and Nebraska
  - United Keetoowah Band of Cherokee Indians
  - Chickamauga Cherokee Nation
  - Northern Cherokee Nation of the Old Louisiana Territory

- The Osage Nation and the United Keetoowah Band of Cherokee Indians in Oklahoma responded. Neither tribe had a comment or objection regarding the Undertaking. However, both tribes requested they are contacted immediately and work cease if construction efforts revealed human remains or funerary objects.

- No additional tribal responses were received as part of this initial consultation effort.

Additional Consulting Parties

- As part of the 2013 effort, the City of St. Louis Cultural Resources Office stated it does not participate in the consultation process unless requested by the MO SHPO; the office had not received a requested from the MO SHPO.

[2] *Environmental Assessment of the Proposed Expansion of the St. Louis VAMC – John Cochran Division*. Prepared by TTL Associates, Inc. for U.S. Department of Veterans Affairs, 20 February 2014.

Option 1: Additional Acquisition

Option 1 places the New Bed Tower on the western portion of the expanded VAMC SLJC campus (see draft schematic site plan in Figure 3). The new building would be linked by a connecting corridor to the existing Buildings 1 and 2. A clinic building, substation, utility plant, and water storage building would be constructed to the north of the current hospital building in the strip of land between Bell Avenue, Windsor Place, North Spring Avenue, and the alley to the west of Liberty Plaza (1015 North Grand Boulevard). A parking structure would be constructed to the north of Windsor Place. The parking lot across North Grand Boulevard from the campus would remain surface parking.

Option 1 requires terminating Enright Avenue at North Spring Avenue. Bell Avenue would be closed between North Spring Avenue and North Grand Avenue. Windsor Place and Delmar Boulevard would remain open. A traffic roundabout featuring a sculptural element would be added to the intersection of North Spring Avenue and Delmar Boulevard.

Final designs developed under Option 1 necessitate acquisition Sweetie Pie's (3643 Delmar Boulevard) and the Palladium (3617 Delmar Boulevard). Depending on final designs plans and placement of the New Bed Tower, demolition of Sweetie Pie's and the Palladium would be required, along with the demolition of 13 buildings of the VAMC SLJC.

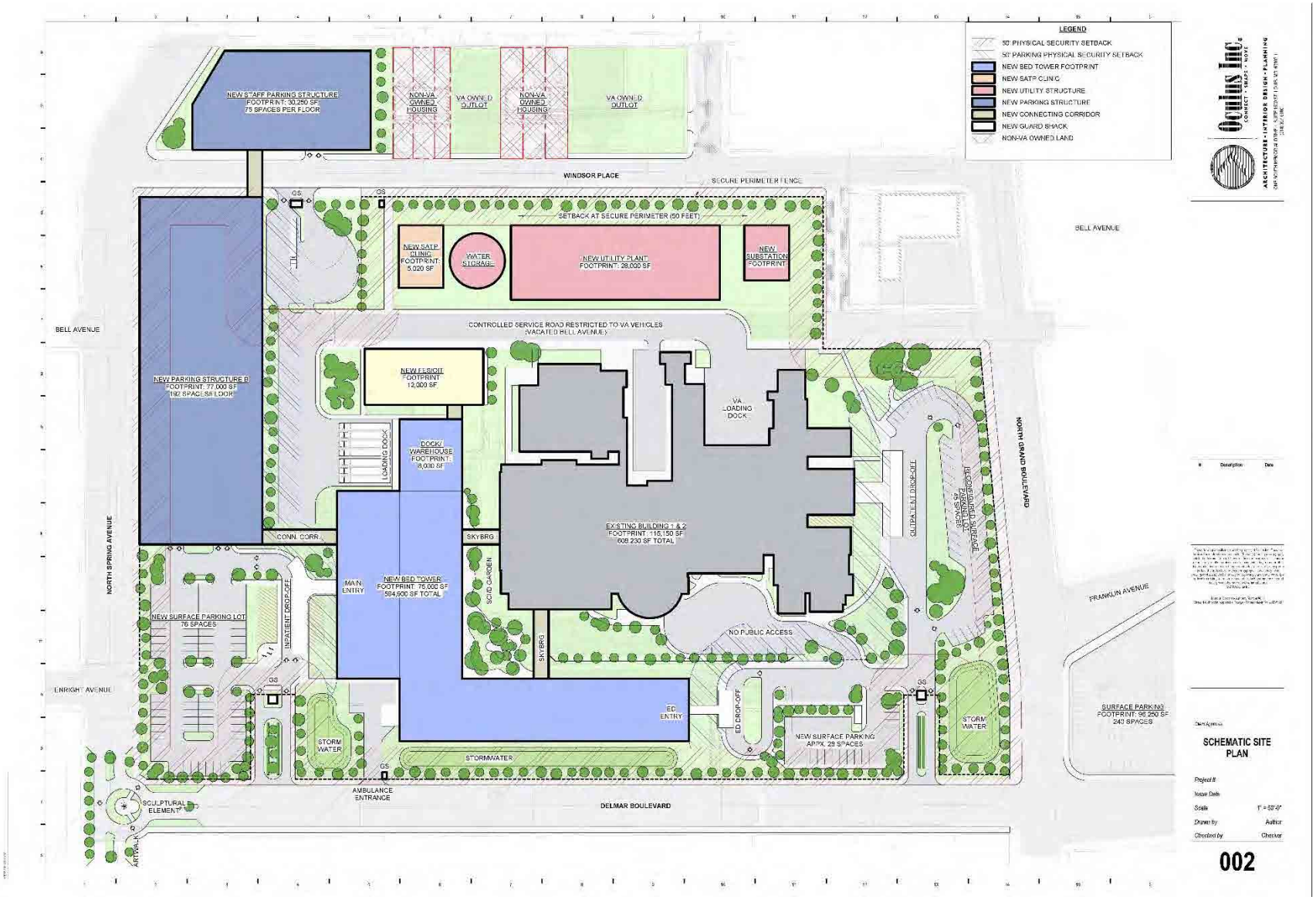


Figure 3: Draft schematic site plan for Option 1: Additional Acquisition.

Option 2: No Additional Acquisition

Option 2 places the New Bed Tower to the west of the current main hospital building (see Figure 4). A new parking garage will run the length of the campus along North Spring Avenue. New clinic buildings, water storage, and a utility plan will be sited along Windsor Place to the north of the current main hospital building. Across Windsor Place, VA will construct another parking structure and a substation. The surface parking lot across North Grand Boulevard will be the site for a new parking garage, linked to the campus via a pedestrian bridge.

For Option B, Windsor Place, Enright Avenue, and Delmar Boulevard remain open to vehicular traffic. Bell Avenue between North Grand Boulevard and North Spring Avenue will be closed.

Construction planned under Option 2 does not required any additional acquisition of property by VA. Depending on final design plans, Option 2 may necessitate the demolition of 13 buildings of the VAMC SLJC.

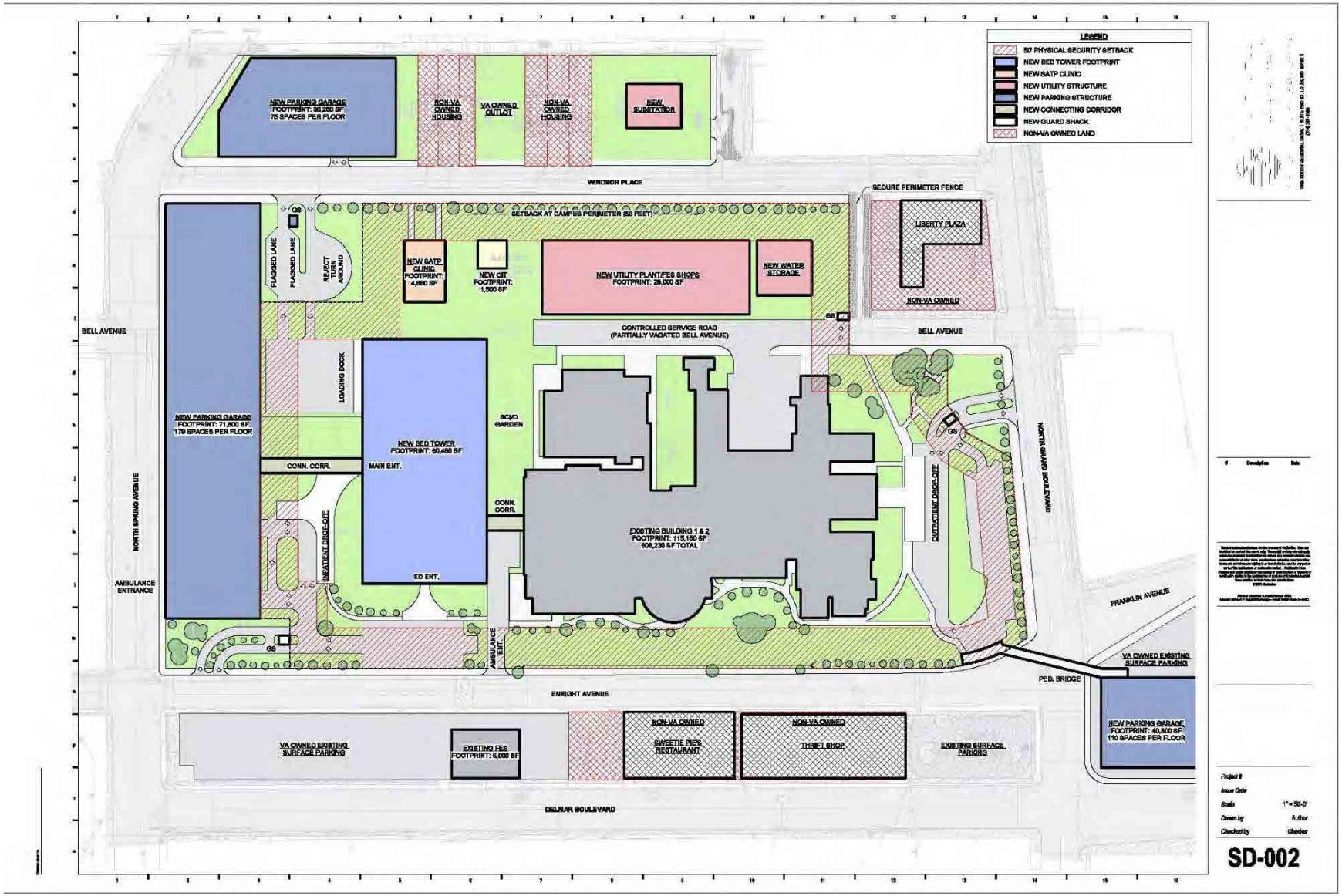


Figure 4: Option 2: No Additional Acquisition

Area of Potential Effects

The proposed Area of Potential Effects (APE) for this project is a portion of St. Louis immediately surrounding the VAMC SLJC (see Figure 5 for proposed APE).

This APE takes into consideration the current configuration of the VAMC SLJC (including recently acquired parcels), the adjacent parcels identified for possible acquisition, the proposed project plans and the relationship of new construction to the extant campus buildings, the surrounding scale of development, as well as the potential for direct and indirect effects from the project plans. As the project plans are finalized, the APE may need to be re-evaluated and altered.

SLJC VAMC	915 North Grand Boulevard	
Area of Potential Effect		

Figure 5: APE

Built Resources

Figure 6: 3619-29 Grendel Square, contributing element to the Midtown Historic District.

Within the APE, there are three NRHP-listed properties and three individually-eligible buildings. See Figure 12 for location of historic built resources. For a full inventory of buildings in the APE, please see Appendix A.

NRHP-Listed Properties

Midtown Historic District: Listed in the NRHP 1978, the Midtown Historic District is an irregularly shaped district with North Grand Avenue and Lindell Boulevard serving as the main spines of the district. Midtown was listed for its significant collection of architecture by St. Louis architects and representation of the growth and wealth of St. Louis in the late nineteenth and early twentieth centuries.

Figure 7: Powell Hall

The majority of the district stretches to the south of the SLJC VAMC, but the northeastern boundary crosses into the APE; five contributing features of the Midtown Historic District are within the APE:

- Powell Hall (also individually listed in the NRHP)
- 701-11 North Grand Boulevard
- 3617 Grendel Square
- 3619-29 Grendel Square (Figure 6)
- 3514 Delmar Boulevard (also recommended for individual listing, see Figure 10)

Powell Hall: Listed in the NRHP in 2001, Powell Hall (Figure 7, also known as the St. Louis Theater) is a significant example of a St. Louis movie palace. Designed by the Chicago architecture firm of Rapp & Rapp and opened in 1925, the building retains its grand French Renaissance Revival architecture façade.

Figure 8: Welfare Finance Company Building

Welfare Finance Company Building: Listed in the NRHP in 2016, the Welfare Finance Company Building was listed as a significant example of Art Deco architecture on a small commercial scale (Figure 8). The building was designed by the St. Louis architectural firm LeBeaume & Klein. In 2013, the MO SHPO recommended this building as eligible for inclusion in the NRHP under Criterion C: Architecture; it has since been listed.

Figure 9: Palladium

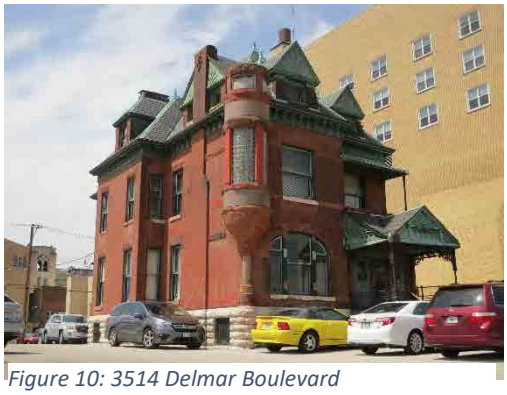


Figure 10: 3514 Delmar Boulevard

Figure 11: 1023 North Grand Avenue

NRHP-Eligible Properties

Palladium: The former home to a jazz club where African-American musicians and performers played for predominately white audiences, the Palladium is a rare surviving piece of the music and cultural history of early twentieth century St. Louis (Figure 9). The building was identified as individually eligible as part of the 2013 consultation effort under Criterion A: Ethnic Heritage.

3514 Delmar Boulevard: Designed by locally significant architect Jerome B. Legg for the L. L. Culver family, this house is individually eligible for inclusion in the NRHP under Criterion C: Architecture at the local level (Figure 10). Individual eligibility of this building was not addressed as part of the 2013 consultation effort.

1023 North Grand Avenue: The brick building has a symmetrical façade with a door on the center axis flanked by shopfront windows; the arched stone doorway features an exaggerated keystone (Figure 11). In 2013, the MO SHPO recommended this building as eligible for inclusion in the NRHP under Criterion C: Architecture.

Archaeology

Based on a records search of the archaeological site files of the MO SHPO, no archaeological sites have been identified within the APE.

Landscape

Based on a records search of the MO SHPO, there are no historic landscapes located within the APE.

Traditional Cultural Properties

Based on a records search of the MO SHPO, there are no traditional cultural properties located within the APE.

SLJC VAMC	915 North Grand Boulevard		
Area of Potential Effect			
Historic Property	*Address*	*Status*	*Depiction*
Midtown Historic District	Lindell and Grand Boulevards	District Listed in the National Register	
Welfare Finance Company Building	1027-1029 N. Grand Boulevard	Listed Individually in the National Register	
Powell Hall	527 N. Grand Boulevard		
Palladium	3618 Enright Avenue	Determined Eligible for Listing in the National Register	
3514 Delmar Blvd.	3514 Delmar Boulevard		
1023 N. Grand Blvd.	1023 N. Grand Boulevard		

Figure 12: Historic properties within the APE.

The proposed project will have an effect to historic properties; the extent of the effects and whether or not any effects will be adverse are unknown until project plans are finalized.

If VA proceeds with Option 1 and the Palladium is acquired, the proposed project will likely have an effect on an NRHP-eligible historic property, the Palladium.

If the Palladium is acquired and the VA identifies a potential reuse for the building, such as clinic space or administrative offices, the necessary renovations may have an adverse effect on the historic character of the building. However, adverse effects may be avoided if the renovations comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Reuse of the Palladium by VA may be hampered by the building's current condition. In March 2018, the City of St. Louis condemned the property, due to the multiple hazardous conditions. The appearance of the building in May 2019 and the lack of building permits tied to the work delineated in the condemnation notice suggest many of the issues with the building have not been resolved.[3] The condemnation notice for the Palladium is included as Appendix G.

If the Palladium is acquired and the building is demolished to accommodate new construction, the action will result in an adverse effect.

If VA acquires the Palladium and opts to retain a portion of the building, such as an exterior wall to serve as an entrance to a new building, adverse effects are also likely.

If VA proceeds with Option 2 and the Palladium is not acquired, the Palladium may still be subject to direct and indirect effects. Vibrations from construction activities or movement of heavy equipment may adversely effect the building, particularly given its fragile condition. New construction may result in changes to the viewshed of the NRHP-eligible building, thus causing an indirect adverse effect; the extent of the effect cannot be determined until design plans are finalized.

For both proposed options, visual effects to other historic properties in the immediate area are likely, depending on the final designs and construction plans. The proposed siting of the New Bed Tower behind the extant 10-story main hospital building may lessen the visual impact to the historic properties on North Grand Avenue such as Powell Hall and contributing elements to the Midtown Historic District, particularly if the final designs call for a new building of 9 stories. Additional design measures may serve to minimize the impact to adjacent historic properties.

[3] Building permits associated with 3617 Delmar Boulevard, St. Louis, Missouri. Building Division, Public Safety, City of St. Louis. Available online at https://www.stlouis-mo.gov/government/departments/public-safety/building/permits/search-building-permits-by-address.cfm (accessed 16 September 2019). The most recent permit for the building appears to be fore the construction of a chain link fence, completed in June 2019.

For the former Welfare Finance Company Building, the orientation of the NRHP-listed building towards North Grand Avenue, thus away from the VAMC SLJC, will minimize any potential visual impacts caused by the new construction.

The house addressed at 3514 Delmar Boulevard is shielded from most of the new construction by its location across North Grand Avenue and the adjacent massive Powell Hall. If Option 2 is selected, the proposed parking garage to be constructed in the current surface lot across Delmar Boulevard from the house; the construction may have an adverse effect to the historic property, but the level of effect cannot be determined until project plans are finalized.

The planned construction projects may also adversely affect as-yet undiscovered archaeological properties.

Next Steps and Future Consultation

VA initiated consultation effort with the MO SHPO, federally-recognized Tribes, and the local government in 2013. VA recently renewed the consultation effort and copies of the letters sent to the MO SHPO (available in Appendix D), Tribes (Appendix E), and potential consulting parties (Appendix F) follow this report.

The MO SHPO has a *Section 106 Project Information Form* for federal agencies to complete for initiating Section 106; a copy of the form is available in Appendix D.

The historic preservation community, both in St. Louis and nationwide, is aware of the potential demolition of the Palladium. The Landmarks Association of St. Louis listed the building on its most endangered lists of 2013 and 2014, specifically due to proposed expansion of the VAMC SLJC.[4] In 2014, the National Trust for Historic Preservation included the Palladium on its annual "11 Most Endangered Historic Places."[5] The acquisition of the Palladium will likely be of interest to multiple historic preservation groups and motivate their participation in the Section 106 process for this project.

The complexity and high profile nature of the historic preservation aspect of this project will likely result in an equally complex and high profile Section 106 compliance process. The scale of the project and the attention garnered by the Palladium will all influence the associated effort. Multiple meetings, either in-person, via webinar, or a combination, with the MO SHPO and consulting parties are likely in order to address their concerns

In all likelihood, the Section 106 consultation process will result in an agreement document to resolve potential effects to historic properties as the project is finalized and effects are known. This agreement document can address mitigation measures, as needed, agreed upon during the consultation effort.

Review of the proposed design is a common request by consulting parties during the Section 106 process; the MO SHPO has already identified it as a point of interest for this project. Previous consultation letters from the MO SHPO (in Appendix B) identified an interest in working with VA regarding the design of the new facility to ensure it is compatible with the historic properties in the area.

If final project plans necessitate the acquisition and subsequent demolition of the Palladium, potential mitigation measures for the demolition of the Palladium may include Historic American Building Survey documentation of the property prior to demolition, a brochure or display about the history of the building and the surrounding neighborhood,

---

[4] Landmarks Association of St. Louis, "2013 Most Endangered," Available online at https://www.landmarks-stl.org/enhanced_and_endangered/2013_most_endangered; "2014 Most Endangered," Available online at https://www.landmarks-stl.org/enhanced_and_endangered/2014_most_endangered.

[5] David Weible, "Echoes of Jazz at the St. Louis Palladium Building," Available online at https://savingplaces.org/stories/11-most-endangered-echoes-jazz-st-louis-palladium#.XV73LOhKiM9; National Trust for Historic Preservation, 2014 Eleven Most Endangered, Available online at https://savingplaces.org/11most-past-listings#.XV73SehKiM8

a music-related historic context for St. Louis, development of a walking tour of music-related historic sites in St. Louis, or a documentation effort of other historic nightclubs in the area. The consultation effort will likely result in additional mitigation measure proposals.

Appendix A: Inventory of Built Resources in the APE

Within the APE, there are three NRHP-listed properties: the Midtown Historic District, Powell Hall, and the former Welfare Finance Company Building. Five contributing buildings to the Midtown Historic District are also within the boundaries of the APE.

Three properties have been identified as potentially eligible for listing in the NRHP, either through this effort or previous consultation with MO SHPO: the Palladium, 3514 Delmar Boulevard, and 1023 North Grand Avenue.

The remaining properties are not eligible for inclusion in the NRHP.

Map follows in Figure 14.

Historic Properties Listed in the NRHP

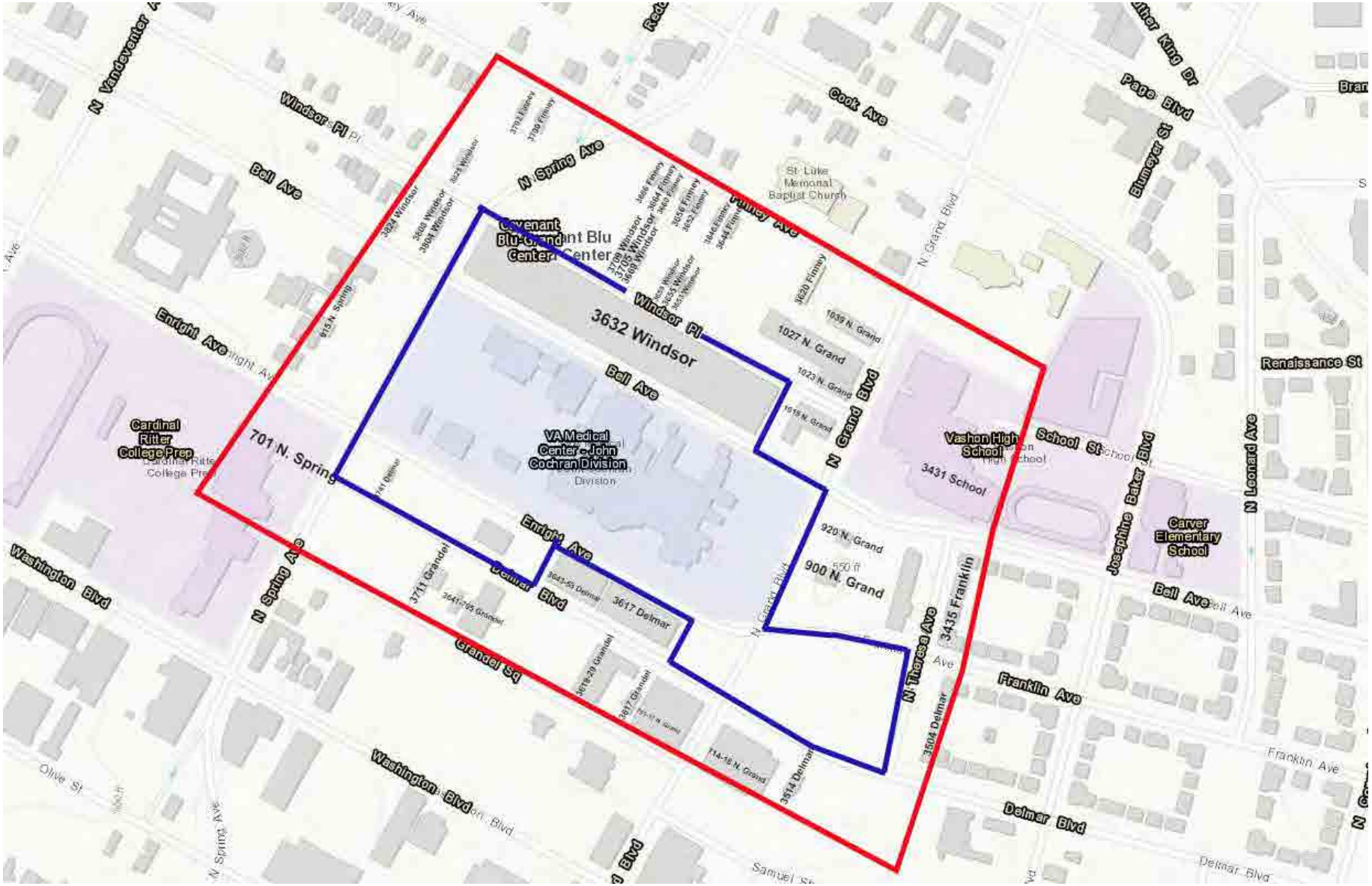
Figure 13: Southeast elevation of 1027 North Grand Blvd / Welfare Finance Company Building.

1027 North Grand Boulevard: The former Welfare Finance Company Building was listed in the NRHP in 2016 under Criterion C at the local level as an example of Art Deco architecture applied to small scale commercial buildings in St. Louis (Figure 13). The building features a storefront configuration, delineated in tan brick and terra cotta tiles. While the façade doors and windows are currently boarded over, the fenestration pattern and distinct architectural features are readily apparent. The side elevation as a red brick exterior that lacks the features of the high style façade. The building was constructed in 1935.[6] During the 2013 consultation effort, the MO SHPO recommended the building as eligible for inclusion in the NRHP; it has since been listed.

Midtown Historic District: The Midtown Historic District is an irregularly shaped district clustered around North Grand Avenue to the south of the VAMC SLJC. Listed in the NRHP in 1978, the district recognizes the concentration of historically and architectural significant buildings in this section of St. Louis, notably early twentieth century theaters. Five buildings that are part of Midtown cross into the APE.

The following five buildings are contributing elements to the Midtown Historic District. One property, the Powell Hall, is

[6] National Register of Historic Places, Welfare Finance Company Building, St. Louis, Missouri, National Register #16000103.



APE	
VAMC SLJC	

Figure 14: Addresses and location for buildings in the following inventory.

Figure 15: Southeast elevation of 701-11 N. Grand Blvd / Carter Carburetor Company.

Figure 16: Southwest elevation of 714 North Grand Blvd / Powell Hall.

Figure 17: Southwest elevation of 3617 Grendel Sq.

also listed individually in the NRHP. An additional property, 3514 Delmar Boulevard, is recommended for individual eligibility.

701-11 North Grand Boulevard (contributes to Midtown Historic District): The former Carter Carburetor Corporation building was constructed in 1925 (Figure 15).[7] The building has two parts: the two-story portion bordering North Grand Avenue and the dark brick clad parking structure behind it. The front section features a tall arch at the center of the building to emphasize the main entrance. The center of the building is further accentuated through the use of ornament, notably the Corinthian capitals on the columns at the second floor. Ashlar stones form the exterior. The rear section is clad in dark brick with light stone detailing, creating a marked visual difference from the adjacent section. This portion of the building is seven stories in height, terminating in a stylized cupola at the center of the building mass.

The Carter Carburetor Corporation building is a contributing resource to the NRHP-listed Midtown Historic District as a "fine early example of modern American architecture."[8]

714 North Grand Boulevard (contributes to Midtown Historic District and individually listed): Constructed in 1925, the former St. Louis Theater was designed by architectural firm Rapp & Rapp (Figure 16).[9] The façade features tan brick laid in multiple patterns and elaborate ornamentation carved in limestone. A tall, arched window at the south end of the west elevation receives the greatest amount of detail and emphasizes the main entrance to the theater building. Powell Hall is a contributing resource to the NRHP-listed Midtown Historic District, individually in the NRHP in 2001, and designated as a "St. Louis Landmark" by the Board of Alderman of the City of St. Louis.

3617 Grendel Square (contributes to Midtown Historic District): Constructed circa 1880, this former house now functions as an office building (Figure 17). The building has a red brick exterior, slate-shingled clad side gable roof, and copper ornamental features. A partial width porch shields the main entrance. Elaborate dormers puncture the roof. The windows appear to be historic. The building is identified as a contributing element to the NRHP-listed Midtown Historic District.

[7] National Register of Historic Places, Midtown Historic District, St. Louis, Missouri, National Register #7800392, p. 11.
[8] Ibid., p. 11.
[9] Ibid., p. 7.

Figure 18: Southwest elevation of 3619 Grendel Sq.

Figure 19: Northeast elevation of 3514 Delmar Blvd.

Figure 20: Center of northeast elevation of the Palladium.

3619-29 Grendel Square (contributes to Midtown Historic District): This theater building was constructed in 1913 to serve German-speaking audiences (Figure 18).[10] The building's exterior features red brick, stone, and terra cotta. The elaborate ornamentation on the southwest elevation includes three large arches at the center of the building, Classical detailing with pilasters featuring Ionic capitals, and theatrical masks carved in the keystones of the arches. The remaining elevations are clad in brick and notable plain when compared to the façade. The building is identified as a contributing resource to the NRHP-listed Midtown Historic District.

3514 Delmar Boulevard (contributes to Midtown Historic District and recommended for individual listing): Tucked behind the Powell Hall, this former residence now houses offices (Figure 19). Constructed ca. 1880, this Queen Anne-style house features a turret, copper architectural detailing, and an asymmetrical façade. The Midtown Historic District nomination identifies the building as of "neighborhood significance."[11] Sunbursts, geometric patterns, recessed panels, and modillions all appear as decorative elements. The turret roof appears to have been removed. The building has a stone foundation, brick walls, and multiple roof sections; the roof is sheathed in asphalt shingles. Two dormers pierce the roof on the northeast elevation. The main entrance appears to have been modified. Designed by locally significant architect Jerome B. Legg for the L. L. Culver family, this house is individually eligible for inclusion in the NRHP under Criterion C at the local level.[12] The MO SHPO did not address individual eligibility of this building as part of the 2013 consultation effort.

Properties Recommended for Listing in the NRHP

3617 Delmar Boulevard (Palladium / Thrift Store): The Palladium is under consideration for possible acquisition and demolition to accommodate proposed project construction. Final disposition was undetermined at the time of this report.

[10] Midtown NRHP Nomination, p. 11-12.
[11] Midtown NRHP nomination, p. 41.
[12] Carolyn Hewes Toft, "Jerome Bibb Legg, 1838-1915," Landmarks Association of St. Louis, 1989. Available online at https://www.landmarks-stl.org/architects/bio/jerome_bibb_legg_1838_19/, accessed 30 June 2019.

Figure 21: North end of northeast elevation of the Palladium.

Figure 22: Southwest elevation (rear) of the Palladium.

Figure 23: Southeast elevation of 1023 N. Grand Blvd.

This former jazz club was constructed in 1914 (Figure 20-22). The two-story building is oriented towards the northeast and Enright Avenue. The building features a stucco façade with terra cotta ornament, including lions head figures. The main façade features large rounded arches over the entrances for smaller shops that lined the Enright Avenue elevation. The central bay features a grander arch and larger entrance. The building has been modified over the years to accommodate a shift in use from entertainment to commercial, including the addition of individual shopfronts and the alteration of the main entrance. The southwest elevation (rear of the building) has a plain façade and arched openings that may have once been windows.

The Palladium started as a roller skating rink before converting to the Plantation Club in the 1940s. The jazz club, modeled after the famous Cotton Club of New York City, hosted Nat King Cole, Ella Fitzgerald, the Mills Brothers and other important musicians of the period. The club provided one of the few places in St. Louis where African-American musicians performed for predominately white audiences.[13]

Given the building's history and association with jazz, the building has been recommended as eligible for inclusion in the NRHP under Criterion A for the themes of Performing Arts and Entertainment in studies conducted on behalf of VA in 2012 and 2013.

In 2013, the MO SHPO concurred with VA's finding that the building is eligible for inclusion in the NRHP.

<u>1023 North Grand Boulevard:</u> Constructed in 1906, this two-story brick building is oriented towards the northeast and North Grand Boulevard (Figure 23).[14] The building has symmetrical façade with a door on the center axis flanked by shopfront windows; the arched stone doorway features an exaggerated keystone. Decorative treatments on the building include recessed bands of brick, stone sills and flat arches at the windows, and dentil molding. The building has a rectangular footprint and flat roof. The building has a rectangular footprint and is oriented towards the southwest.

[13] "2013 Most Endangered, The St. Louis Palladium," Landmarks Association of St. Louis, n.d., Available online at https://www.landmarks-stl.org/enhanced_and_endangered/2013_most_endangered (accessed 23 June 2019); Michael R. Allen, "The Palladium Made St. Louis History," 15 December 2011, Available online at http://preservationresearch.com/midtown/the-palladium-made-st-louis-music-history-what-will-we-make-of-the-palladium/ (accessed 24 June 2019).

[14] Sanborn Map Company, "Sanborn Fire Insurance Maps: St. Louis, Missouri", Map sheet 27 and 28, Volume 5, 1951.

Figure 24: Main entrance, Building 1, VAMC SLJC.

Figure 25: Northeast elevation of 3654-53 Delmar Blvd / Sweetie Pie's.

Figure 26: Southeast elevation of 1015 N. Grand Blvd / Liberty Plaza.

Properties Not Eligible for Listing in the NRHP

John Cochran Division, St. Louis Health Care System: In 2011, the VAMC SLJC was evaluated for NRHP eligibility as a historic district under the NRHP *Third Generation of Veterans Hospitals* historic context; the study undertaken on behalf of VA determined the hospital complex was not eligible for listing in the NRHP due to the accumulation of changes resulting in a loss of integrity (Figure 24). The MO SHPO concurred with this finding in 2013.

3643-53 Delmar Boulevard (Sweetie Pie's Upper Crust): Sweetie Pie's is under consideration for possible acquisition and demolition to accommodate proposed project construction. Final disposition was undetermined at the time of this report.

The Sweetie Pie's Upper Crust restaurant is a one-story building sheathed in stucco panels (Figure 25). The building is oriented towards the southwest. The main entrance features paired glazed metal doors, decorative niches flanking the main doors, and stone cladding on the lower portions of the wall. The City of St. Louis Assessor's Office does not have a construction date for the property, but a review of Sanborn Fire Insurance Company map suggests it was constructed between 1909 and 1951.[15] The exterior building has been heavily remodeled; the building does not retain historic materials, design, or characteristics. In 2013, the MO SHPO concurred with VA's finding that the building is not eligible for inclusion in the NRHP.

1015 North Grand Boulevard: Constructed circa 1960, the Liberty Plaza shopping center consists of a building with an L-shaped

[15]Sanborn Map Company, "Sanborn Fire Insurance Maps: St. Louis, Missouri", Map sheets 25, 27, and 52; Volume 5, 1909; Sanborn Map Company, "Sanborn Fire Insurance Maps: St. Louis, Missouri," Map sheets 27 and 52, Sanborn Fire Insurance Company, Volume 5, 1951.

Figure 27: Southwest elevation of 900 N. Grand Blvd.

Figure 28: Southwest elevation of 920 N. Grand Blvd.

Figure 29: Southwest elevation of 1000 N. Grand Blvd.

footprint (Figure 26). The building is one-story above grade with a basement below. The building appears to have been constructed of concrete block with a tan brick veneer; the extant stucco exterior on the northeast elevation is likely a later addition. The building houses multiple storefronts; several have large plate glass windows and a single entry door. In 2013, the MO SHPO concurred with VA's finding that the building is not eligible for inclusion in the NRHP.

<u>900 North Grand Boulevard:</u> This one-story commercial building has is clad in brick veneer (Figure 27). Constructed ca. 1990, large plate glass windows contribute to the commercial appearance of the building. The building has a plain exterior, asymmetrical appearance, and square footprint. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the SHPO in 2013, but was identified as not eligible in the 2014 Environmental Assessment.[16]

<u>920 North Grand Boulevard</u>: This fast food restaurant was constructed ca. 1985 (Figure 28). The one-story building features large glass windows, portions of the exterior clad in brick, and flat roof. The building has no architectural ornamentation or details. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the SHPO in 2013, but was identified as not eligible in the 2014 Environmental Assessment.[17]

<u>1000 North Grand Boulevard</u>: The Clyde C. Miller Career Academy is located across North Grand Boulevard to the northeast of VAMC SLJC (Figure 29). Constructed circa 2003, the facility is part of the St. Louis Public Schools network. Clad in a mix of glass, metal, and concrete panels, the building has large bands of windows, a jagged roofline, and an irregular footprint. The two-story building does not meet the 50-year threshold nor does it exhibit any characteristics that suggest it would be eligible for inclusion in the NRHP under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed

[16] *Environmental Assessment of the Proposed Expansion of the St. Louis VAMC – John Cochran Division* 20 February 2014, p. 37.
[17] *Environmental Assessment of the Proposed Expansion of the St. Louis VAMC – John Cochran Division* 20 February 2014, p. 37.

by the SHPO in 2013, but was identified as not eligible in the 2014 Environmental Assessment.[18]

Figure 30: Southeast elevation of 1039 N. Grand Blvd.

1039 North Grand Boulevard: Constructed ca. 1935, this one-story building appears to have façade with a storefront configuration; portions of the building are boarded over and original details were difficult to determine at the time of the site visit (Figure 30). The façade features tan brick framed by decorative panels featuring an inverted fan pattern; the panels appear to be terra cotta. The side elevations are red brick. The building has a rectangular footprint and stands at a single store. The building has a rectangular footprint and is oriented towards the southwest. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP.

Figure 31: Northeast elevation of 3620 Finney Ave.

3620 Finney Avenue: Constructed ca. 1905, the building once briefly housed a music conservatory and now is home to a church. The two-story building has a symmetrical façade, rectangular footprint, and brick exterior (Figure 31). The first floor of the main façade features quoins, arched windows, and a door surround flanked by pilasters with Corinthian capitals. The second story lacks these ornamental features. The pediment at the roofline features a small, plain cross. The building has a rectangular footprint; the rear section is a single story in height. The building has a rectangular footprint and is oriented towards the southwest. Preliminary research did not identify an important link between the music school or church with significant events in St. Louis history. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP. The building was not addressed by the SHPO in 2013.

Figure 32: Northeast elevation of 3644 Finney Ave.

3644 Finney Avenue: This two-and-a-half story single family home was constructed in 2001 (Figure 32).[19] The exterior is clad in a mix of brick veneer, stucco panels, and vinyl siding. The gable has a faux half timbering finish. The house has a stoop, rectangular footprint, and asphalt-clad roof. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

[18] *Environmental Assessment of the Proposed Expansion of the St. Louis VAMC – John Cochran Division* 20 February 2014, p. 37.
[19] Construction date for 3644 Finney Avenue (Parcel ID 37090002200), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000220, accessed 26 June 2019.

Figure 33: Northeast elevation of 3646 Finney Ave.

Figure 34: Northeast elevation of 3652 Finney Ave.

Figure 35: Northeast elevation of 3656 Finney Ave.

3646 Finney Avenue: Constructed in 1903, this three-story building is a single-family townhouse (Figure 33).[20] The building has Italianate features, including paired brackets at the cornice and decorative window surrounds. The façade is covered in stucco; the side elevations are brick. The rear portions of the building drop to two stories in height. The building appears to have a stone foundation and a rectangular footprint. The building is not a notable example of the Italianate architectural style nor is it a significant building type; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3652 Finney Avenue: The brick two-story duplex was built in 1903 (Figure 34).[21] The building features paired entrances at the west end of the northeast elevation. Awnings have been added to the exterior and the cornice obscured by vinyl siding. The façade features arched openings and windows on the first floor, but this decorative feature does not appear to continue to the second floor. The building's footprint is irregular in shape. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3656 Finney Avenue: Constructed in 2000, this single-family house has an irregular footprint, front gable roof, and a brick façade; the remainder of the building appears to be sheathed in vinyl siding (Figure 35).[22] The building has a partial width porch at the main entrance. The façade has an asymmetrical appearance and some reference to historical building features, such as stone lintels and sills at the windows. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

[20] Construction date for 3646 Finney Avenue (Parcel ID 37090002100), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000210, accessed 26 June 2019.
[21] Construction date for 3652 Finney Avenue (Parcel ID 37090001800), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000180, accessed 26 June 2019.
[22] Construction date for 3656 Finney Avenue (Parcel ID 37090001650), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000165, accessed 26 June 2019.

Figure 36: Northeast elevation of 3660 Finney Ave.

Figure 37: Northeast elevation of 3644 Finney Ave.

Figure 38: Northeast elevation of 3666 Finney Ave

3660 Finney Avenue: This single-family house was built in 2000.[23] The building has a brick façade, but the side elevations are clad in vinyl siding (Figure 36). The front gables have fish-scale shingles. The paired wooden front doors have semicircular, leaded glass windows, but the remaining façade is fairly plain. The building has a rectangular footprint and asphalt shingle clad roof. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3644 Finney Avenue: As with its neighbors, this house features a brick façade but the side elevations are clad in vinyl (Figure 37). Constructed in 2000, this single family house has a plain exterior, rectangular footprint, and a flat roof.[24] A round awning marks the main entrance. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3666 Finney Avenue: Constructed in 2000, this single-family house has a front gable roof sheathed in asphalt shingles and a rectangular footprint (Figure 38).[25] The façade has a brick veneer façade while the side elevations are clad in vinyl siding. The building has a plain exterior with little architectural ornamentation. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

[23] Construction date for 3660 Finney Avenue (Parcel ID 37090004700), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000470, accessed 26 June 2019.
[24] Construction date for 3664 Finney Avenue (Parcel ID 37090004600), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000460, accessed 26 June 2019.
[25] Construction date for 3666 Finney Avenue (Parcel ID 37090004500), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000450, accessed 26 June 2019.

Figure 39: Northeast elevation of 3696 Finney Ave.

Figure 40: East elevation of 3641 Grendel Sq.

Figure 41: Southwest elevation of 3715 Grendel Sq.

Figure 42: Northeast elevation of 701 N. Spring Ave.

3696 Finney Avenue: This single-family house was built in 2006.[26] The two-story building features an exterior of faux half timbering, red brick veneer, and vinyl siding (Figure 39). A modest porch shields the main entrance. The building has an asymmetrical façade, rectangular footprint, and front gable roof sheathed in asphalt shingles. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3641-3705 Grendel Square: Constructed ca. 1960, this building features a center section that stands two-stories in height flanked by one-story sections on the north and south (Figure 40). The southernmost section is clad in stucco panels while the remainder of the building is brick. The building has a rectangular footprint, flat roofs, and a minimalist appearance. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

3715 Grendel Square: Construction ca. 1970, this automotive garage building is constructed of concrete block (Figure 41). The building has an L-shaped footprint, flat roof, and plain exterior. Glass block windows mark the western half of the building while the eastern have has large vehicular entrances. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

701 North Spring Avenue: The Cardinal Ritter College Prep school was constructed in ca. 2000 (Figure 42). The school complex includes one large building near North Spring Avenue with smaller support facilities and athletic fields at the rear of the property. The main building is two stories in height, has an irregular footprint, and is clad in red brick. The center portion features multiple hip roofs sheathed in standing seam metal, while the wings to the south and west are more modest in scale and detail. The building does not meet the basic threshold of 50 years of age nor does it appear to exhibit any characteristics suitable for inclusion under Criterion G; the building is not eligible for inclusion in the NRHP. The building was not addressed by the MO SHPO in 2013.

911-15 North Spring Avenue: All constructed by 1961, these three building are linked by a covered walkway around a central

Figure 43: Northeast corner of 911-15 N. Spring Ave.

Figure 44: Southwest elevation of 3653 Windsor Pl.

Figure 45: Southwest elevation of 3655 Windsor Pl.

courtyard (Figure 43). The buildings have red brick exterior, paired single pane windows, flat roofs, and plain exteriors. The northernmost building is one-story in height, while the other two are two-stories. This complex is not eligible for inclusion in the NRHP and was not addressed as part of the 2013 consultation effort.

3653 Windsor Place: This two-story brick building is one of three similar buildings on Windsor Place; the building addressed at 3653 Windsor Place has a darker red brick façade than its neighbors, but is stylistically identical (Figure 43). Constructed in 1903, the brick duplex has a crenellated roof line, arched windows on the first floor, and a metal cornice.[27] Decorative brickwork creates a drip mold over the second story windows. The building has one-over-one double hung sash windows, paired entrances with replacement doors, and a metal awning over the entrance. The building has a rectangular footprint and oriented towards the southwest. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

3655 Windsor Place: Constructed in 1918, the brick duplex addressed at 3655 Windsor Place features the same crenellated roofline, brick façade, and arched windows as its neighbors (Figure 45).[28] The paired entrances at the southwest corner appear to retain their historic partially glazed doors. The building has a stone foundation, rectangular footprint, and metal cornice. The building appears to retain its original one-over-one double hung sash windows. The building has a rectangular footprint and is oriented towards the southwest. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

3659 Windsor Place: As with its neighbor to the east, this building was also constructed in 1918 and possesses the same

[26] Construction date for 3696 Finney Avenue (Parcel ID 37090000150), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000015, accessed 26 June 2019.
[27] Construction date for 3653 Windsor Place (Parcel ID 37090002800), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000280, accessed 26 June 2019.
[28] Construction date for 3655 Windsor Place (Parcel ID 37090002900), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000290, accessed 26 June 2019.

Figure 46: Southwest elevation of 3659 Windsor Pl.

Figure 47: Southwest elevation of 3669 Windsor Pl.

Figure 48: Southwest elevation of 3705 Windsor Place (house at center).

Figure 49: Southwest elevation of 3709 Windsor Pl.

architectural features (Figure 46).[29] Metal screen doors obscure the replacement doors, but the original entrance configuration and door surround appears to be intact. The building retains the arched windows, brick drip mold, and crenellated roofline. The building has a rectangular footprint and is oriented towards the southwest. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

3669 Windsor Place: This brick duplex was constructed in 1909.[30] The building is two stories in height, has a roof sheathed in asphalt shingles, and has a rectangular footprint (Figure 47). The building is oriented towards the southwest; the main façade features a projecting bay window, decorative brick details, and a partial width porch. The primary entrance appears to have been modified, given the alterations in brickwork around the main door. The building has an irregular footprint, brick foundation, and one-over-one double hung sash windows. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

3705 Windsor Place: This two-story duplex has a rectangular footprint, one-over-one double hung sash windows, and brick exterior (Figure 48). Constructed in 1908, the building has a partial width porch covering the paired main entrances to the two units.[31] The main façade features brick quoins, a bay window, and decorative cornice as the primary ornamental features. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

[29] Construction date for 3659 Windsor Place (Parcel ID 37090003000), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000300, accessed 26 June 2019.
[30] Construction date for 3669 Windsor Place (Parcel ID 37090003030), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000330, accessed 26 June 2019.
[31] Construction date for 3705 Windsor Place (Parcel ID 3709000340), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000340, accessed 26 June 2019.

3709 Windsor Place: This two-story duplex was constructed in 1908 (Figure 49).[32] The building's façade appears to have been modified; a second-story doorway has been infilled with brick, the porch has been rebuilt, and the main entrance doors are modern replacements. The brick has been painted over, but the decorative quoins remain. The windows may be later day replacements. The building is not a notable architectural style or building type. VA determined the building was not eligible for inclusion in the NRHP. The MO SHPO concurred in 2013.

Figure 50: NE elevation of 3808 Windsor Pl.

3808 Windsor Place: This modest one-and-a-half story house was built in 1892 (Figure 50).[33] The building features a full-width front porch with plain, square columns. A large dormer pierces the side gable roof. The double pitch roof is covered in asphalt shingles. The main entrance door and many of the windows appear to be original. The building has a square footprint. The building is not a notable architectural style or building type; it is not eligible for inclusion in the NRHP. The building was not addressed by the SHPO in 2013.

Figure 51: Renaissance Place at Franklin Ave. and N. Theresa Ave.

Renaissance Place at Grand*:* The western edge of an apartment complex crosses into the APE, resulting in eight buildings falling within the APE (Figure 51). These eight apartment buildings sit on the eastern edge of North Theresa Avenue between Delmar Boulevard and Bell Avenue. Constructed in 2004 and 2005, these buildings resemble single family homes, featuring partial width porches, gable-on-hip roofs, brick exteriors, and small-scale development. These buildings do not meet the basic threshold of 50 years of age nor do they appear to exhibit any characteristics suitable for inclusion under Criterion G; the apartment complex is not eligible for inclusion in the NRHP. The building was not addressed by the SHPO in 2013.

[32] Construction date for 3709 Windsor Place (Parcel ID 3709000350), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=13709000350, accessed 26 June 2019.
[33] Construction date for 3808 Windsor Place (Parcel ID 25130002800), City of St. Louis Assessor's Office. Available online at https://www.stlouis-mo.gov/data/address-search/index.cfm?handle=12513000280, accessed 26 June 2019.

Appendix B: Letters associated with previous consultation efforts

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

May 7, 2013

Ms. Caitlin Cunningham
Department of Veterans Affairs
Office of Construction and Facilities Management
425 I Street NW
Washington, D.C. 20001

Re: **SHPO Project Number: 061-SLC-11** – St. Louis VA Medical Center- John Cochran Division, 915 North Grand Boulevard, St. Louis City, Missouri (VA)

Dear Mr. Cunningham:

Thank you for submitting information about the above-referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

Based on the information provided, we have the following questions/comments:

1. A map of the area of potential effects (APE) was provided as part of the submission showing both the area of direct and indirect effects. Our records indicate that there are a number of National Register of Historic Places listed properties located within that APE that have not been identified on the map. Please send a corrected map that includes both the properties that the VA is recommending as eligible for listing (or properties that may have already been determined eligible for listing) as well as those that have already been listed in the National Register of Historic Places.

2. In order to evaluate the "Descriptions and Photo Documentation for the Immediate Project Area," we require some clarification. Currently, we have a list of addresses with references to photograph numbers. The photographs provided to go with those addresses are not labeled (by number or otherwise), so we cannot determine which property is being referred to by address. Please provide a map of the area of direct effect that indicates where these addresses are located and which photograph goes with which property description. In addition, none of these property descriptions indicate if the VA has determined them eligible/not eligible for listings. Please provide that assessment as well. The letter dated April 12, 2013 from the VA indicates that a copy of a Cultural Resources Survey undertaken by the Landmarks Association of St. Louis was included. However, it appears that only sections of this preliminary report have been provided. Could the VA please send a complete copy of this report? Does the report also include a survey of the area of indirect effects? If not, could the VA please provide us a copy of their assessment of historic properties in the APE for indirect effects as well?

3. With regards to the VA Medical Center- John Cochran Division, the submission did not provide an assessment for the current medical center to determine if it is eligible for listing in the National Register of Historic Places. Please provide addition information about this facility.

4. We received two copies of the "Evaluation of the St. Louis Palladium…" produced by R. Christopher Goodwin and Associates. It appears that one of these supposed to be a copy of R. Christopher Goodwin and Associates' evaluation of the Frank Adam Electrical Building. In order to

provide comments on the impact of the demolition of this building, please provide copies of that assessment for review.

5. Please provide a copy of any preliminary plans for the location and design of the facility's expansion.

Please be advised that federal agencies "shall ensure that the section 106 process is initiated early in the undertaking's planning, so that a broad range of alternatives may be considered during the planning process for the undertaking" (36CFR800.1[c]). Your letter indicates that the VA plans to initiate the formal 106 process "with SHPO at the time when final land acquisition details and design plans are available." Failure to include all consulting parties early in the process may constitute a violation of Section 110(k), as determined by the Advisory Council on Historic Preservation.

If you have any questions please write Missouri Department of Natural Resources, State Historic Preservation Office, Attn: Review and Compliance, P.O. Box 176, Jefferson City, Missouri 65102, or call Rebecca Rost at (573) 751-7958. Please be sure to include the **SHPO Project Number (061-SLC-11)** on all future correspondence relating to this project. If the information is provided via telephone call, please follow up in writing for our files.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:rr

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

August 29, 2013

Ms. Caitlin Cunningham
Department of Veterans Affairs
Office of Construction and Facilities Management
425 I Street NW
Washington, D.C. 20001

Re: **SHPO Project Number: 061-SLC-11** – St. Louis VA Medical Center- John Cochran Division, 915 North Grand Boulevard, St. Louis City, Missouri (VA)

Dear Ms. Cunningham:

Thank you for submitting information about the above-referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of cultural resources.

Staff at the State Historic Preservation Office have reviewed the above referenced project and based on the information provided and the information in our records, we concur that the following properties are listed in the National Register of Historic Places and located within the area of potential effects of the Veteran's Administrations proposed John Cochran Medical Center expansion project:

- ABC Auto Sales and Investment Company Building, 3519 Page Boulevard, St. Louis, MO (identified as eligible in the Landmark's reported, but listed in 2012 under 3509-27 Page Boulevard)
- Henry L. Wolfner Memorial Library for the Blind, 3842-44 Olive Street, St. Louis, MO
- Cook Avenue Methodist Episcopal Church, South, 3680 Cook Avenue, St. Louis, MO
- West Locus and Olive Street Commercial and Industrial District, St. Louis, MO
- Robert Henry Stockton House, 3508 Samuel Shepard Drive, St. Louis, MO
- Midtown Historic District, St. Louis, MO
- Frederick Newton Judson House, 3733 Washington Avenue, St. Louis, MO
- William Cuthbert Jones House, 3724 Olive Street, St. Louis, MO

Based on the information provided, we concur that the following properties are eligible for listing in the National Register and located within the area of potential effects for the project:

- St. Louis Palladium, 3617 Delmar Boulevard, St. Louis, MO (Criterion A: Ethnic Heritage: African American, Entertainment/Recreation
- St. Alphonsus (Rock) Church, in Landmark's report as 3510 Cook Avenue, St. Louis, MO (Criterion C: Architecture)
- St. Louis Public School's Facilities Maintenance Building and Warehouse Complex, 3416 Cook, St. Louis, MO (Criterion C: Architecture and Criterion A: Education)
- Duncker House, 3636 Page, St. Louis, MO (Criterion C: Architecture)
- 1117 North Grand (typo in Landmarks report lists it as 1117 Washington), St. Louis, MO (Criterion C: Architecture, possibly Criterion A: Ethnic Heritage, Irish)
- Southwestern Bell Telephone, 3800 Washington, St. Louis, MO (Criterion A: Industry)

Recycled Paper

- St. Louis Juvenile Services, 910-930 N. Vandeventer, St. Louis, MO (Criterion C: Architecture)
- 1027-1035 North Grand Boulevard, St. Louis, MO (Criterion C: Architecture). SHPO finds this property eligible (no recommended was provided in the VA's documentation).
- 1023 North Grand Boulevard, St. Louis, MO (Criterion C: Architecture)

We concur that the following properties are not eligible for listing in the National Register of Historic Places:

- Frank Adams Electric Company Building located at 3632 Windsor Place, St. Louis, MO.
- John Cochran VA Medical Center Campus, 915 North Grand Boulevard, St. Louis, MO.
- 1015 North Grand Boulevard, St. Louis, MO
- Residential properties at: 3632-56, 3653, 3655, 3659, 3669, 3705, and 3709 Windsor Place, St. Louis, MO
- 3653 Delmar Boulevard
- 3710 Enright Avenue
- Parking/Vacant lots at: 3635-37, 3639-43, 3661, 3665, 3711, 3715, 3717, 3719, 3723-35, and 3739 Windsor Place; 3738, 3678, and 3718 Enright Avenue; 807-15 North Grand Boulevard; 3741 and 3745 Delmar Boulevard

In addition, and in accordance with the Advisory Council on Historic Preservation's regulation Protection of Historic Properties (36 CFR Part 800), Section 800.5, it is our opinion the proposed project will likely have an **adverse effect** on the National Register of Historic Places eligible properties due to the extensive degree of demolition that has been proposed. **We look forward to working with the Veteran's Administration on the exploration of alternatives to the demolition of historic properties, as well as on the design of the facility expansion to ensure that it is sympathetic to the historic properties in the indirect area of affects.**

In accordance with Section 800.6(a)(1), the VA or its applicant shall forward the necessary adequate documentation to the Executive Director, Advisory Council on Historic Preservation, the Old Post Office Building, 1100 Pennsylvania Avenue NW, #807, Washington, D.C 20004. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question. Please be sure to copy us on any correspondence to the ACHP.

If you have any questions please write Missouri Department of Natural Resources, State Historic Preservation Office, Attn: Review and Compliance, P.O. Box 176, Jefferson City, Missouri 65102, or call Rebecca Rost at (573) 751-7958. Please be sure to include the **SHPO Project Number (061-SLC-11)** on all future correspondence relating to this project. If the information is provided via telephone call, please follow up in writing for our files.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:rr

Paul Jackson

m: Rob Clar: : r: lar: lasso: .cɒm>:
Sent: Wednesday, Augus: 29, 2012 7:19 AM:
To: Paul Ja: son:
Subject: FW: St:Louis VA Medi: al Cen:er, MO:

From: Wehner, y ny yCFM) [y ilto:y ny .Wehner@vy.gov] y
Sent: Tuesdy , y ugust 28, 2012 10:18 PM y
o: Rob Clyrk y
: Coay, Cyitlin yCFM) y
S b je : Fw: St Louis Vy Meyicyl Center, MO y

FYI

From: LisayLyRue-Byker - UKB THPO [y ilto:ukbthpo-lyrue@y hoo.comy y
Sent: Tuesdy , y ugust 28, 2012 09:45 PM y
o: Wehner, y ny yCFM) y
: lstypleton@uniteykeetoowyhbyny.org <lstypleton@uniteykeetoowyhbyny.org> y
S b je : St Louis Vy Meyicyl Center, MO

The United KeeN h nd Cher kee Indi ns in Okl h m h s revie ed y ur pr jects r Secti n 106 HPA purp ses, nd cultur l res urces. At this time, e h ve n bjecti n r c mment. H ever, i ny hum n rem ins r uner ry items re in dvertently disc vered, ple se ce se IN rk nd c nt ct us immedi telyN

Lisa LaR e-Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952 f 918.458.6889
ukbthpo-larue@yahoo.com

TRIBAL HISTORIC PRESERVATION OFFICE

Date: **October 22, 2012**

RE: **Department of Veterans Affairs Proposed Expansion and Renovation of the St. Louis VA Medical Center at 915 North Grand Boulevard in St. Louis, Missouri**

Office of Construction and Facilities Management, VA
Amanda M. Wehner
Department of Veterans Affairs
Washington, D.C. 20420

Dear Ms. Wehner,

The Osage Nation Historic Preservation Office has evaluated your submission and concurs that the proposed Department of Veterans Affairs Proposed Expansion and Renovation of the St. Louis VA Medical Center at 915 North Grand Boulevard in St. Louis, Missouri **most likely will not adversely affect properties of cultural or sacred significance to the Osage Nation**. The Osage Nation has no further concern with this project.

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S.C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d) (6) (A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). **As a part of the scoping process the Office of Construction and Facilities Management, VA has fulfilled NHPA and NEPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed Department of Veterans Affairs Proposed Expansion and Renovation of the St. Louis VA Medical Center at 915 North Grand Boulevard in St. Louis, Missouri.**

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, the Native American Graves Protection and Repatriation Act, or Osage law. **If, however, artifacts or human remains are discovered during project-related activities, we ask that activities cease immediately and the Osage Nation Historic Preservation Office be contacted.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

James Munkres
Archaeologist I

627 Grandview, Pawhuska, OK 74056, (918) 287-5328, Fax (918) 287-5376

PLANNING & URBAN DESIGN AGENCY
CITY OF ST. LOUIS

FRANCIS G. SLAY
Mayor

BARBARA A. GEISMAN
Executive Director for Development

DONALD W. ROE
Acting Director of Planning & Urban Design

(314) 622-3400
Fax 259-3406
622-3413

February 16, 2010

Carl R. Dawes
Weaver Boos Consultants
1813 North Mill Street, Suite A
Naperville, IL 60563

Re: Veterans Affairs Medical Center, John Cochran Division, St. Louis
Master plan Historic Preservation Affects Verification

Dear Mr. Dawes,

Thank you for consulting with our office concerning the above referenced project. As you have noted, there are no City Landmarks or locally-designated historic districts in the project area. We are relying on the agency's consultation with the Missouri State Historic Preservation Office to determine whether the planning project includes any areas with resources that have not yet been evaluated for eligibility in the National Register of Historic Places.

I have recently taken over as Director of the City or St. Louis Cultural Resources Office and my card is attached. If you have any questions or concerns about this project as it proceeds, please feel free to contact me.

Sincerely,

Betsy H. Bradley
Director, Cultural Resources Office

1015 Locust St. ✣ Suite 1100 ✣ St. Louis, Missouri 63101
e-mail: planning@stlouis.missouri.org

Appendix C: Potential Consulting Parties

NB: Tribal information drawn from the Tribal Directory Assessment Tool (TDAT) developed by the Department of Housing and Urban Development's the Office of Environment and Energy; the database provided information on those tribes with a demonstrated interested in St. Louis, Missouri: https://eqis.hud.gov/tdat/

Agency / Organization	Contact, Title	Address	Phone	Email	Previously Contacted
Advisory Council on Historic Preservation	Angela McArdle, Program Analyst / VA Liaison	401 F Street NW, Suite 308 Washington DC 20001-2637	(202) 517-0221	amcardle@achp.gov	
Missouri SHPO	Carol S. Comer, Director	P.O. Box 176 Jefferson City, MO 65102	(573) 751-4732		X
Apache Tribe of Oklahoma	Lyman Guy, Chairman	PO Box 1330 Anadarko, OK 73005	(405) 247-9493	lguy93@hotmail.com	
Miami Tribe of Oklahoma	Diane Hunter, THPO	PO Box 1326 Miami, OK 74355	(918) 542-1445	dhunter@miamination.com	
Osage Nation	Dr. Andrea Hunter, THPO	627 Grandview Avenue Pawhuska, OK 74056	(918) 287-5328	ahunter@osagenation-nsn.gov	X
Peoria Tribe of Indians of Oklahoma	John Froman, Chief	PO Box 1527 Miami, OK 74355	(918) 540-2535	jfroman@peoriatribe.com	X
Quapaw Tribe of Indians	Everett Brady, THPO	PO Box 765 Quapaw, OK 74363-0765	(888)642-4724	ebandy@quapawtribe.com.com	
Seneca-Cayuga Nation	William Tarrant, THPO	PO Box 45322 Grove, OK 74345	(918) 787-5452 Ext. 342	wtarrant@sctribe.com	
United Keetoowah Band of Cherokee Indians in Oklahoma	Eric Oosahwee-Vos, THPO	PO Box 1425 Tahlequah, OK 74465	(918) 458-6717	Eoosahwee-voss@ukb-nsn.gov	X
NB: The United Keeotwah Band of Cherokee Indians in Oklahoma was not listed in TDAT, but expressed interest in the site during previous consultation efforts.					
City of St. Louis – CLG Contact	Daniel Krasnoff, Director, Cultural Resources Office	1520 Market Street Suite 2000 St. Louis, MO 63103	(314) 657-3850	krasnoffd@stlouis-mo.gov	X

Agency / Organization	Contact, Title	Address	Phone	Email	Previously Contacted
National Trust for Historic Preservation	David Brown, Executive Vice President & Chief Preservation Officer	The Watergate Office Building 2600 Virginia Avenue NW, Suite 1100 Washington, DC 20037	(202) 588-6227	dbrown@savingplaces.org	
Landmarks Association of St. Louis	Andrew Weil, Executive Director	3115 South Grand Blvd Suite 700 St. Louis, MO 63118	(314) 421-6474	aweil@landmarks-stl.org	
Missouri Alliance for Historic Preservation	Bill Hart, Executive Director	319 North 4th St Room 850 St. Louis, MO 63102	(660) 882-5946	preservemo10@yahoo.com	
Grand Center, Inc.	Rich Simmons, Executive Director	3526 Washington Ave St Louis, MO 63103	(314) 289-1504	rich@grandcenter.org	

Appendix D: Letter for MO SHPO and MO SHPO Form

[VA Letterhead]

[Date]

Toni M. Prawl, PhD
Deputy State Historic Preservation Officer
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, MO 65102

RE: Continuation of National Historic Preservation Act Section 106 Consultation
Redevelopment of the John Cochran Division, VA St Louis Health Care System
915 N Grand Blvd, City of St Louis, Missouri, 63106 (SHPO Project No. 061-SLC-11)

Dear Dr. Prawl,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) is continuing consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108) and submitting a Missouri State Historic Preservation Office (MO SHPO) Section 106 Project Form (Attachment 1).

JCSLVA initiated consultation with the MO SHPO in 2011 and continued consulting through 2013 (SHPO Project No. 061-SLC-11). In addition, JCSLVA invited the following parties to consult: Apache Tribe of Oklahoma, Miami Tribe of Oklahoma, Osage Nation, Peoria Tribe of Indians of Oklahoma, Quapaw Tribe of Indians, Seneca-Cayuga Nation, United Keetowah Band of Cherokee Indians in Oklahoma, St Louis Cultural Resources Office, Landmarks Association of St Louis, Grand Center Arts District, Missouri Alliance for Historic Preservation, and National Trust for Historic Preservation. JCSLVA is notifying the Advisory Council on Historic Preservation (ACHP) of this ongoing consultation via copy of this letter and inviting its participation.

Undertaking

JCSLVA established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, to include Bell and Enright Avenue between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect

JCSLVA has determined the current Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (Attachment 2).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts since 2012, with involvement from the Landmarks Association of St Louis, your office and preservation consultants.

Based on these efforts, JCSLVA has identified six historic properties within the current APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP. The City of St Louis found the Palladium unsafe and condemned the structure via letter to the property owner on March 14, 2018 (Attachment 3).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at your office also indicated no records of any archaeological sites within the APE. Your office previously concurred on these historic property identification results.

Finding of Adverse Effect

JCSLVA recently contracted for an updated cultural resources study of the proposed activities to assist in ongoing NHPA compliance efforts. The report provides additional information about the undertaking and analyzes its possible effects on historic properties (Attachment 4).

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to the historic properties within the APE. As the project is still in design with multiple alternatives being analyzed, JCSLVA will use a phased process in applying the criteria of adverse effect, per 36 CFR § 800.5(a)(3), and seeks to negotiate a programmatic agreement with your office and other consulting parties, per § 800.14(b)(1)(ii) following § 800.6, as effects on historic properties cannot be fully determined prior to approval of the undertaking.

JCSLVA anticipates that the agreement will establish a process for review of the design as it develops based on the reconfiguration alternative selected in order to resolve any adverse effects that are found and provide for mitigation if they cannot be avoided or minimized.

JCSLVA looks forward to receiving comments from your office on its consultation efforts to date and proposal to execute an agreement to guide future review of the reconfiguration as details are determined.

Thank you for your commitment to the historic resources of Missouri. If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Attachments:
1. MO SHPO Section 106 Project Form
2. APE and Historic Properties
3. City of St Louis Condemnation Notice, March 14, 2018
4. Preliminary Cultural Resources Impact Report, September 2019

Cc: Angela McArdle, ACHP Program Analyst and VA Liaison
Amanda Burke, MO SHPO Historic Preservation Specialist
Doug Pulak, VA Federal Preservation Officer

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE

SECTION 106 PROJECT INFORMATION FORM

Submission of a completed Project Information Form with adequate information and attachments constitutes a request for a review pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). We reserve the right to request more information. **Please refer to the CHECKLIST on Page 2 to ensure that all basic information relevant to the project has been included.** For further information, refer to our website at: http://dnr.mo.gov/shpo and follow the links to Section 106 Review.

NOTE: Section 106 regulations provide for a 30-day response time by the Missouri State Historic Preservation Office from the date of receipt.

PROJECT NAME 061-SLC-11: Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center - John Cochran Division	
FEDERAL AGENCY PROVIDING FUNDS, LICENSE, OR PERMIT U.S. Department of Veterans Affairs (VA)	
APPLICANT VA St. Louis Health Care System – John Cochran Division (SLJC VAMC)	TELEPHONE
CONTACT PERSON Chanda Joshi, Project Manager	TELEPHONE (224) 610-7321
ADDRESS FOR RESPONSE Office of Construction & Facilities Management 1425 Tri-State Pkwy, Suite 140 Gurnee, IL 60031 Email: Chandrashekhar.joshi@va.gov	

LOCATION OF PROJECT

COUNTY St. Louis	
STREET ADDRESS 915 North Grand Blvd	CITY St. Louis

LEGAL DESCRIPTION OF PROJECT AREA (TOWNSHIP, RANGE, SECTION, ¼ SECTION)

USGS TOPOGRAPHIC MAP QUADRANGLE NAME (SEE MAP REQUIREMENTS ON PAGE 2)

Granite City, IL, MO

YEAR	TOWNSHIP	RANGE	SECTION
2018	45N	7E	16

PROJECT DESCRIPTION

DESCRIBE THE OVERALL PROJECT IN DETAIL. IF IT INVOLVES EXCAVATION, INDICATE HOW WIDE, HOW DEEP, ETC. IF THE PROJECT INVOLVES DEMOLITION OF EXISTING BUILDINGS, MAKE THAT CLEAR. IF THE PROJECT INVOLVES REHABILITATION, DESCRIBE THE PROPOSED WORK IN DETAIL. USE ADDITIONAL PAGES IF NECESSARY.

SLJC VAMC has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13 story bed tower meeting current seismic resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, include the portion of Bell and Enright Avenue between North Grand Boulevard and North Spring Avenue.

For additional information, please see the Preliminary Cultural Resources Impact Report - September 2019, included with this submission.

ARCHAEOLOGY (EARTHMOVING ACTIVITIES)

HAS THE GROUND INVOLVED BEEN GRADED, BUILT ON, BORROWED, OR OTHERWISE DISTURBED? PLEASE DESCRIBE IN DETAIL (USE ADDITIONAL PAGES, IF NECESSARY) PHOTOGRAPHS ARE HELPFUL:

The project site is located in downtown St. Louis, a highly urban setting. The parcels under review have had extensive ground disturbance due to multiple previous construction campaigns, most notably in the early 1950s with the construction of the VA Medical Center as well as other structures within the APE. For further information please refer to the Preliminary Cultural Resources Impact Report - September 2019, included with this submission.

WILL THE PROJECT REQUIRE FILL MATERIAL? ☐ YES ☐ NO

IF **YES**, INDICATE PROPOSED BORROW AREAS (SOURCE OF FILL MATERIAL) ON TOPOGRAPHIC MAP

ARE YOU AWARE OF ARCHAEOLOGICAL SITES ON OR ADJACENT TO PROJECT AREA? ☐ YES ☐ NO

IF **YES**, IDENTIFY THEM ON THE TOPOGRAPHIC MAP

STRUCTURES (REHABILITATION, DEMOLOTION, ADDITIONS TO, OR CONTRUCTION NEAR EXISTING STRUCTURES)

TO THE BEST OF YOUR KNOWLEDGE, IS THE STRUCTURE LOCATED IN ANY OF THE FOLLOWING?

☐ AN AREA PREVIOUSLY SURVEYED FOR HISTORIC PROPERTIES.	☑ A NATIONAL REGISTER DISTRICT	☐ A LOCAL HISTORIC DISTRICT
IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT:	IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT: Midtown Historic District	IF YES, PLEASE PROVIDE THE NAME OF THE SURVEY OR DISTRICT:

- PLEASE PROVIDE PHOTOGRAPHS OF ALL STRUCTURES, SEE PHOTOGRAPHY REQUIREMENTS
- **NOTE:** ALL PHOTOGRAPHS SHOULD BE LABELED AND KEYED TO ONE MAP OF THE PROJECT AREA
- PLEASE PROVIDE A BRIEF HISTORY OF THE BUILDING(S), INCLUDING CONSTRUCTION DATES AND BUILDING USES. (USE ADDITONAL PAGES, IF NECESSARY.)

ADDITIONAL REQUIREMENTS

Map Requirements: Attach a copy of the relevant portion (8 ½ x 11) of the current USGS 7.5 min. topographic map **and**, if necessary, a large scale project map. Please do not send an individual map with each structure or site. While an original map is preferable, a good copy is acceptable. For a list of sites from which to order, download or print the required USGS 7.5 min. topographic maps at little or no cost, consult http://dnr.mo.gov/shpo/sectionrev.htm .

Photography Requirements: Clear black and white or color photographs (minimum 3" x 5") are acceptable. Polariods, photocopies, emailed or faxed photographs are not acceptable. **Good quality photographs are important for expeditious project review**. Photographs of neighboring or nearby buildings are also helpful. All photographs should be labeled and keyed to one map of the project area.

CHECKLIST-DID YOU PROVIDE THE FOLLOWING INFORMATION?

☑ Topographic map 7.5 min. (per project, not structure)	☑ Other supporting documents (If necessary to explain the project)
☑ Thorough description (all projects)	☐ For new construction, rehabilitations, etc., attach work write-ups, plans, drawings, etc.
☑ Photographs (all structures)	☑ Is topographic map identified by quadrangle and year?

Return this Form and Attachments to:

MISSOUR DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
Attn: Section 106 Review
P.O. BOX 176
JEFFERSON CITY, MISSOURI 65102-0176

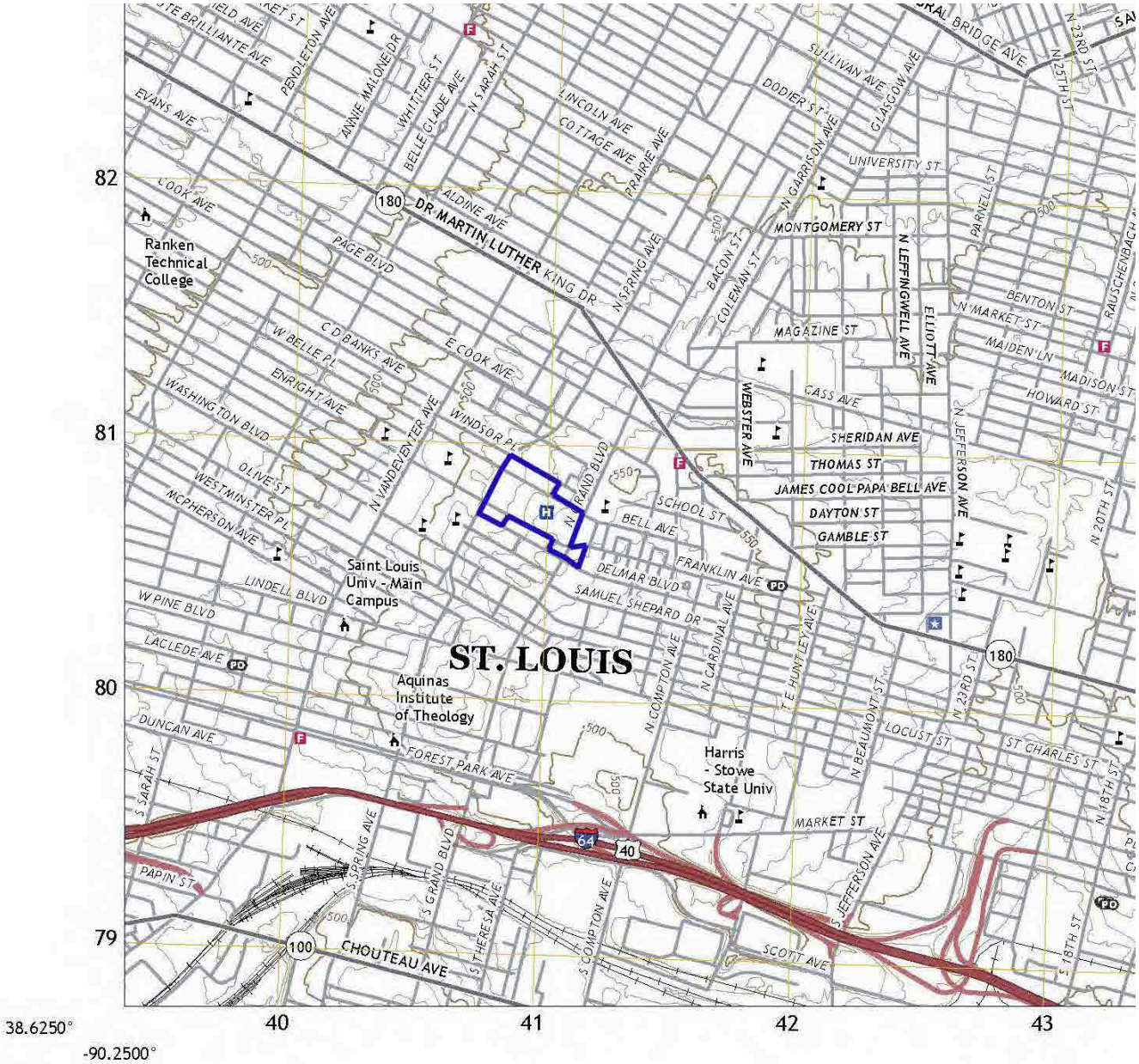


Figure 1: St. Louis VA Medical Center - John Cochran Division, 915 North Grand Blvd., St. Louis, MO indicated in blue. Topo map: Granite City, IL, MO, 2018, 7.5 min.

Appendix E: Letter for Tribes

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Miami Tribe of Oklahoma
Diane Hunter, Tribal Historic Preservation Officer
PO Box 1326
Miami, OK 74355

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Ms. Hunter,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Miami Tribe of Oklahoma to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Miami Tribe of Oklahoma reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Seneca-Cayuga Nation
William Tarrant, Tribal Historic Preservation Officer
PO Box 453220
Grove, OK 74344

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Tarrant,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Seneca-Cayuga Nation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Seneca-Cayuga Nation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Quapaw Tribe of Indians
Everett Bandy, Tribal Historic Preservation Officer
PO Box 765
Quapaw, OK 74363-0765

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Bandy,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Quapaw Tribe of Indians to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Quapaw Tribe of Indians reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 11, 2019

Apache Tribe of Oklahoma
Bobby Komardly, Chairman
P.O. Box 1330
Anadarko, OK 73005

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Chairman Komardly,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Apache Tribe of Oklahoma to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Coordination with Environmental Review
JCSLVA is analyzing environmental impacts for the proposed project in compliance with the National Environmental Policy Act (NEPA) by updating its February 2014 Environmental Assessment (EA), which analyzed three possible parcel acquisition alternatives for the expansion to help identify optimal campus layouts. The EA will address impacts to cultural resources. There will be a 30-day public comment period on the draft EA when it is published.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties

JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Apache Tribe of Oklahoma reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

Appendix F: Letter for Consulting Parties

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Grand Center, Inc.
Rich Simmons, Executive Director
3526 Washington Ave
St Louis, MO 63103

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Simmons,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Grand Center Arts District to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Grand Center Arts District reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Landmarks Association of St Louis
Andrew Weil, Executive Director
3115 S Grand Blvd, Suite 700
St Louis, MO 63118

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Weil,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Landmarks Association of St Louis to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from your organization, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium*, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Landmarks Association of St Louis reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

National Trust for Historic Preservation
David Brown, Executive Vice President & Chief Preservation Officer
The Watergate Office Building
2600 Virginia Avenue NW, Suite 1100
Washington, DC 20037

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Brown,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the National Trust for Historic Preservation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium*, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the National Trust for Historic Preservation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

* A property the National Trust placed on its 2014 *America's Eleven Most Endangered Historic Places List*.

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

City of St Louis Cultural Resource Office
Daniel Krasnoff, Director
1520 Market Street, Suite 2000
St Louis, MO 63103

RE: Continuation of National Historic Preservation Act Section 106 Consultation
Redevelopment of the John Cochran Division, VA St Louis Health Care System
915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Krasnoff,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) is continuing consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). This letter is an update to the St Louis Cultural Resources Office, which previously responded that it does not participate in the section 106 consultation process unless requested by the Missouri State Historic Preservation Office (SHPO). JSSLVA is not aware of such a request being made and is resuming consultation with the SHPO.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri SHPO and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests the City of St Louis Cultural Resource Office reply to this letter if it would like to join in the ongoing consultation.

Thank you for your commitment to the historic resources of St Louis. If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

DEPARTMENT OF VETERANS AFFAIRS
VA St. Louis Health Care System
John Cochran Division
915 N. Grand Boulevard
St. Louis, MO 63106

September 12, 2019

Missouri Alliance for Historic Preservation
Bill Hart, Executive Director
319 N 4th St, Room 850
St. Louis, MO 63102

RE: National Historic Preservation Act Section 106 Consultation: Redevelopment of the John Cochran Division, VA St Louis Health Care System, 915 N Grand Blvd, City of St Louis, Missouri, 63106

Dear Mr. Hart,

The John Cochran Division of the US Department of Veterans Affairs St Louis Heath Care System (JCSLVA) has initiated consultation for redevelopment of its campus at 915 N Blvd in downtown St Louis, pursuant to Section 106 of the National Historic Preservation Act (54 USC 306108). JCSLVA invites the Missouri Alliance for Historic Preservation to participate in this review process.

Undertaking
JCSLVA has established the undertaking as the proposed reconfiguration of its facility which will relocate in-patient care away from the existing main hospital into a new, up-to-13-story bed tower meeting current seismic-resistance requirements, expand the campus through acquisition of adjacent parcels, demolish multiple buildings, and construct parking garages, utility plant, dedicated clinic buildings, utility substation, water storage system, and associated infrastructure in order to correct current space and functional deficiencies. Enlarging the campus may also require permanent closure of some streets, including the portion of Bell Road between North Grand Boulevard and North Spring Avenue.

Area of Potential Effect
JCSLVA has determined the Area of Potential Effects (APE) as the property surrounding the site of the proposed reconfiguration, taking into account possible direct and indirect alterations in character or use of historic properties (see Attachment 1).

Identification of Historic Properties
JCSLVA has undertaken several historic property identification efforts covering the APE since 2012, with involvement from the Landmarks Association of St Louis, Missouri State Historic Preservation Office (SHPO) and preservation consultants. Based on these efforts, JCSLVA has identified six historic properties within the APE: the Midtown Historic District, St Louis Theater (Powell Center), the former Welfare Finance Company Building, the Palladium, 3514 Delmar Boulevard, and 1023 N Grand Blvd – the first three are listed in the National Register of Historic Places (NRHP) and the latter three have been determined eligible for the NRHP (see Attachment 1).

The studies also addressed the potential for archaeological sites and determined that it was unlikely, due to prior ground disturbance from intensive, urban land use. A further review of documentation at the SHPO also indicated no records of any archaeological sites within the APE.

Assessment of Adverse Effect

Due to the scale and nature of the reconfiguration, JCSLVA finds that the undertaking is likely to result in effects to historic properties and will continue consultation with consulting parties to resolve any that end up being adverse as a result of the final design.

JCSLVA requests that the Missouri Alliance for Historic Preservation reply to this invitation indicating if it would like to participate as a consulting party in this ongoing federal review of the proposed undertaking.

If you have questions or concerns, please contact Mr. Chanda Joshi, Project Manager, at (224) 610-7321 or Chandrashekhar.Joshi@va.gov.

Sincerely,

Gary P. Drikow, MS, PE
Service Chief, Major Projects Service
VA St. Louis Health Care System

Enclosure: Attachment 1, APE and Historic Properties

Cc: Doug Pulak, VA Federal Preservation Officer

Appendix G: Condemnation of the Palladium (3617 Delmar Blvd.)

JIMMIE M. EDWARDS
DIRECTOR OF PUBLIC SAFETY

City of St. Louis

DEPARTMENT OF PUBLIC SAFETY
DIVISION OF BUILDING AND INSPECTION
LYDA KREWSON
MAYOR

FRANK OSWALD
BUILDING COMMISSIONER

Wednesday, March 14, 2018

FIVE STAR REALTY INC
767 SUMMER TOP CIR
FENTON, MO 63026

Inspection Date: 3/14/2018 8:00:00 AM

NOTICE OF CONDEMNATION

You are hereby notified; pursuant to Section 119.0 of Ordinance #68788, being the Condemnation provisions of the Building Code of the City of St. Louis, that I have caused an inspection of the structure(s) and premises known as:

3617 Delmar Blvd, St. Louis, MO 63108
Parcel No. 228819080

The inspection revealed that the structure(s) and/or premise(s) are in a condition which endangers the health, and/or lives, and/or safety and welfare, of persons or property; and further that they cannot be made reasonably safe without the repair or demolition and removal of the above referenced property of the unsightly and hazardous conditions listed on the following page. You are hereby ordered to have the above referenced structure(s) repaired or removed and the premises cleared of said conditions on or before March 24, 2018 (and have structure(s) maintained secured when vacant).

RIGHT OF APPEAL

You or any person aggrieved by this decision may appeal same to the Board of Building Appeals of the City of St. Louis by filing such appeal within ten (10) days of this notice specifying the grounds thereof, and accompanied by a one hundred fifty dollar ($150.00) filing fee. This appeal must be filed with the Secretary of the Board of Building Appeals in Room 400, City Hall, Tucker and Market Streets, St. Louis, Missouri. Forms are available in Room 400.

Should you fail to act as ordered above, or properly appeal within the time specified, I will proceed under authority of the Building Code to have the above mentioned conditions abated by demolition work and/or whatever work deemed necessary to secure public health, safety and welfare, with the cost thereof plus a 10% administration fee, to be billed you and if unpaid, collected by special tax assessment or collected by suit if necessary and/or lien against said property as prescribed by Section 119.5 of the Building Code and refer the file to the City Counselor for court prosecution as described in Section 4 of the Building Code.

The above mentioned structure is unsafe and as such, it is additionally condemned for use and occupancy under Section 119.4. Any and all occupants must vacate the premises until all such conditions that have caused the condemnation have been abated and so certified.

Permits are required for the repair and securing or removal of said structure(s). Permit applications are processed in Room 425, City Hall and shall be accompanied by a copy of this notice. Demolition permits, however, may only be issued to Certified Demolition Contractors. Extensions of the compliance period may be considered if you act immediately and secure a permit within ten (10) days of this notification and proceed immediately as prescribed by the permit conditions and this notice.

In addition, Ordinance #68788 states that any building or structure that has been ordered secured or has been secured by the City, which remains vacant for a period in excess of twelve (12) months, can then be condemned for occupancy and

subsequently demolished.

SO ORDERED:
Michael Wood

For further information, you may contact the inspector between 8:00 a.m. and 9:00 a.m. Please be aware that not all inspectors are not located at City Hall, so please contact the inspector to set up a meeting time and location.

Inspector: Michael Wood, (314) 622-5626, Email: woodm@stlouis-mo.gov, Supervisor: Tony Rolfi, (314) 622-3480

Violations:

Window/s Missing (Major violation [3/13/2018]) [South] Code Reference: Ordinance 68788 Section 119.0
Window/s are missing, building is open to unauthorized entry.

Roof Defect (Major violation [3/13/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.0
Roof is defective.

Roof is leaking (Major violation [3/13/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.0
Roof is leaking.

Plumbing Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Plumbing is inoperable
NO WATER

Electric Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Electric is inoperable.
ELECTRIC TURNED OFF 03/2017

Heating Inoperative (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Heating is inoperable
GAS TURNED OFF 12/2010

No Water (Major violation [3/13/2018]) Code Reference: Ordinance 68788 Section 119.0
Water service inoperable.
WATER TURNED OFF 2012

Sealed Drawings Required (Major violation [3/13/2018]) [Unit] Code Reference: Ordinance 68788 IBC 110.7.1
Building permit with plans sealed by a Registered Design Professional will be required. Contact inspector for information.

Item 7 Section 119.1 (Major violation [3/14/2018]) [North, East, South, West] Code Reference: Ordinance 68788 Section 119.1
Any interior or exterior portion, member,appurtenance, ornamentation or any other component of the building or structure is likely to fall, collapse, or become detached or dislodged, and thereby injure persons or damage property.

PROGRAMMATIC AGREEMENT
AMONG THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM, THE MISSOURI STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, REGARDING RECONFIGURATION OF THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM

WHEREAS, the John Cochran Division of the U.S. Department of Veterans Affairs St. Louis Heath Care System (JCSLVA) has determined it necessary to correct current space and functional deficiencies at the JCSLVA through reconfiguration of the campus (Undertaking); and

WHEREAS, the proposed reconfiguration may relocate in-patient care away from the existing main hospital into a new bed tower meeting current seismic resistant requirements that may be as many as 13-stories in height; may expand the campus through acquisition of adjacent parcels; may result in the demolition of multiple buildings; may include the construction of parking garages, dedicated clinic buildings, a utility plant, a utility substation, a water storage system, security measures, and associated infrastructure; and may result in the closure or alteration of the path of streets through or adjacent to the existing campus footprint; and

WHEREAS, JCSLVA has determined that this Undertaking has the potential to cause effects on historic properties and is therefore subject to 54 USC § 306108 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR Part 800, as amended (collectively referred to here as "Section 106"); and

WHEREAS, the U.S. Army Corps of Engineers (USACE) shall be responsible for construction management of this Undertaking; and

WHEREAS, the USACE, as a federal agency, is required to comply with Section 106 and has designated VA as lead federal agency for purposes of Section 106 compliance pursuant to 36 CFR § 800.2(a)(2) for this Undertaking; and

WHEREAS, JCSLVA has consulted with the Missouri State Historic Preservation Officer (MO SHPO), pursuant to 36 CFR § 800.2(c)(1); and

WHEREAS, JCSLVA invited the Apache Tribe of Oklahoma, the Miami Tribe of Oklahoma, the Osage Nation, the Peoria Tribe of Indians of Oklahoma, the Quapaw Tribe of Indians, the Seneca-Cayuga Nation, and the United Keetoowah Band of Cherokee Indians in Oklahoma to participate in consultation as federally recognized Indian tribes that might attach religious and cultural significance to historic properties in St. Louis County, pursuant to 36 CFR § 800.2(c)(2), and the Miami Tribe of Oklahoma and the Osage Nation have responded with interest in participating in this consultation and are Consulting Parties; and

WHEREAS, JCSLVA invited the City of St. Louis Planning & Urban Design Agency Cultural Resources Office (CSLCRO), the Landmarks Association of St. Louis, and Grand Center, Inc. (also known as the Grand Center Arts District) to participate in this consultation, pursuant to 36 CFR § 800.2(c)(3) and (5), and they have accepted JCSLVA's invitation and have participated in this consultation as Consulting Parties; and

WHEREAS, JCSLVA invited the National Trust for Historic Preservation and Missouri Preservation Alliance, to participate in this consultation, pursuant to 36 CFR § 800.2(c)(5), but they either did not respond or declined to participate; and

WHEREAS, JCSLVA provided the public with information about the Undertaking and its effects on historic properties and sought public comment and input, pursuant to 36 CFR § 800.2(d), through National Environmental Policy Act (NEPA) compliance efforts in 2014 and 2019, and hosted a consultation meeting with the Consulting Parties on November 1, 2019; and

WHEREAS, JCSLVA, in consultation with the MO SHPO, has determined the Area of Potential Effects (APE) to include the whole of the JCSLVA campus plus surrounding areas as depicted on the map in Attachment A, pursuant to 36 CFR § 800.4(a)(1); and

WHEREAS, JCSLVA, in consultation with the MO SHPO, identified the following historic properties within the APE, pursuant to 36 CFR § 800.4:

- Midtown Historic District – National Register of Historic Places (NRHP) No. 78003392,
- St. Louis Theater (Powell Theater) – NRHP No. 01000545,
- Welfare Finance Building – NRHP No. 16000103,
- Palladium – determined NRHP eligible in 2013 under Criterion A: *Ethnic Heritage*,
- 3514 Delmar Boulevard – determined NRHP eligible in 2013 under Criterion C: *Architecture*,
- 1023 North Grand Boulevard – determined NRHP eligible in 2013 under Criterion C: *Architecture*; and

WHEREAS, JCSLVA, in consultation with the MO SHPO, determined in 2013 that the JCSLVA campus lacked the integrity necessary to be NRHP eligible; and

WHEREAS, on March 14, 2018, the City of St. Louis found the Palladium to be unsafe and issued a notice of condemnation via letter to the property owner; and

WHEREAS, subsurface archaeological sites meeting the criteria for NRHP listing as described in 36 CFR § 60.4 could be present within the APE; and

WHEREAS, JCSLVA has produced a reconfiguration site lay-out but has not finalized a design and therefore the full range of effects on historic properties cannot be fully determined at this time; and

WHEREAS, JCSLVA shall use a phased approach to assess the Undertaking's effects on historic properties, pursuant to 36 CFR § 800.5(a)(3); and

WHEREAS, JCSLVA has determined it appropriate to develop a programmatic agreement (PA) in accordance with 36 CFR § 800.14(b), including § 800.14(b)(1)(ii), which recognizes that a PA may be used when effects on historic properties cannot be fully determined prior to approval of an undertaking; and

WHEREAS, pursuant to 36 CFR § 800.6(a)(1)(i)(C), JCSLVA invited the Advisory Council on Historic Preservation (ACHP) to participate in consultation and the ACHP has chosen to participate pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, JCSLVA, the MO SHPO and the ACHP agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties.

STIPULATIONS

JCSLVA shall ensure the following measures are carried out:

I. GENERAL

a. The Anti-Deficiency Act, 31 USC § 1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. Accordingly, any requirement for the obligation of funds arising from the terms of this PA shall be subject to the availability of appropriated funds for that purpose, and this agreement shall not be interpreted to require the obligation of funds in violation of the Anti-Deficiency Act.

b. All parties shall send and accept official notices, comments, requests for additional information and/or documentation, and all other communications required by this PA via email.

c. Time designations shall be in calendar days. Failure to comment within specified time designations shall not prevent JCSLVA from proceeding in the process as outlined in this PA.

d. For the purposes of this PA, the definitions provided in 36 CFR § 800.16(a) through (z) inclusive shall apply.

e. JCSLVA shall ensure that federal or contractor staff who meet the applicable Secretary of the Interior's *Professional Qualification Standards* for architectural history, history, archeology, architecture, and historic architecture (36 CFR Part 61) participate as required by this PA.

f. Annually, within two weeks of the anniversary of the execution of this PA, until it is closed out, expires, or is terminated, JCSLVA shall provide all parties to this PA a summary report detailing work undertaken pursuant to its terms. The report shall include any scheduling changes proposed, any problems encountered, and any disputes or objections received in JCSLVA's efforts to carry out the terms of this PA.

II. PRE-DESIGN REVIEW

a. Following execution of this PA, JCSLVA shall solicit recommendations from Consulting Parties on measures to avoid and/or minimize adverse effects of reconfiguration concepts on historic properties for at least 30 days. These suggestions may concern setbacks, massing, and lay-out; materials; landscaping, and other design details.

   i. JCSLVA shall take into account suggestions made by Consulting Parties on reconfiguration concepts in the advancement of design plans.

b. JCSLVA shall host a charrette to solicit comments from Consulting Parties on the concept alternatives prior to choosing an alternative.

   i. JCSLVA shall notify Consulting Parties at least 14 days in advance of the proposed presentation.

   ii. JCSLVA shall host the charrette within the City of St. Louis.

   iii. The Consulting Parties shall have an opportunity to comment on the proposed concept alternatives at the design charrette. These comments may be provided verbally or in writing at the design charrette meeting, and/or within 7 days after the meeting.

   iv. VA shall take the comments into consideration to refine the design and proceed with assessment of adverse effects.

III. ARCHITECTURAL REVIEW PROCEDURES

a. In the Schematic Design 1 ("SD-1") stage, JCSLVA, assisted by a person or persons meeting the *Professional Qualification Standards* in architectural history as described in Stipulation I(e), shall assess adverse effects of the proposed design on historic properties in accordance with 36 CFR § 800.5. The design may be for the overall reconfiguration undertaking, a single component or multiple components. Pursuant to 800.5(a)(3), JCSLVA shall use a phased process in applying the criteria of adverse effect should designs be submitted as separate components.

b. JCSLVA shall submit a documentation package to all Consulting Parties including its finding of effect.
    i. This package shall include maps, design drawings, photographs, and/or projections sufficient to support JCSLVA's finding of effect.
    ii. Consulting Parties shall have 30 days to notify JCSLVA of their concurrence or disagreement with the finding of effect.
        1. JCSLVA shall respond to all timely comments in a letter to Consulting Parties before proceeding.

c. If JCSLVA, assisted by a person or persons meeting the *Professional Qualification Standards* in architectural history as described in Stipulation I(e), determines the Undertaking will not adversely affect historic properties in accordance with 36 CFR § 800.5(b) and the MO SHPO concurs, JCSLVA shall have no further obligations under this PA regarding the built environment.

d. If JCSLVA determines the Undertaking will adversely affect historic properties in accordance with 36 CFR § 800.5(d)(2), JCSLVA shall consult with Consulting Parties regarding adverse effects to historic properties and measures to avoid, minimize, or mitigate effects in accordance with 36 CFR § 800.6.
    i. Consultation may proceed via exchange of emails, letters, discussions over webinar/conference call, and/or in-person at the discretion of JCSLVA.
    ii. The measures to resolve adverse effects shall include specific timelines to ensure JCSLVA's construction schedule can proceed effectively.
    iii. JCSLVA shall notify all Consulting Parties of the measures developed through consultation to resolve adverse effects.
    iv. Information about the implementation of measures to resolve adverse effects shall be included in the annual summary report as described in Stipulation I(f).

IV. ARCHAEOLOGICAL REVIEW PROCEDURES

a. Prior to starting construction, JCSLVA shall create a map of areas likely or unlikely to retain intact subsurface archaeological deposits (deposits) within the proposed design footprint.
    i. This map shall be based on Sanborn Fire Insurance Company maps, previous ground disturbance, and information provided by the MO SHPO, CSLCRO and Indian tribes at their discretion.
    ii. JCSLVA shall forward the draft map and site concepts, as developed, to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation for review.
        1. The MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation shall have 30 days to provide comments on the map.
    iii. JCSLVA shall take all timely comments into consideration and finalize the map.
        1. JCSLVA shall provide copies of the final map to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation.
            a. With the exception of these parties, and VA's contractors as needed, JCSLVA shall keep the map confidential to protect potential deposits.
        2. JCSLVA shall provide responses to commenting parties concurrent with submittal of the final map.

b. JCSLVA shall ensure all ground disturbance in excess of 9 inches in areas likely to retain deposits is monitored during ground disturbing activities by or under the direct supervision of a person or persons meeting the *Professional Qualification Standards* for archeology as described in Stipulation I(e).

i. The supervising archeologist is authorized to halt construction in a specific location if deposits are encountered. Should any cultural and/or archaeological resources be discovered (such as structural features, unusual amounts of bone or shell, artifacts, or architectural remains) during construction activities, all work will stop within 15 feet of the deposit to provide for the security, protection, and integrity of the deposit. Construction may continue in other locations while the monitor assesses the deposit, so long as the areas determined likely to retain intact deposits remain monitored.

ii. The monitor shall photograph, sketch, and otherwise document the deposit in accordance with the MO SHPO's Archaeological Site Form (Site Form) (Attachment B).

iii. The monitor shall evaluate identified sites in accordance with the criteria for NRHP listing as defined by 36 CFR § 60.4.

1. If a site is determined not eligible, work may proceed once the qualified archaeologist has completed the Site Form and its required documentation.
2. If a site is determined eligible and does not contain human remains or funerary objects, the qualified archaeologist shall submit documentation of the determination to JCSLVA within 48 hours of such determination.
    a. JCSLVA shall review design plans to determine if the eligible site can be avoided.
        i. If JCSLVA determines the site can be avoided or preserved in place, JCSLVA shall forward documentation of the site to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation and inform them of JCSLVA's decision to avoid the site or preserve in place.
            1. Documentation shall include the Site Form, a map of the site within the APE, 3-5 photographs, and additional materials as required to demonstrate the significance of the site and a description of how avoidance or preservation in place will be achieved.
            2. The MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation shall have seven (7) days to comment on the significance of the site and the measures to avoid adverse effects.
        ii. If JCSLVA determines the site cannot be avoided or preserved in place and will be disturbed, JCSLVA shall:
            1. Consult with the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation, as appropriate, to determine mitigation commensurate with the adverse effect and implement that mitigation. Mitigation would be required to be determined, but not necessarily completed, prior to continuing construction; or
            2. Notify the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation, as appropriate, and authorize a qualified archaeologist to excavate the site.
                a. JCSLVA shall notify the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and the Osage Nation via email that excavation is complete. Once excavation is complete, JCSLVA can resume

construction activities in the area of the site. Construction may continue in other locations while the excavation is ongoing, so long as the areas determined likely to retain intact deposits remain monitored.

b. Following excavation, the qualified archaeologist shall clean, analyze, document, and prepare for curation all diagnostic material. Some categories of artifacts may be discarded after they have been identified and recorded. This includes modern objects and bulk items which have no diagnostic value beyond their presence (e.g., coal and coal waste; and construction materials such as mortar, brick fragments, and cut stone fragments). Representative specimens of these latter items should be retained. Artifacts of all categories should be recorded quantitatively.

c. The qualified archaeologist shall prepare a comprehensive report meeting the standards of the National Park Service and the MO SHPO detailing the physical characteristics of the site and its significance. JCSLVA shall submit a copy of the report to the MO SHPO for review and comment. JCSLVA shall curate a copy of the final report and diagnostic material with a facility meeting the requirements of 36 CFR Part 79.

d. JCSLVA shall submit a copy of the final report to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation.

c. JCSLVA shall submit a summary report detailing all identified deposits with accompanying Site Forms to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma, and Osage Nation at the end of each calendar year for a 30-day review.

i. JCSLVA shall finalize the report upon consideration of timely comments and submit final reports to the MO SHPO, CSLCRO, Miami Tribe of Oklahoma and Osage Nation.

V. IDENTIFICATION OF HUMAN REMAINS AND/OR FUNERARY ITEMS

a. If potential human remains and/or potential funerary objects are identified, JCSLVA shall stop construction work within 50 feet of the discovery and:

i. Contact local law enforcement to determine whether the human remains may be involved in a legal investigation or not, consistent with Missouri Revised Statutes Section 194.406.2.(1).

ii. Treat non-Native American remains and objects in a manner consistent with Missouri Revised Statutes Section 194.400-410.

iii. Treat discoveries related to Native Americans and Native American lifeways in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601, 25 USC 3001 et seq., 104 Stat. 3048).

VI. POST-REVIEW DISCOVERIES

a. If deposits are discovered where no on-site monitor is present, JCSLVA shall follow the procedures at Stipulation IV.b.i. through IV.c. and ensure that these procedures are carried out by or under the direct supervision of a person or persons meeting the *Professional Qualification Standards* for archeology as described in Stipulation I(e).

b. If unanticipated effects on historic properties occur during execution of the Undertaking, JCSLVA shall notify the MO SHPO and make efforts to avoid, minimize or mitigate adverse effects to such properties. JCSLVA and the MO SHPO shall be guided by the steps established in 36 CFR § 800.13(b).

VII. DISPUTE RESOLUTION

a. Should any Signatory to this PA object in writing to the manner in which any stipulation of this PA is implemented, JCSLVA shall consult with that party or parties to resolve the objection. If JCSLVA determines that such objection cannot be resolved, JCSLVA shall:

   i. Forward all documentation relevant to the dispute, including JCSLVA's proposed resolution, to the ACHP. The ACHP shall provide JCSLVA with its advice on the resolution of the objection within 30 days of receiving adequate documentation.

   ii. Adequate documentation shall include reference to this PA, the written objection of the Signatory, JCSLVA's response to the objection, and any supporting documentation.

   iii. JCSLVA shall forward the documentation relevant to the dispute to all Signatories for their review and comment. These parties shall provide JCSLVA with written comments within 30 days of receiving adequate documentation.

   iv. JCSLVA shall take into account any timely advice or comments received from the ACHP and other Signatories in determining a final decision on the dispute.

   v. If the ACHP does not respond within 30 days, JCSLVA shall prepare a written response that takes into account timely comments from other Signatories regarding the dispute.

   vi. JCSLVA shall prepare a written decision and distribute the decision and the documentation relevant to the dispute to all Signatories. JCSLVA shall then proceed in accordance with its final decision.

   vii. JCSLVA's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

VIII. AMENDMENT AND TERMINATION

a. This PA may be closed out upon successful completion of Stipulations II-VI. Upon completion, JCSLVA shall distribute a notice of completion to all Signatories and Consulting Parties.

b. This PA may be amended if any Signatory requests an amendment and it is agreed to in writing by all Signatories. The amendment shall go into effect on the date of the signature by the ACHP.

c. If any Signatory to this PA determines that its terms shall not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment.

d. If within 60 days an amendment cannot be reached, any Signatory may terminate the PA upon written notification to the other Signatories. JCSLVA shall notify the Consulting Parties of a termination.

e. Upon termination of this PA, JCSLVA shall either consult to execute another agreement document or request ACHP comments, pursuant to 36 CFR §800.6(c)(8). This PA may be terminated without further consultation by the execution of a subsequent agreement that explicitly terminates or supersedes this PA.

IX. ADMINISTRATION AND DURATION

a. This PA shall be effective immediately upon signature by the ACHP.

b. This PA shall be executed in counterparts, with a separate page for each Signatory and concurring party. JCSLVA shall provide a complete copy of the executed PA, including all signatory pages and Attachments, to all Consulting Parties and shall file a copy with the ACHP.

c. This PA shall remain in effect for a period of 15 years from the date of execution, unless it is closed out, amended or terminated in accordance with Stipulation VII prior to that date. No later than 6 months prior to expiration of the PA, JCSLVA may initiate consultation to determine if the PA should be allowed to expire or whether it should be extended for an additional term, with or without amendments. Unless the Signatories unanimously agree on an extension, this PA shall automatically expire and have no further force or effect in accordance with the stipulated timetable.

EXECUTION AND IMPLEMENTATION of this PA evidences that JCSLVA has taken into account the effects of the Undertaking on historic properties and afforded the ACHP a reasonable opportunity to comment.

PROGRAMMATIC AGREEMENT
AMONG THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM,
THE MISSOURI STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING RECONFIGURATION OF THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM

SIGNATORY:
U.S. Department of Veterans Affairs St. Louis Health Care System

Keith D. Repko
Director

1/22/2020
Date

PROGRAMMATIC AGREEMENT
AMONG THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM,
THE MISSOURI STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING RECONFIGURATION OF THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM

SIGNATORY:
Missouri State Historic Preservation Officer

Toni M. Prawl

Toni M. Prawl, Ph.D.
Director and Deputy State Historic Preservation Officer
Division of State Parks, Missouri Department of Natural Resources

01/24/20

Date

PROGRAMMATIC AGREEMENT
AMONG THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM,
THE MISSOURI STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
REGARDING RECONFIGURATION OF THE JOHN COCHRAN DIVISION OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS ST. LOUIS HEALTH CARE SYSTEM

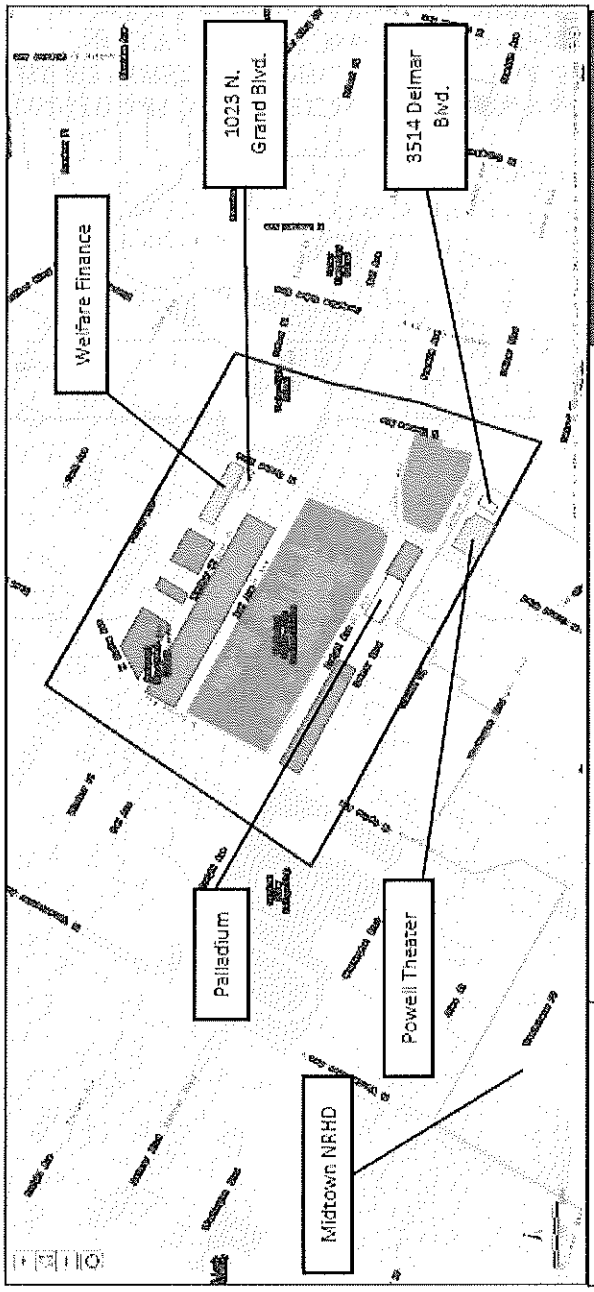
SIGNATORY:
Advisory Council on Historic Preservation

John M. Fowler
Executive Director

1/27/2020

Date

Attachment A – Map of Area of Potential Effects



SLIC VAMC	915 North Grand Boulevard		
Area of Potential Effect			
Historic Property	*Address*	*Status*	*Depiction*
Midtown Historic District	Lindell and Grand Boulevards	District Listed in the National Register	
Welfare Finance Company Building	1027-1029 N. Grand Boulevard	Listed Individually in the National Register	
Powell Theater	527 N. Grand Boulevard		
Palladium	3618 Enright Avenue	Determined Eligible for Listing in the National Register	
3514 Delmar Blvd.	3514 Delmar Boulevard		
1023 N. Grand Blvd.	1023 N. Grand Boulevard		

Attachment B – MO SHPO Archaeological Site Form

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF STATE PARKS

ARCHAEOLOGICAL SITE RECORDATION (PAGE 1 OF 7)

1. COUNTY	2. LOCAL NAME/FIELD NUMBER	3. SHPO SITE NUMBER	
4. SECTION / LAND GRANT	5. TWP	6. RANGE	7. UPDATE?
8. QUAD NAME	9. TOPO DATE	10. SITE AREA (M^2)	11. UTM ZONE
12. UTM NORTHING	13. UTM EASTING	14. DATUM	15. NRHP STATUS
16. OWNER / ADDRESS OF PROPERTY	17. TENANT / ADDRESS OF PROPERTY		
18. INFORMATION CURRENT AS OF	19. RECORDER NAME/ADDRESS	20. RECORDING ORGANIZATION	

21. SITE DESCRIPTION

22. CULTURAL AFFILIATION (INDICATE ALL COMPONENTS PRESENT.)

PREHISTORIC

DEFINE "OTHER"

HISTORIC

DEFINE "OTHER"

23. SITE TYPE (INDICATE ALL THAT APPLY)

DEFINE "OTHER"

24. WATER SOURCE DEFINE "OTHER"	NAME	DISTANCE (m)
25. TOPOGRAPHIC LOCATION	DEFINE "OTHER"	

26. MATERIAL REPORTED (INDICATE ALL THAT APPLY)

DEFINE "OTHER"

27. COLLECTION?	28. REPOSITORY

29. REMOTE SENSING (INDICATE ALL THAT APPLY)

DEFINE "OTHER"

30. SAMPLING TECHNIQUE (INDICATE ALL THAT APPLY)

DEFINE "OTHER"

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF STATE PARKS

ARCHAEOLOGICAL SITE RECORDATION (PAGE 2 OF 7)

31. SOIL TYPE	32. LAND USE DEFINE "OTHER"	33. CONTOUR ELEVATION (FT/M)

34. LITERATURE SOURCES

35. FEATURES PRESENT (INDICATE ALL THAT APPLY)

PREHISTORIC

DEFINE "OTHER"

HISTORIC

DEFINE "OTHER"

36. FLORAL / FAUNAL REMAINS	37. HUMAN REMAINS

38. ARTIFACT DESCRIPTIONS

(Attach to paper form or e-mail the following as attachments)

39. ARTIFACT ILLUSTRATIONS

40. SKETCH MAP: Include on the sketch-map the key topographic features such as streams, hills, elevations, houses, and roads. Sketch map must include a scale and north arrow.

41. USGS TOPOGRAPHIC MAP SECTION: Attach a copy of the relevant portion of the USGS 7.5 minute quadrangle where the site location is shown. Please be sure to include a North arrow and write the name of the quadrangle on the map section.

Form last revised on 06/30/05.

Return completed form to: State Historic Preservation Office, Lewis & Clark State Office Bldg, 1101 Riverside Drive PO Box 176, Jefferson City, MO 65102-0176. Office: (573) 751-7858, Fax: (573) 522-6262

MISSOURI STATE HISTORIC PRESERVATION OFFICE (SHPO) ARCHAEOLOGICAL SITE RECORDATION INSTRUCTIONS

1) COUNTY:

Enter the name of the county wherein the site lies.

2) SHPO SITE NUMBER:

Upon receipt of the form, SHPO staff will enter the site number. The Smithsonian number consists of a state numerical designation (Missouris #23), a two-letter designation for the county, and a numerical designation for the site. This number is assigned by SHPO on a site by site basis. If the site is located in more than one county, a site number will be assigned for each county.

3) LOCAL NAME/NUMBER:

Enter local name designation for the site and/or any temporary numbers assigned in the field.

4-6) TOWNSHIP, RANGE, SECTION:

On a U.S. Geological Survey quadrangle map, the township number, (e.g. Township 68 North) for example, is printed along the left and right sides of the map. The distance from a base line and a principal meridian designates townships. These are arbitrary lines that run east/west (base lines) and north/south (principal meridians). The range number, (e.g.) for example, is printed along the top and bottom of the map.

Sections are the basic unit within the Township and Range system, a section is a square tract of one mile by one mile containing about 640 acres. On a U.S.G.S. topographic map, the section numbers appear near the center of each section and all of these are printed in red. Parcels of land known as arpent sections or French arpent land grants pre-date the Public Land Survey feet, and a square arpent (also referred to as an arpent) is about 0.84 acres. These areas are given numbers just like standard sections, although the section numbers frequently exceed normal upper limit of 36.

7) UPDATE (drop-down menu)

1 - Yes

2 - No

8) QUAD NAME:

Record the name of the map used to describe the site location. This information is printed in the upper and lower right corners of U.S.G.S. topographic maps.

9) TOPO DATE:

Record the date on the map used to describe the site location. This information is printed in the lower right corner of the U.S.G.S. topographic maps.

10) SITE AREA M2:

Provide the approximate area of the site in square meters and provide method used to figure (taped, paced, etc.).

11-13) UTM ZONE, EASTING AND NORTHING:

The Universal Transverse Mercator system is a metric grid based on predetermined zones. The zone number for a U.S.G.S. topographic map is found in the lower left corner of the map. Most of Missouri lies within zone 15. The tickmarks that go around the border of the map mark 1000 meter increments east and north of that zones western and southern baselines. An example of a UTM coordinate is zone 15 4263738mN (Northing) 573024Me (Easting).

14) DATUM: (drop-down menu on digital form)

1 – NAD 83

2 – NAD 27

North American Datum of 1927 (NAD27) control points were calculated from observations taken in the 1800s. The calculations were done manually, in sections, over many years, and errors vary from station to station. The primary reference is located at Meades Ranch in Kansas. Use of this datum is gradually being replaced by the North American Datum of 1983.

North American Datum of 1983 (NAD83) is an earth-centered datum based on the Geodetic Reference System of 1980. The size and shape of the earth was determined through measurements by satellites and other sophisticated electronic equipment; the measurements Accurately represent the earth to within two meters.

The differences between NAD27 and NAD 83 range from 200-300 feet in the western US to several tens of feet in the central and eastern US.

15) NRHP STATUS: (drop-down menu on digital form)

Choose one of the following:

1 - Unevaluated

2 - Listed

3 - Eligible

4 - Not Eligible.

The National Register criteria are designed to guide state and local governments, federal agencies and others in evaluating potential entries to the National Register of Historic Places. The significance to American history of architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures and objects that possess an integrity of location, design, setting, materials,workmanship, feeling and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

MISSOURI STATE HISTORIC PRESERVATION OFFICE (SHPO) ARCHAEOLOGICAL SITE RECORDATION INSTRUCTIONS

B. That are associated with the lives of significant person in our past; or

C. That embody the distinctive characteristics of a type, period or method of construction; that represent the work of a master; that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield information important in history or prehistory

16) OWNER/ADDRESS OF PROPERTY:

Provide the name of the landowner on whose property the site is located and the address of the property.

17) TENANT/ADDRESS OF PROPERTY:

Provide the names of any tenants on the property and their address.

18) INFORMATION CURRENT AS OF:

Provide date upon which the information on the form was current.

19) RECORDER NAME AND ADDRESS:

Provide name and address of person recording site.

20) RECORDING ORGANIZATION:

Provide name of recording organization.

21) SITE DESCRIPTION:

Provide the condition of the site at the time you visited it. For example, if the site is heavily disturbed or eroded, state this and be as specific as possible (plowing, vandalism, etc.). This line should be updated in any subsequent reports if the site's condition should change.

22) CULTURAL AFFILIATION: (drop-down menu on digital form)

Choose all that apply:

01 - Prehistoric
02 - Undefined Prehistoric
03 - Pre-Clovis
04 - Paleo Indian
05 - Dalton
06 - Archaic
07 - Early Archaic
08 - Middle Archaic
09 - Late Archaic
10 - Woodland
11 - Early Woodland
12 - Middle Woodland
13 - Late Woodland
14 - Terminal Late Woodland (Emergent Miss.)
15 - Mississippian
16 - Early Mississippian
17 - Middle Mississippian
18 - Late Mississippi
19 - Proto-Historic
20 - Historic American Indian
21 - Historic African-American
22 - Historic Euro-American
23 - Historic Other
24 - Colonial (1700-1803)
25 - Territorial (1804-1820)
26 - Antebellum (1821-1861)
27 - Civil War (1861-1865)
28 - Early Industrial (1866-1899)
29 - Urban/Industrial (1900-1960)
30 - Other

Specify "other" in the provided space.

Explanation for Historical Periods

- Colonial (1700-1803) - under control of European powers.
- Territorial (1804-1820) - under U.S. control. Also period of unrest with various tribes, War of 1812, population levels low until after 1816.
- Antebellum (1821-1861) - starting with MO statehood, could move this back to 1816/1817, prior to statehood. Expansion of agriculture and major influx of people from Upper South and immigrants from Europe.
- Civil War (1861-1865) - although a short time, war did have drastic effects on communications/travel/commerce/agriculture.
- Early Industrial (1866-1899) - movement towards mechanization not only in industry, but in agriculture as well.
- Urban/Industrial (1900-1960) - economic depression of 1890s especially hit agriculture hard, forced many people off farms and into city factories. Impact of increased mechanization and development of motorized vehicles/roads on both rural and urban populations.

23) SITE TYPE: (drop-down menu on digital form)

1 - Lithic Scatter
2 - Mound/Cairn
3 - Cemetery/Mortuary
4 - Habitation (prehistoric)
5 - Habitation (historic)
6 - Extraction Camp
7 - Cave/Rockshelter
8 - Quarry
9 - Historic Scatter
10 - Rock Art
11 - Commercial/Industrial
12 - Public
13 - Military
14 - Governmental
15 - Trail/Trace
16 - Mining
17 - Timber
18 - Road
19 - Tram/RR

Specify "other" in provided space.

MISSOURI STATE HISTORIC PRESERVATION OFFICE (SHPO) ARCHAEOLOGICAL SITE RECORDATION INSTRUCTIONS

24) WATER SOURCE: (drop-down menu on digital form)

1 - Perennial Stream/River
2 - Intermittent Stream
3 - Spring
4 - Marsh/Swamp/Fen
5 - Lake
6 - Other

Specify name and distance in provided spaces.

25) TOPOGRAPHIC LOCATION: (drop-down menu on digital form)

1 - Knoll
2 - Hill
3 - Ridge
4 - Slope
5 - Bluff top
6 - Floodplain
7 - Island
8 - Sand Dune
9 - River/stream terrace
10 - Alluvial fan
11 - Colluvial fan
12 - Gap/Saddle
13 - Hillside/Bench
14 - Glade
15 - Other

Specify "other" in provided space.

Explanation for Landforms:

- KNOLL - Small, rounded hill.
- HILL - Portion of the earth's surface elevated above its surroundings (usually with an elevation of less than 300 meters).
- RIDGE - A narrow hill-top or chain of hills.
- SLOPE - Area of inclined ground.
- BLUFF TOP - The top of a high bank with a broad, precipitous, and sometimes rounded cliff face overlooking a floodplain or body of water.
- FLOODPLAIN - Any normally dry land area that is susceptible to being inundated by water from any natural source. This area is usually lowland adjacent to a stream or lake.
- ISLAND - Area of dry or relatively dry land surrounded by water or low wetland.
- SAND DUNE - Ridge or mound of sand, usually wind blown.
- RIVER/STREAM TERRACE - An accumulation of deposits along the sides of a river/stream valley which were deposited when water levels were higher.
- ALLUVIAL FAN - Loose sediment deposited by water runoff that usually forms at the base of a steep slope.
- COLLUVIAL FAN - Loose sediment deposited by slopewash/sheetwash and gravity that usually forms at the base of a steep slope.
- GAP/SADDLE - A ridge connecting two higher elevations.
- HILLSIDE/BENCH - A shelflike area of rock with steep slopes above and below.
- GLADE - An open area in the middle of a forest or wooded area.

26) MATERIAL REPORTED: (drop-down menu on digital form)

Choose all that apply:

1 - Lithics
2 - Lithic Tool
3 - Ceramics (prehistoric)
4 - Ceramics (historic)
5 - Floral
6 - Faunal
7 - Historic
8 - Glass
9 - Metal
10 - Building Materials
11 - Other

Specify "other" in provided space.

27) COLLECTION: (drop-down menu)

Were any artifacts collected?

1 - Yes
2 - No

28) REPOSITORY:

Provide name of repository.

29) REMOTE SENSING: (drop-down menu on digital form)

1 - Magnetometer
2 - Ground Penetrating Radar
3 - Resistivity
4 - Sonar
5 - Aerial/Satellite Photography
6 - Infrared Photography
7 - Other

Specify "other" in provided space.

MISSOURI STATE HISTORIC PRESERVATION OFFICE (SHPO) ARCHAEOLOGICAL SITE RECORDATION INSTRUCTIONS

30) SAMPLING TECHNIQUES: (drop-down menu on digital form)

Choose all that apply:

1 - Pedestrian Survey
2 - Shovel Test
3 - Soil Cores/Probes
4 - Auger Tests
5 - Trenching
6 - Test Units
7 - Other

Specify "other" in provided space.

31) SOIL TYPE:

Provide of known. Check soil survey by U.S.D.A. Soil Conservation Service for correct designation at this Web site: http://soils.usda.gov/survey/

32) LAND USE: (drop-down menu on digital form)

1 - Cultivated
2 - Pasture
3 - Wooded
4 - Urban
5 - Cemetery
6 - Submerged
7 - Other

Specify "other" in provided space.

33) CONTOUR ELEVATION:

Provide as indicated on a topographic map.

34) LITERATURE SOURCES:

Provide any sources of literature relevant to this site.

35) FEATURES PRESENT: (drop-down menu on digital form)

Prehistoric:

1) House Basin
2) Storage Pit
3) Privy
4) Burial Pit
5) Activity Foci
6) Cache
7) Earth Oven
8) Hearth
9) Post Mold
10) Wall Trench
11) Masonry/Daub Wall
12) Nut Processing
13) Basins
14) Medium Deep Pits (20-50 cm)
15) Deep Pits (over 50 cm)
16) Bell Shaped Pit
17) Quarry Pit/Trench
18) Other
19) Other

Historic:

1) Privy
2) House Cellar
3) House Foundation
4) Well/Cistern
5) Burial Pit
6) Activity Foci
7) Hearth
8) Wall Trench
9) Masonry/Daub Wall
10) Mining Pit
11) Foundation
12) Rock Pile
13) Depression
14) Tram/RR Bed
15) Fence/Fence Post
16) Road
17) Root Cellar
18) Improved Water Source

Specify "other" in provided space.

36) FLORAL/FAUNAL REMAINS:

Provide listing of any floral/faunal remains at site.

37) HUMAN REMAINS: (drop-down menu on digital form)

1 - Reported, but not confirmed
2 - Confirmed

38) ARTIFACT DESCRIPTIONS:

Provide detailed descriptions of all diagnostic artifacts found.
(The following items 39-41 must either be digitized and submitted with the form via e-mail or attached to a paper copy of the form.)

ARCHAEOLOGICAL SITE RECORDATION (PAGE 7 OF 7)

MISSOURI STATE HISTORIC PRESERVATION OFFICE (SHPO) ARCHAEOLOGICAL SITE RECORDATION INSTRUCTIONS

39) ARTIFACT ILLUSTRATIONS:
Provide sketches or attach photos of diagnostic artifacts found.

40) SKETCH MAP:
Provide sketch map of site location. Include on the sketch-map the key topographic features such as streams, hills, elevations, houses, and roads. Sketch map must include a scale and north arrow.

41) U.S.G.S. TOPOGRAPHIC MAP SECTION:
Draw the boundaries of your site onto a map that depicts the site vicinity in detail. The best maps for this purpose are U.S. Geological Survey quadrangle maps (U.S.G.S. 7.5 minute topographic series, 1:24,000 scale). Small sites may be represented with a dot. Larger sites should be drawn as an open circle or other shape as appropriate.

Manual last revised on 9/9/09.

Return completed form to:
State Historic Preservation Office
Lewis & Clark State Office Bldg
1101 Riverside Drive
PO Box 176
Jefferson City, MO 65102-0176
Office: (573) 751-7858
Fax: (573) 522-6262

Appendix D
Resources

Resource Science Division
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Environmental Review Coordinator
NaturalHeritageReview@mdc.mo.gov
(573) 522 – 4115 ext. 3182

Missouri Department of Conservation

Natural Heritage Review Report

September 23, 2019 -- Page 1 of 2

DEPARTMENT OF VETERANS AFFAIRS ATTN: MR. CHANDA JOSHI 1425 TRI-STATE PARKWAY, STE. 140 GURNEE, IL 60031 CHANDA.JOSHI@VA.GOV	*Project type:*	LAND DEVELOPMENT
	Location/Scope:	T45N R7E S16 LANDGRANTS:01660, 02692, 01659, 02692, 01276, 03285
	County:	ST LOUIS CITY
	Query reference:	PROPOSED EXPANSION AND IMPROVEMENTS OF ST. LOUIS VA
	Query received:	8/20/2019

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. On-site verification is the responsibility of the project. Natural Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information may be found at http://mdc.mo.gov/discover-nature/places-go/natural-areas and mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx.

Level 3 issues: Records of federal-listed (these are also state-listed) species or critical habitats near the project site:

Natural Heritage records identify no wildlife preserves, no designated wilderness areas or critical habitats, and no federal-listed species records within the project area, or in the public land survey section listed above or sections adjacent.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Contact U.S. Fish and Wildlife Service, 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132 for Endangered Species Act coordination and concurrence information.

Level 2 issues: Records of state-listed (not federal-listed) endangered species AND / OR state-ranked (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.

Natural Heritage records identify Peregrine falcons 1.9, 2, 2.2, 2.6, 2.8,3.3, and 5.7 mi from project area.

Peregrine falcons (*Falco peregrinus*, sate-listed Endangered) were introduced to downtown buildings in the St. Louis and Kansas City areas in the 1990s, and populations of this state endangered-list species have been increasing since. They nest April 15-July 15 on natural bluffs, building ledges and bridges. Work should be avoided within 1500 feet of nests when nest building or active nests (eggs or hatchlings) are present. Follow best management recommendations at https://mdc.mo.gov/sites/default/files/downloads/Peregrine%20falcon.pdf.

See https://nature.mdc.mo.gov/sites/default/files/downloads/2019_SOCC.pdf for a complete list of species and communities of conservation concern.

STATE ENDANGERED species are listed in and protected under the Wildlife Code of Missouri (3CSR10-4.111).

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific heritage records):

- Indiana bats *(Myotis sodalis*, federal and state-listed endangered) and Northern long-eared bats (*Myotis septentrionalis,* federal-listed threatened) hibernate during winter months in caves and mines. During the summer months, they roost and raise young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats, especially from September to April. **If any trees need to be removed by your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132 Ext. 100 for Ecological Services) for further coordination under the Endangered Species Act.**
- St. Louis City County has known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in Natural Heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area.
- Construction should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crownvetch and sericea lespedeza.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≧140° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect only sites visited by specialists in the last 30 years. This means that many privately owned tracts could host unknown remnants of species once but no longer common.

Geotechnical Engineering Report

VAMC - SLJC Project Book
St. Louis, Missouri
September 9, 2019
Terracon Project No. 15185268

Prepared for:
Anderson Engineering of Minnesota, LLC
Plymouth, Minnesota

Prepared by:
Terracon Consultants, Inc.
St. Louis, Missouri

September 9, 2019

Anderson Engineering of Minnesota, LLC
13605 1st Avenue North, Suite 100
Plymouth, Minnesota 55441

Attn: Mr. Benjamin J. Hodapp, PWS
P: (763) 412 4005
E: bhodapp@ae-mn.com

Re: Geotechnical Engineering Report
VAMC - SLJC Project Book
915 North Grand Boulevard
St. Louis, Missouri
Terracon Project No. 15185268

Dear Mr. Hodapp:

This report provides the results from our Geotechnical Engineering services for the above-referenced project. This study was performed in general accordance with Anderson Engineering of Minnesota, LLC Work Order No. 3, dated December 28, 2018, and signed on January 15, 2019. This report presents the findings of the subsurface exploration and provides geotechnical design parameters and recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

STATE OF MISSOURI
ALLEN G. MINKS
NUMBER E-22438
REGISTERED PROFESSIONAL ENGINEER

Allen G. Minks, P.E. 9-09-19
Senior Consultant
Missouri No. E-22438
Renews 12/31/2019

Travis J. Kassebaum, P.E.
Geotechnical Department Manager

REPORT TOPICS

INTRODUCTION 1
SITE CONDITIONS 1
PROJECT DESCRIPTION 3
GEOTECHNICAL CHARACTERIZATION 4
GEOTECHNICAL OVERVIEW 6
EARTHWORK 8
SHALLOW FOUNDATIONS 12
DEEP FOUNDATIONS 16
SEISMIC CONSIDERATIONS 19
FLOOR SLABS 20
PAVEMENTS 25
GENERAL COMMENTS 32
ATTACHMENTS 34

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION PLAN
SD-001 PREFERRED ALT A
SD-002 PREFERRED ALT B
GEOLOGIC MAP
EXPLORATION PLAN
REFRACTION MICROTREMOR DIAGRAM
EXPLORATION RESULTS
REFRACTION MICROTREMOR RESULTS
CHEMICAL LABORATORY TEST REPORT
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

REPORT SUMMARY

Topic [1]	Overview Statement [2]
Project Description	The improvements to the Veterans Administration John Cochran facility at 915 North Grand Boulevard will include nine new structures. There are currently two options for the layout of the new structures. The new structures for Alternate A include: ■ A new bed tower with a footprint of 75,304 square feet. This structure will be nine stories. ■ Three new parking structures, with footprints of 55,000 square feet (138 spaces) per floor, 30,400 square feet (76 spaces) per floor, and 30,250 square feet (75 spaces) per floor. The parking garages are anticipated to be five to six floors each. ■ A two-story, utility plant with a footprint of 25,000 square feet, and rooftop equipment. ■ A single-story, SATP clinic with a footprint of 5,040 square feet. ■ A two-story, FES/OIT building with a footprint of 6,200 square feet. ■ A new substation, the size of which is unknown at this time. ■ A new water storage structure. The new structures for Alternate B include: ■ A new bed tower with a footprint of 60,480 square feet. This structure will be 13 stories. ■ Three new parking structures, with footprints of 40,800 square feet (110 spaces) per floor, 71,600 square feet (179 spaces) per floor, and 30,250 square feet (75 spaces) per floor. The parking garages are anticipated to be four floors each. ■ A two-story, utility plant with a footprint of 28,000 square feet, and rooftop equipment. ■ A single-story, SATP clinic with a footprint of 4,680 square feet. ■ A one- to two-story, OIT building with a footprint of 1,500 square feet. ■ A new substation, the size of which is unknown at this time. ■ A new water storage structure.
Geotechnical Characterization	■ Borings generally encountered asphalt pavement over base rock underlain by existing fill to depths of 3 to 8 feet. The fill generally consisted of lean and fat clay with variable amounts of sand, gravel, and brick. ■ Beneath the fill, lean (CL), lean to fat (CL/CH), and fat clay (CH) soils were encountered to the top of rock. The overburden soils were typically medium stiff, although soft zones were noted. ■ Limestone bedrock was encountered at depths of 25 to 37 feet. ■ Mud rotary drilling was used below a depth of 20 feet in all of the borings. Groundwater was only encountered in one boring (B-6 at a depth of 16 feet) prior to introducing water for the mud rotary drilling.

Topic [1]	Overview Statement [2]
Earthwork	■ The existing fill is variable. There is a risk of excessive settlements if foundations, floor slabs, or pavements are founded in or above the existing fill. ■ Due to the lean to fat (CL/CH) and fat clay (CH) soils, at least the upper 24 and 12 inches of soil below the bottom of the on-grade slabs and pavement base rock, respectively, should consist of low plasticity (LP) material ■ Clays are sensitive to moisture variation and could become unstable under construction traffic.
Shallow Foundations	Lightly-loaded structures may be supported on shallow foundations. ■ Allowable bearing pressure = 1,500 psf ■ Expected settlements: less than 1-inch total, less than ¾-inch differential Moderately-loaded structures may be supported on shallow foundations if ground improvement is utilized. ■ Anticipated allowable bearing pressure = 5,000 psf (actual to be provided by ground improvement contractor) ■ Expected settlements: less than 1-inch total, less than ¾-inch differential Detect and remove zones of soft soils as noted in **Earthwork**.
Deep Foundations	Deep foundations may be used to support heavily-loaded structures.
Seismic Considerations	IBC site class C
Concrete Slabs	Floor slabs will likely be slab-on-grade; on at least 24 inches of low plasticity (LP) material. The existing fill will need to be removed and recompacted after any deleterious materials have been removed.
Pavements	With subgrade prepared as noted in **Earthwork** Concrete: ■ 5 inches PCC over 4 inches in light-duty areas ■ 6 inches PCC over 4 inches in medium-duty areas Asphalt: ■ 3 inches ACC over 8 inches granular base in light-duty areas ■ 5 inches ACC over 8 inches granular base in medium-duty areas
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report.

Geotechnical Engineering Report

VAMC - SLJC Project Book
915 North Grand Boulevard
St. Louis, Missouri

Terracon Project No. 15185268
September 9, 2019

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed improvements to the Veterans Administration John Cochran facility at 915 North Grand Boulevard in St. Louis, Missouri. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per IBC
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of six (6) test borings to depths ranging from approximately 35 to 47 feet below existing site grades. At least 10 feet of rock coring was performed in each boring. The site has been heavily developed, so boring locations were selected to provide general aerial coverage of the site at locations accessible to our drill rig.

Maps showing the site, the two development options, and our boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

The **General Comments** section provides an understanding of the report limitations.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 915 North Grand Boulevard in St. Louis, Missouri. Latitude: 38.6426ºN, Longitude: 90.2318ºW

Item	Description
Existing Improvements	Numerous single- and multi-story buildings and parking lots.
Current Ground Cover	Asphalt pavement where buildings are not present
Existing Topography	Based on Google Earth, the site slopes down from the east towards the west with approximately 35 feet of relief across the site (elevation 545 to elevation 510).
Geology	Based on the Geologic Map provided by the United States Geologic Survey (USGS), the subject site is located over the Meramecian Series. The Meramecian Series consists of the St. Louis Limestone, Salem Formation, and Warsaw Formation. These units are characterized by massive, argillaceous, and fossiliferous limestone. A sinkhole area is mapped approximately 1,500 feet to the west of the site, but no sinkholes are mapped on the site itself. A seismic fault is mapped approximately 3,500 feet east of the site.

PROJECT DESCRIPTION

Item	Description
Project Description	The improvements to the Veterans Administration John Cochran facility at 915 North Grand Boulevard will include nine new structures. There are currently two options for the layout of the new structures. The new structures for Alternate A include: ■ A new bed tower with a footprint of 75,304 square feet. This structure will be nine stories. ■ Three new parking structures, with footprints of 55,000 square feet (138 spaces) per floor, 30,400 square feet (76 spaces) per floor, and 30,250 square feet (75 spaces) per floor. The parking garages are anticipated to be five to six floors each. ■ A two-story, utility plant with a footprint of 25,000 square feet, and rooftop equipment. ■ A single-story, SATP clinic with a footprint of 5,040 square feet. ■ A two-story, FES/OIT building with a footprint of 6,200 square feet. ■ A new substation, the size of which is unknown at this time. ■ A new water storage structure. The new structures for Alternate B include: ■ A new bed tower with a footprint of 60,480 square feet. This structure will be 13 stories. ■ Three new parking structures, with footprints of 40,800 square feet (110 spaces) per floor, 71,600 square feet (179 spaces) per floor, and 30,250 square feet (75 spaces) per floor. The parking garages are anticipated to be four floors each. ■ A two-story, utility plant with a footprint of 28,000 square feet, and rooftop equipment. ■ A single-story, SATP clinic with a footprint of 4,680 square feet. ■ A one- to two-story, OIT building with a footprint of 1,500 square feet. ■ A new substation, the size of which is unknown at this time. ■ A new water storage structure.
Finished Floor Elevation	Multiple structures are planned, but the various finished floor elevations are unknown at this time.
Maximum Loads (estimated by Terracon)	Single-story building: ■ Columns: 75 kips ■ Walls: 3 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf) 9- to 13-story building: ■ Columns: 2,500 kips ■ Walls: 10 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf)

Item	Description
Grading/Slopes	Minimal grading is anticipated. Any slopes are anticipated to be no steeper than 3H:1V (Horizontal: Vertical) or taller than 3 feet.
Below-Grade Structures	The water storage may be provided by an underground structure.
Pavements	We assume both rigid (concrete) and flexible (asphalt) pavement sections should be considered. Anticipated traffic is as follows: ■ Autos/light trucks: 2,000 vehicles per day ■ Light delivery and trash collection vehicles: 45 vehicles per day ■ Tractor-trailer trucks: one vehicle per day The pavement design period is 20 years.

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs and the GeoModel can be found in the **Exploration Results** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**PAVEMENT**	Asphalt pavement (4 to 6 inches) over crushed limestone base rock (6 to 10 inches).
2	**EXISTING FILL**	Lean clay and fat clay, with variable amounts of sand, gravel, and brick.
3	**LEAN CLAY**	Lean clay (CL), with variable amounts of sand and silt, very soft to stiff.
4	**LEAN TO FAT CLAY**	Lean to fat clay (CL/CH), with variable amounts of sand and silt, soft to stiff.
5	**FAT CLAY**	Fat clay (CH), with variable amounts of sand and gravel, soft to hard.
6	**LIMESTONE BEDROCK**	Unweathered to slightly weathered, medium strong to very strong rock, RQD fair to excellent. Highly weathered with very poor RQD above competent rock in B-3 and B-4.

Atterberg limits tests were performed on selected samples and had the following measured liquid limits, plastic limits, and plasticity indices:

Sample Location	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index
Boring B-1	3 - 5	41	19	22
Boring B-2	6 - 7½	45	20	25
Boring B-3	3½ - 5	40	18	22
Boring B-4	8½ - 10	47	22	25
Boring B-5	23½ - 25	52	18	34
Boring B-6	8½ - 10	49	21	28

Geology

Based on the 2003 Geologic Map of Missouri, Missouri Department of Natural Resources, bedrock at this site consists primarily of the Mississippian aged Meramecian Series (Mm). The Meramecian Series consists of the St. Louis Limestone, Salem Formation, and Warsaw Formation. These units are characterized by massive, argillaceous, and fossiliferous limestone. A Geologic Map is provided in the **Attachments**.

A sinkhole area is mapped approximately 1,500 feet to the west of the site, but no sinkholes are mapped on the site itself. A seismic fault is mapped approximately 3,500 feet east of the site.

Groundwater Conditions

The boreholes were observed while drilling for the presence and level of groundwater, prior to introducing water into the holes at a depth of 20 feet when wash boring methods were implemented. Groundwater was only observed in Boring B-6 at a depth of about 16 feet below the ground surface. Groundwater was not observed in the remaining borings prior to utilizing mud rotary drilling.

The overburden soils are generally clayey and of low permeability. Therefore, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole. Long-term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. In addition, perched water can develop over low permeability soil and rock strata, **particularly in the existing fill**. Therefore, groundwater levels during construction or at other times in the life of the structures may be different from the levels indicated on the boring logs. The possibility of groundwater level

fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

Existing Fill

In the City of St. Louis, it is common for multiple generations of structures to have existed and been demolished. If the previous structures contained basements, then rubble fill can be encountered to depths of 10 to 12 feet where the previous demolition consisted of collapsing the previous structure into the basement and capping it with 2 or more feet of soil. In areas where the previous structures did not have basements, the fill depths are typically on the order of 2 to 4 feet, with a thin layer of soil cover.

Existing fill was encountered to depths of about 3 to 8 feet below existing grades in all of the borings. The fill could extend deeper in areas not explored. No documentation or records regarding the placement of this fill were provided for our review. If records are available, Terracon should be supplied with these documents to better assess the suitability of the existing fill. Further exploration and testing (e.g., borings, test pits, geophysical testing) of the existing fills could be performed, if requested.

Foundations for the new buildings should not bear on or above the undocumented fill materials. The existing fill could be removed and replaced so that the foundations for the new buildings bear on suitable native soils or on properly placed and compacted engineered fill extending to suitable native soils. If the fill is completely removed and replaced, it should be removed within the proposed building footprint and extend at least 5 feet outside the building perimeter.

If the owner is willing to accept the risks associated with supporting floor slabs and pavements over the existing fill materials in exchange for reduced construction costs, portions of the existing undocumented fill could be left in place for support of floor slabs and pavements. If this alternative is chosen, at least 24 and 12 inches of new engineered fill should be placed directly below the floor slab and the pavement base rock, respectively, and the building foundations should be extended through the fill to bear on suitable native soils. If the owner is not willing to accept the risks of supporting floor slabs and pavements over existing undocumented fill materials, the existing fill should be completely removed and replaced.

To reduce the risk of adverse performance from higher settlement and provide more consistent support for floor slabs, the exposed existing fill materials should be observed and tested during construction. Where unsuitable conditions are observed, the materials should be improved by scarification and compaction or be removed and replaced with engineered fill. Unsuitable fill materials observed during construction may warrant further exploration at that time.

Support of floor slabs and pavements on or above existing fill materials is discussed in this report within the Floor Slabs and Pavements sections. However, even with the recommended construction procedures, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill, but can be reduced by following the recommendations contained in this report. To take advantage of the cost benefit of not removing the entire amount of undocumented fill, the owner must be willing to accept the risk associated with building over the undocumented fills following the recommended reworking of the material.

We understand a section of distressed pavement was recently replaced, and that when the existing pavement was removed, rubble fill was observed. While Terracon was not involved with the repair of the pavement, we understand that the existing fill was removed prior to repaving, and that the nature of the existing fill was thought to have been the major contributing factor to the distress to the pavement. In consideration of this experience, it may be more cost effective over the design period of the pavements and floor slabs to completely remove and replace/recompact the existing fill rather than leaving any of it in place.

Expansive Soils

Some of the lean to fat clay (CL/CH) and fat clay (CH) soils encountered in the borings are moderate to high in plasticity (LL≥45, PI≥25) and prone to volume change with variations in moisture content. For this reason, we recommend that at least the upper 24 and 12 inches below the bottom of the floor slab level in the building footprints and the pavement base rock, respectively, consist of low plasticity (LP) material as defined in the **Earthwork** section.

This LP layer should also be confirmed or placed below other flatwork abutting the structure. The procedures recommended in this report may not eliminate all future subgrade volume change and resultant floor slab movements. However, the procedures outlined should reduce the potential for subgrade volume change. Additional reductions in floor slab movements could be achieved by using a thicker LP zone.

Imported LP fill may be required to satisfy this recommendation. Alternatively, it may be cost effective to create the recommended LP zones by chemically modifying the on-site soils with lime (Code L) to reduce their volume change susceptibility.

This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and at least minor cracking in the structure could still occur. The severity of cracking and other cosmetic damage such as uneven floor slabs on grade will likely increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if more

extensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Pavements may be somewhat more tolerant of shrink and swell characteristics of high plasticity soil subgrade conditions. Even so, we recommend that at least the upper 12 inches of pavement subgrade be constructed of engineered LP material, or the soils be chemically modified to reduce their volume change susceptibility.

Demolition

Demolition of any existing structures to be removed should include removal of all above- and below-grade elements including floor slabs, foundation walls, footings, and pavements. Attention should be given to removing all loose or poorly compacted existing fill materials that are often located adjacent to existing and former foundation walls. All existing utilities should also be properly abandoned and/or relocated. This should include removal of all poorly compacted trench backfill extending into the proposed building area. In addition, care should be taken by contractors to protect all existing improvements to remain, such as pavements and utilities. Excavations created by demolition and removal of existing features should be backfilled with engineered fill that is placed and compacted as recommended in this report.

Soft Subgrade

The near surface soils could become unstable with typical earthwork and construction traffic, particularly after precipitation events. Effective drainage should be implemented early in the construction sequence and maintained after construction to reduce potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the wetter months, an increased risk for possible undercutting and replacement of unstable subgrade will exist. Additional site preparation recommendations including subgrade improvement and fill placement are provided in the **Site Preparation** section.

EARTHWORK

Earthwork is anticipated to include clearing and grubbing, excavations, and fill placement.

Site Preparation

Prior to placing fill, any existing vegetation and root mat should be removed. Complete stripping of the topsoil should be performed in the proposed building and parking/driveway areas. At this time, the existing fill should be removed and replaced or recompacted after any deleterious materials have been removed. If any of the existing fill is to be left in place, it should be evaluated at this time.

We recommend that the exposed subgrade be thoroughly evaluated by the Geotechnical Engineer prior to placement of new fill. The soils on the site are sensitive to disturbance from construction equipment traffic, particularly during wet periods. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted. The exposed subgrade should be proofrolled where possible to aid in locating loose or soft areas. Proofrolling can be performed with a loaded, tandem-axle dump truck. If unsuitable areas are observed during construction, subgrade improvement will then be necessary to establish a suitable subgrade support condition. Potential subgrade stabilization techniques are discussed below.

- **Scarification and Recompaction** – It may be feasible to scarify, dry, and recompact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.

- **Crushed Stone** – The use of crushed stone or gravel is the most common procedure to improve subgrade stability. Typical undercut depths would be expected to range from about 6 to 30 inches below finished subgrade elevation with this procedure. The use of high modulus geotextiles could also be considered to reduce the aggregate thickness. It is difficult to predict rock thicknesses that will be needed until the conditions are observed during construction. A test section could be used to observe the effectiveness of the chosen section.

  Prior to placing the fabric or geogrid, we recommend that all below-grade construction, such as utility line installation, be completed to avoid damaging the fabric or geogrid. Equipment should not be operated above the fabric or geogrid until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should meet the manufacturer's guidelines and generally should not exceed 1½ inches.

- **Chemical Stabilization** – Improvement of subgrades with Portland cement, lime kiln dust, Code L, or Class C fly ash could be considered for improving unstable soils. Chemical modification should be performed by a prequalified contractor having experience with successfully stabilizing subgrades in the project area on similar sized projects with similar soil conditions. Results of chemical analysis of the additive materials should be provided to the geotechnical engineer prior to use. The hazards of chemicals blowing across the site or onto adjacent property should also be considered. Additional testing would be needed to develop specific recommendations to improve subgrade stability by blending chemicals with the site soils. Additional testing could include, but not be limited to, evaluating various stabilizing agents, the optimum amounts required, the presence of

sulfates in the soil, and freeze-thaw durability of the subgrade. For estimating purposes, the incorporation rates for chemical treatment (on a dry soil unit rate basis) are typically:

- 2 to 4 percent for hydrated lime, by weight;
- 5 to 7 percent for Code L, by weight; or
- 5 to 7 percent for Portland cement, by weight.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types

Compacted structural fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
High Plasticity Material	CH (LL≥70 or PI≥40)	Below upper 3 feet of slabs and other lightly-loaded structures; 2 feet of shallow foundations; and 1 foot below pavement
Moderate to High Plasticity Material [2]	CH or CL, with 70>LL≥45 or 40>PI≥25	Below upper 2 feet of slabs and any other lightly-loaded structures; and 1 foot below base rock
Granular Material [3]	GM, GC, SM, or SC	All locations and elevations
Low Plasticity Material [4]	CL (LL<45 & PI<25) or Granular Material [3]	

1. Compacted structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to Terracon for evaluation. On-site soils generally appear suitable for use as fill outside of the LP zone.
2. Delineation of moderate to high plasticity clays should be performed in the field by a qualified geotechnical engineer or their representative and could require additional laboratory testing.
3. Crushed limestone aggregate, limestone screenings or granular material such as sand, gravel or crushed stone containing at least 15 percent low plasticity fines.
4. Low plasticity cohesive soil or granular soil having low plasticity fines. Material should be approved by the geotechnical engineer.

Fill Compaction Requirements

Item	Description
Fill Lift Thickness	9 inches or less in loose thickness for heavy compaction equipment 4 to 6 inches or less in loose thickness for light, hand-operated compaction equipment

Item	Description
Compaction Requirements [1]	At least 95 percent of the material's maximum standard Proctor dry density
Moisture Content – Cohesive Soil	-1 to +3 percent of the optimum moisture content value as determined by the standard Proctor test
Moisture Content – Granular Material	Workable moisture levels [2]

1. We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath buildings should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the structure. We recommend constructing an effective clay "trench plug" that extends at least 5 feet out from the face of the structure exterior. The plug material should consist of lean clay compacted at a water content at or above the soil's optimum water content. The lean clay fill should be placed to completely surround the utility line and be compacted in accordance with recommendations in this report.

Grading and Drainage

All grades must provide effective drainage away from the buildings during and after construction and should be maintained throughout the life of the structures. Water retained next to the buildings can result in soil movements greater than those discussed in this report. The roofs should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the buildings.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the buildings for at least 10 feet beyond the perimeter of the buildings. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping, final grades should be checked to document that effective drainage has been achieved. Grades around the structures should also be periodically inspected and adjusted as

necessary as part of the structures' maintenance program. Where paving or flatwork abuts the structures a maintenance program should be established to effectively seal and maintain joints to resist surface water infiltration.

Earthwork Construction Considerations

Shallow excavations for the proposed construction are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade becomes excessively wet or dry, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and perform tests and observations during subgrade preparation, proofrolling, placement and compaction of controlled compacted fills, backfilling of excavations into the completed subgrade, and just prior to construction of slabs.

SHALLOW FOUNDATIONS

We anticipate that lightly-loaded structures can be supported on shallow foundations. If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum net allowable bearing pressure [1, 2]	1,500 psf
Required bearing stratum [3]	Medium stiff native soils or new compacted fill extending to medium stiff native soils.
Minimum foundation dimensions	Isolated: 30 inches Continuous: 18 inches
Ultimate passive resistance [4] (equivalent fluid pressures)	250 pcf
Ultimate coefficient of sliding friction [5]	0.30
Minimum embedment below finished grade [6]	30 inches
Estimated total settlement from structural loads [2]	Less than about 1 inch
Estimated differential settlement [2, 7]	About ¾ of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. A factor of safety of 3 has been applied. These bearing pressures can be increased by 1/3 for transient loads unless those loads have been factored to account for transient conditions. Values assume that exterior grades are no steeper than 20 percent within 10 feet of the structure.
2. Values provided are for maximum loads noted in **Project Description** for single-story structures.
3. Unsuitable or soft soils, including the existing fill, should be overexcavated and replaced according to the recommendations presented in **Earthwork**.
4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. Should be neglected if passive pressure is used to resist lateral loads.
6. Embedment necessary to resist the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 10 horizontal feet of the structure.
7. Differential settlements are as measured over a span of up to 50 feet.

Construction Adjacent to Existing Buildings

Care should be taken to not disturb the bearing soils beneath the existing building foundations and floor slabs. It is recommended, where possible, that excavations below these elements not extend below an imaginary plane extending out and down from the outside edge of existing footings, grade beams, and/or floor slabs at a slope of approximately 2H:1V. Even with these criteria, excavations that extend below the level of existing structures should be backfilled the

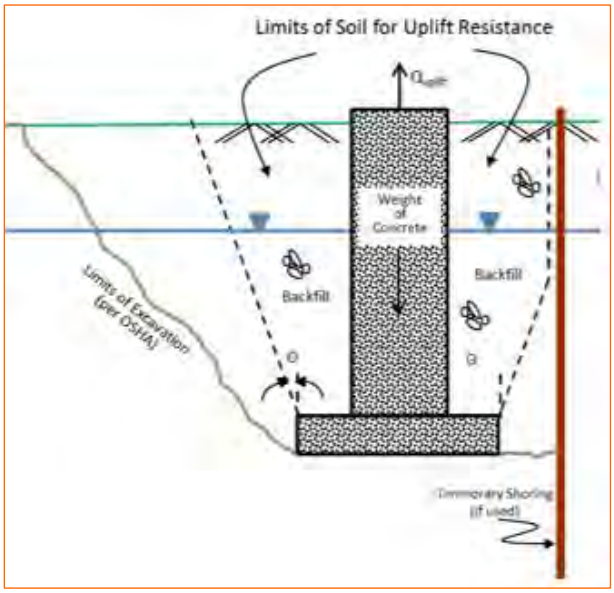
same day they are excavated. Where this is impractical, shoring or underpinning of existing foundations may be required to resist undermining or movement of the existing structures.

Existing fill in excavations near the existing buildings should also be anticipated. It should be noted that the backfill for the existing foundations may not have been placed in accordance with the recommendations provided in this report, and should not be used for foundation support.

Some overlap in stress distribution from new and existing footings may occur, which may cause some movement of the existing footings and the supported structures. Maintaining a clear distance at least equal to the width of the new spread footings between the edges of the new and existing footings could reduce this risk. Connections between the new and existing structures should be designed to allow for the anticipated differential movement. Differential settlement between new and existing structures may approach the estimated total settlement, unless the foundations are structurally tied together.

Design Parameters - Uplift Loads

Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ, of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum total unit weight of 120 pcf should be used for the backfill. This unit weight should be reduced to 60 pcf for portions of the backfill or natural soils below the groundwater elevation.

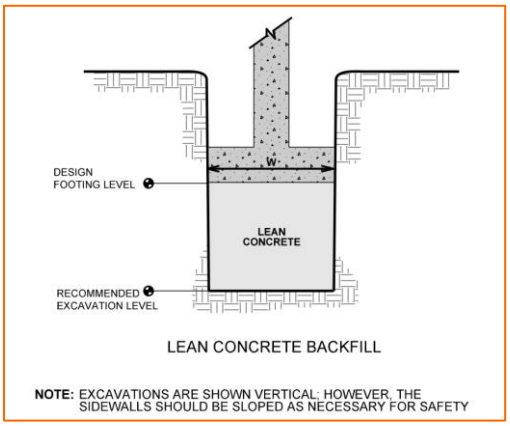


Foundation Construction Considerations

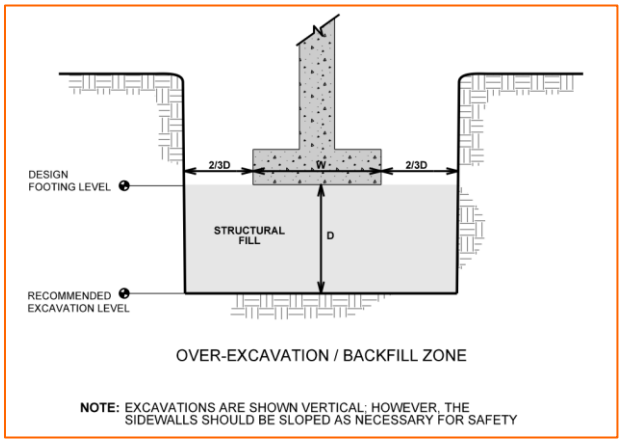
As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed. Placement of a lean concrete mud-mat over the bearing soils should be considered if the excavations must remain open for an extended period of time.

Although groundwater was not encountered in the borings at depths expected to affect foundation excavations, it could still be encountered during foundation excavation or in other excavation activities. In addition, some surface and/or perched groundwater may enter foundation excavations during construction. It is anticipated that any water entering foundation excavations from these sources can be removed using sump pumps or gravity drainage. Additional dewatering efforts may be required if greater inflow occurs.

If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils. The footings could then bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below.



As an alternative, the footings could also bear on properly compacted structural backfill extending down to suitable soils. Overexcavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. Overexcavation for structural fill placement below footings should be conducted as shown below. The overexcavation should be backfilled up to the footing base elevation as recommended in the **Earthwork** section.



GROUND IMPROVEMENT

Consideration could be given to using ground improvement (aggregate pier foundation elements or vibro-stone aggregate columns) to improve the existing undocumented fill encountered in the borings to support the floor slabs and shallow foundations without removing all of the existing fill. Even if the existing fill is completely removed, ground improvement could be used to provide a significantly higher shallow foundation bearing pressure while still keeping total settlements to less than 1 inch and differential settlements to less than ¾ inch. Ground improvement could be used to support moderately-loaded structures, and perhaps even the 9- to 13-story hospital and the parking garages, although this would need to be confirmed with the ground improvement contractor.

Aggregate pier foundation elements are usually proprietary systems that are part of a design-build system. Therefore, the subsurface exploration information contained in this report should be provided to the foundation contractors for detailed analysis and design and cost information. The allowable net bearing capacity following installation of aggregate piers will be provided by the designer. The piers can often be designed for a specified bearing capacity or to allow the use of a higher than typical (for soil) foundation bearing capacity.

Aggregate pier elements typically consist of 30-inch diameter drilled holes that are filled in lifts of well-graded aggregate that is densified to form very stiff, high-density aggregate piers. Vibro-stone columns typically consist of a 22- to 24-inch diameter vibroflotted hole that is charged with clean aggregate. The vibroflot compacts this aggregate resulting in very stiff, high density aggregate piers.

The compacted aggregate piers produce high lateral stresses within the surrounding soil matrix, thereby stiffening the reinforced composite soil/aggregate mass. This results in significant strengthening and stiffening of the foundation bearing layer to support footings within the required settlement tolerances.

DEEP FOUNDATIONS

Drilled Shaft Design Parameters

Soil design parameters are provided below in the **Drilled Shaft Design Summary** table for the design of drilled shaft foundations.

Drilled Shaft Design Summary [1]								
Approximate Depth (feet)	**Allowable Skin Friction (psf)** [2]	**Allowable End Bearing Pressure (psf)** [3]	**Effective Unit Weight (pcf)** [4]	**Allowable Passive Pressure (psf)**	**Cohesion (psf)**	**Internal Angle of Friction (Degrees)**	**Strain ε_{50}** [5]	**Lateral Subgrade Modulus (pci)** [5]
0 to 3	--	--	--	--	--	--	--	--
3 to 6	--	--	120	500	500	--	0.017	70
6 to 20	150	--	125	750	750	--	0.015	100
20 to top of rock	150	--	60	750	750	--	0.015	100
Competent Limestone	6,000	80,000	150	10,000	10,000	--	0.0001	3,000

1. Design capacities can be increased by 33 percent for highly transient loads unless those loads have been factored to account for transient conditions.
2. Pier observation is recommended to adjust pier length if variable soil conditions are encountered. Applicable for compressive loading only. Reduce to 2/3 of values shown for uplift loading. Effective weight of shaft can be added to uplift load capacity
3. Minimum pier length of 4 diameters required. Terracon should be contacted if the pier length is less than four times the pier diameter as modifications to our design parameters may be warranted. The drilled pier must extend 3 feet, or one pier diameter, whichever is greater, into the bearing strata to achieve the full listed capacity. See additional requirements below.
4. Effective unit weight values should be used below groundwater.
5. Lateral subgrade modulus and ε_{50} values provided above are to be used with LPILE^{plus} software.

The above-indicated cohesion and lateral subgrade modulus values are ultimate values without factors of safety. The end bearing is an allowable parameter with a factor of safety of 3. The skin friction and passive resistance are allowable parameters with factors of safety of 2. The values given in the above table are based on our borings and experience with similar soil types. Lateral resistance and friction in the upper 3 feet should be ignored due to the potential effects of frost action, desiccation, and drilling disturbance.

Long-term settlement of a drilled shaft foundation designed and constructed in accordance with the recommendations presented in this report, should be about ½ inch or less.

Drilled Shaft Construction Considerations

We recommend that 2-inch diameter test holes be installed in the bottom of each shaft or that the locations of each drilled pier be drilled and the rock cored to confirm the presence of competent bedrock to a depth of at least two pier diameters below the base of the drilled pier shaft. For test holes, we recommend the following clay/void seam criteria for an allowable end bearing of 80 ksf. Within the upper ½ pier diameter of depth a maximum cumulative seam thickness of ½ inch, within the upper 1 pier diameter of depth a maximum cumulative seam thickness of 1 inch, and within the upper 2 times the pier diameter of depth a maximum cumulative seam thickness of 2 inches. If seams exceeding these criteria are encountered, then the drilled pier should be extended deeper until the seam criteria is achieved or until the design load of the pier can be accounted for through skin friction in the rock socket, whichever comes first.

Groundwater may be encountered during drilled pier excavation. Therefore, temporary casing may be needed to advance drilled pier excavations. Temporary casing should be installed if personnel will enter the shafts.

The bottom of the pier excavations should be cleaned of any water and loose material before placing reinforcing steel and concrete. A minimum shaft diameter of at least 30 inches is required for entry of personnel, and to facilitate clean-out and possible dewatering of the pier excavation.

Concrete should be placed soon after excavating to reduce bearing surface disturbance. It is recommended that the geotechnical engineer be retained to observe and test the foundation bearing materials. Any water accumulating in the pier excavation should be pumped from the excavation or the water level should be allowed to stabilize and then concrete should be placed using the tremie method.

If concrete will be placed as the temporary casing is being removed, we recommend the concrete mixture be designed with a slump of about 5 to 7 inches to reduce the potential for arching when removing the casing. While removing the casing from a pier excavation during concrete placement, the concrete inside the casing should be maintained at a sufficient level to resist any earth and hydrostatic pressures outside the casing during the entire casing removal procedure.

We recommend that a representative of Terracon be present during drilling activities to evaluate the materials removed from the drilled pier excavations to document that adequate capacity has been developed, to observe the base of the drilled pier to document that the cuttings have been adequately removed, and to observe concrete placement.

Although obvious signs of harmful gases such as methane, carbon monoxide, etc., were not noted in the borings during the drilling operations, gas could be encountered in the drilled shaft excavations during construction. The contractor should check for gases and/or oxygen deficiency

prior to any workers entering the excavation. Casing will be required if personnel enter the excavation.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

On August 10, 2019 Terracon used a seismic refraction system (SRS) consisting of Geode Ultralight seismogram and 24 geophones to perform a site-specific seismic class survey. A linear array of 24 geophones was placed in an accessible area as illustrated on the **Refraction Microtremor Diagram**. A computer was used to record refraction microtremors produced by ambient seismic noise. The data was then processed using a wavefield-transformation data-processing technique and an interactive Rayleigh-wave dispersion-modeling tool. The refraction microtremor exploits aspects of spectral analysis of surface waves (SASW) and multi-channel analysis of surface waves (MASW) to derive a shear wave (s-wave) profile and an average shear wave velocity along the array for a corresponding depth. Using subsets of the original 24 geophones, several 1D profiles can be derived and combined to yield a pseudo 2D shear-wave velocity cross section of an area.

The IBC requires structural design to be in accordance with the appropriate site class definition for soil profile type. Based upon the Site Class Definitions in IBC, which refers to ASCE 7, Chapter 20, Table 20-3.1 of 7-16, and the average shear wave velocities of 1,340 (north-south) and 1,220 (east-west) ft/s derived from our seismic survey data, as indicated on the **Shear Wave Velocity Profiles**, a **Class C Seismic Site Classification** is calculated based upon shear wave velocity for design.

The average shear wave velocity analysis and recommendations presented in this report are based upon the data obtained from the seismic refraction system performed at the indicated location and on the indicated date. This analysis does not reflect variations that may occur across the site, or variations that may occur throughout the year, such as groundwater fluctuations. The refraction microtremor method is an approximate method, and one of many methods that can be used to obtain shear wave velocities.

Additional seismic studies, including a site-specific ground motion study, will be performed by Terracon and provided under separate cover.

Liquefaction Evaluation

A liquefaction analysis was performed following the procedure outlined in *Youd, T.L., and I.M. Idriss (2001). Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance Soils. Journal of Geotechnical and Geoenvironmental Engineering, v. 127, n. 4* in order to check whether the soils are liquefiable and if so, to then provide an estimate of earthquake-induced settlement. The procedure is based on semi-empirical relationships developed between the in situ cyclic resistance ratio (CRR) of soil and the results of in situ tests, based on compilations of case histories in which evidence of liquefaction has or has not been observed. Liquefaction potential is conveyed as a factor of safety (FOS); computed as the CRR divided by the cyclic stress ratio (CSR). A FOS less than 1.0 indicates liquefaction is probable at that depth.

The value of the CSR is a function of earthquake magnitude (M) and horizontal acceleration (a_h). We utilized ASCE 7-16 for the earthquake parameters. For ground motions with a 10 percent probability of exceedance in 50 years, the value of peak ground acceleration is 0.304 g and the modal value of M is 7.7. Soil liquefaction requires several cycles of earthquake movement to increase pore pressures and initiate soil liquefaction. The sustained acceleration of an earthquake will typically be lower than the peak acceleration. Thus, for the design acceleration, it is typical to use ⅔ of the maximum (2/3 x 0.304 g = 0.203 g).

Granular soils were not encountered in the borings. Groundwater was only encountered in one of the borings prior to introducing water into the borehole for drilling operations. Our analyses indicate that the lean and fat clay soils will not liquefy due to ground shaking motions. No seismically induced settlement was calculated as a part of our liquefaction analysis.

Seismic Hazards

Since the site soils are generally cohesive and liquefaction is not predicted to occur, other site hazards, such as lateral spreading, are not anticipated to occur from the design seismic event.

FLOOR SLABS

The subgrade soils include moderate to high plasticity clays, which exhibit the potential to swell with increased water content. Construction of the floor slabs, combined with revising site drainage creates the potential for gradual increased water contents within the clays. Increases in water content could cause the clays to swell and damage the floor slabs. To reduce the swell potential, we recommend that at least the upper 24 inches of subgrade materials (including the floor slab support course) below the floor slabs be an approved Low Plasticity (LP) material.

Design parameters for floor slabs assume that the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structures. This also includes positive drainage of the aggregate base beneath the floor slab.

Floor Slab Design Parameters

Item	Description
Floor Slab Support [1]	Minimum 4 inches of free-draining (less than 5 percent passing the U.S. No. 200 sieve) crushed aggregate compacted to at least 95 percent of ASTM D 698 [2, 3] over at least 20 inches of low plasticity cohesive or granular soils with at least 15 percent passing the U.S. No. 200 sieve
Estimated Modulus of Subgrade Reaction [2]	150 pounds per square inch per inch (psi/in) for point loads

1. Floor slabs should be structurally independent of building footings and walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
3. Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through the use of sufficient control joints, appropriate reinforcing, or other means.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted, but could be larger than normal and result in some cracking. Mitigation measures as noted in **Existing Fill** within **Earthwork** are critical to the performance of floor slabs. In addition to those mitigation

measures, the floor slab can be stiffened by adding steel reinforcement, grade beams and/or post-tensioned elements.

Floor Slab Construction Considerations

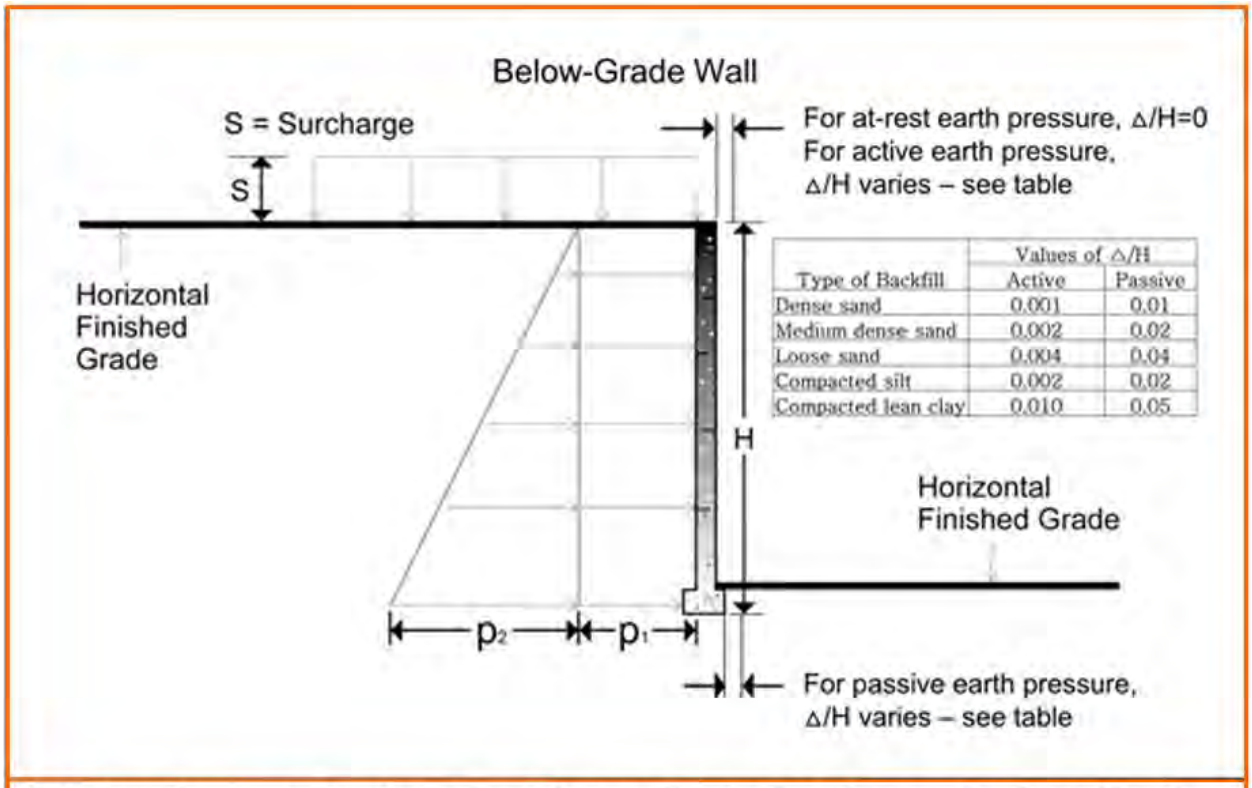
Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged, excessively wet or dry, prior to construction of floor slabs, the affected material should be removed and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Lateral Earth Pressure Design Parameters

Rigid below-grade structures with unbalanced backfill levels on opposite sides, such as reinforced concrete walls, should be designed for earth pressures at least equal to those indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction, and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and should be used for loading dock and foundation walls. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated). *These earth pressures do not apply to mechanically stabilized earth (MSE) or segmental retaining walls.*



Type of Backfill	Values of Δ/H Active	Passive
Dense sand	0.001	0.01
Medium dense sand	0.002	0.02
Loose sand	0.004	0.04
Compacted silt	0.002	0.02
Compacted lean clay	0.010	0.05

Table from Movements Required to Reach Active or Passive Earth Pressure Conditions (Clough and Duncan, 1991)

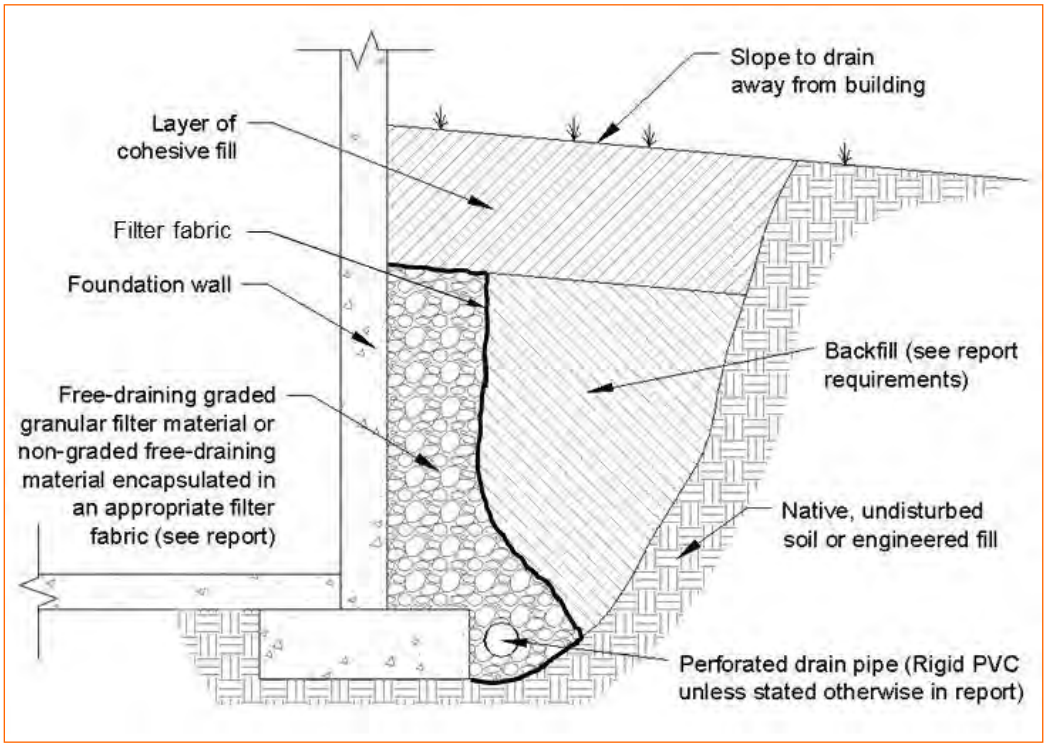
	Lateral Earth Pressure Design Parameters				
Earth Pressure Condition [1]	**Coefficient for Backfill Type**	**Minimum Φ Angle (degrees)**	**Equivalent Fluid Density (pcf)**	**Surcharge Pressure, p_1 (psf)**	**Earth Pressure, p_2 (psf)**
Active (K_a)	Granular - 0.33	30	40	(0.33)S	(40)H
	Lean Clay - 0.39	25	50	(0.39)S	(50)H
At-Rest (K_o)	Granular - 0.50	30	60	(0.50)S	(60)H
	Lean Clay - 0.56	25	70	(0.56)S	(70)H
Passive (K_p)	Granular - 3.0	30	360	---	---
	Lean Clay - 2.5	25	300	---	---

Applicable conditions to the above include:

- For active earth pressure, wall must rotate about base, with top lateral movements as indicated in the above tables
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance as indicated in the above tables
- Uniform surcharge, where S is surcharge pressure
- Horizontal backfill, compacted at 95 to 98 percent of its Standard Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- No dynamic loading
- No safety factor included in soil parameters
- Ignore passive pressure in frost zone

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils (i.e., fat clay is not acceptable backfill material). For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45, 45 and 60 degrees from vertical for the active, at-rest, and passive cases, respectively. To calculate the resistance to sliding, a value of 0.30 should be used as the ultimate coefficient of friction between the footing and the underlying soil.

A perforated rigid plastic or metal drain line installed behind the base of walls that extend below adjacent grade is recommended to limit hydrostatic loading on the walls. The invert of a drain line around a below-grade wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5 percent (by weight) passing the U.S. No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage composite may be used. A pre-fabricated drainage composite is a plastic drainage core or mesh which is covered with filter fabric to resist soil intrusion, and fastened to the wall prior to placing backfill.

If controlling hydrostatic pressure behind the wall as described above is not possible, then combined hydrostatic and lateral earth pressures should be calculated for lean clay backfill using an equivalent fluid weighing 90 and 100 pcf for active and at-rest conditions, respectively. For granular backfill, an equivalent fluid weighing 85 and 90 pcf should be used for active and at-rest, respectively. These pressures do not include the influence of surcharge, equipment or pavement loading, which should be added. Heavy equipment should not operate within a distance closer than the exposed height of retaining walls to avoid lateral pressures greater than those provided.

PAVEMENTS

General Pavement Considerations

A critical aspect of pavement performance is site preparation. Pavement designs, noted in this section, are applicable if the site has been prepared as recommended in the **Site Preparation** section.

Pavements are typically more tolerant of non-uniform subgrade conditions than foundations and floor slabs. As discussed in **Existing Fill**, portions of existing undocumented fill may remain in

the pavement areas if the owner is willing to accept the potential for higher than normal settlement, distress, and/or maintenance in exchange for reduced construction costs. With this option, at least 12 inches of the existing fill should be replaced with newly compacted structural fill beneath the base rock. If the owner is not willing to accept the risks of supporting pavements over existing undocumented fill materials, then the existing fill should be completely removed and replaced to support pavements.

Support characteristics of subgrade for pavement design do not account for shrink/swell movements of an expansive clay subgrade, such as the soils encountered on this site. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade. As discussed in **Expansive Soils**, we recommend at least 12 inches of LP material be present beneath the pavement base rock to reduce the shrink/swell potential of the subgrade.

On most projects, the site grading is accomplished relatively early in the construction phase. Fills are placed and compacted in a uniform manner. However, as construction proceeds, excavations are made into these areas, rainfall and surface water saturate some areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soil to improve stability temporarily. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.

We recommend the moisture content and density of the upper 9 inches of the subgrade be evaluated and the pavement subgrades be proofrolled within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and recompacted. Attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the material with compacted structural fill.

After proofrolling and repairing deep subgrade deficiencies, the entire subgrade should be scarified and developed as recommended in the **Earthwork** section to provide a more consistent subgrade for pavement construction. Areas that appear desiccated (dry) following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

Both concrete and asphalt pavement design sections are requested for the proposed project. Pavement thickness design is dependent upon:

- the anticipated traffic conditions during the life of the pavement,
- subgrade and paving material characteristics, and
- climatic conditions of the region.

Pavement Design Considerations

We were provided the traffic volumes for personal vehicle (light-duty) and truck (medium-duty) areas as summarized in **Project Description**. We calculated the truck area traffic volumes to result in approximately 200,000 and 250,000 ESALs over a design period of 20 years for asphalt and Portland cement pavement, respectively. The design period is the interval over which, with proper maintenance, the pavement should not require major repairs. A continuing regular maintenance program should be implemented to maintain satisfactory serviceability over the design life. The maintenance program should include sealing cracks and repairing minor deficiencies before they become major problems.

Subgrade support was estimated from our experience with similar soils, and our design is based upon a California Bearing Ratio (CBR) of at least 3. Imported fill materials should have a minimum CBR value of 3 and meet the other requirements for engineered fill recommended in section **Earthwork**. If any of the existing fill is left in place beneath pavements, then maintenance should be expected to be needed sooner than if the fill is removed and replaced with engineered fill.

Analyses for the pavement design of the project have been based on the procedures of the AASHTO Guide for Design of Pavement Structures (1993). The light-duty areas are those limited strictly to the employee car parking and drive lanes. The truck areas include delivery trucks and tractor-trailers.

Estimates of Minimum Pavement Thickness

Asphaltic concrete pavements can be used for pavements such as drive lanes and parking areas. We recommend Portland cement concrete (PCC) pavements for entrance aprons, trash container pads, loading docks, drive-through lanes, and in any other areas subjected to heavy wheel loads and/or channelized or turning traffic.

Recommended thicknesses for light- and medium-duty areas are provided in the table below.

Pavement Section Thickness (inches)						
Traffic Area	Alternative	Asphalt Concrete		Portland Cement Concrete [1]	Aggregate Base Course [2]	Total Thickness
		Surface Course	Base Course			
Light-Duty (car parking)	PCC	--	--	6	4	10
	ACC	2	2	--	8	12
Medium-Duty (drives and loading areas)	PCC	--	--	7	4	11
	ACC	3	3	--	8	14
Trash Container Pad [3]	PCC	--	--	7	4	11

1. 4,000 psi at 28 days, 4-inch maximum slump and 5 to 7 percent air entrained pavements are recommended for trash container pads and in any other areas subjected to heavy wheel loads and/or turning traffic.
2. Crushed stone (MoDOT Type 5 aggregate)
3. The trash container pad should be large enough to support the container and the tipping axle of the collection truck.

Although not required for structural support, a minimum 4-inch thick aggregate base course layer is recommended for the PCC pavements to help reduce the potential for slab curl, shrinkage cracking, and subgrade “pumping” through joints. Proper joint spacing will also be required for PCC pavements to resist excessive slab curling and shrinkage cracking. All joints should be sealed to resist entry of foreign material and dowelled where necessary for load transfer.

In general, PCC used in isolated areas such as dumpster pads and apron slabs does not require reinforcement. However, if Portland cement concrete is selected for use in general pavement areas, proper design and detailing of longitudinal and transverse control joints, tie bars and joint dowels will be required. In this situation, we should be contacted to provide more specific and detailed recommendations. In general, however, we offer the following recommendations for PCC pavements:

- Control joints should be constructed in the rigid pavement in accordance with ACI and/or AASHTO requirements. Control joints should be ¼ of the depth of the concrete, and should be cut as soon as the slab can support the weight of the operator and saw.
- Expansion (isolation) joints must be full depth and should only be used to isolate fixed objects abutting or within the paved area.
- Contraction joints should have a maximum spacing of about 15 feet or 30 times the thickness of the concrete slab, whichever is less, as per ACI 330-08.
- At construction joints an adequately designed keyed construction joint or a butt end construction joint is recommended. For a butt end construction joint, an adequate number of deformed tie bars should be provided.

- Tie bars are also recommended along the first longitudinal joint from the pavement edge to keep the outside slab from separating from the pavement.
- Isolation joints are recommended for concrete pavement areas that abut fixed objects such as around light poles curb inlets, etc.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrades should be graded to provide positive drainage within the granular base section. We recommend the subgrades beneath the pavement sections be graded to slope toward the storm water catch basins. A drainage collection and removal system (e.g., finger drains) could be used to allow water in the granular base to enter the storm sewers, or otherwise be removed from the granular base.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Grades adjacent to pavements should slope down from the edges at a minimum 2 percent;
- The pavement subgrade and surface should have a minimum 2 percent slope to promote proper drainage;
- Pavement drainage should be installed in areas anticipated for frequent wetting;
- Joint sealant should be installed and cracks sealed immediately; and
- Compacted, low permeability backfill should be placed against the exterior sides of curbs and gutters, and landscaped areas in, or adjacent to pavements to reduce moisture migration into pavement subgrade soils.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required. Consideration could be given to utilizing synthetic geogrid support beneath the base rock to increase the time before maintenance is required.

UPLIFT/BOUYANCY CONSIDERATIONS

We understand that there may be some underground structures, such as below-grade water storage tanks. As discussed earlier, groundwater levels can fluctuate due to a number of factors. Depending on the depths of the proposed underground structures, elevated groundwater levels could create buoyant forces (i.e., uplift conditions) for the underground structures.

Underground structures should be designed to resist uplift pressures due to hydrostatic loading. Uplift pressure would be greatest when the structure is empty and a high temporary water level exists on site. The structures and any tie-down mats should be designed to resist a water pressure of at least 62.4 psf per foot of embedment below the groundwater level. The total uplift force could be resisted by the dead weight of the structure and the effective weight of backfill placed over the structure and any extensions of the structure foundations (i.e. concrete dead men). A backfill total unit weight of 120 pcf could be used above the groundwater level and an effective unit weight of 60 pcf for backfill below the water level. We conservatively recommend that buoyancy design assume a groundwater level at the ground surface. We recommend structure backfills be placed and compacted in accordance with the recommendations provided in the **Earthwork** section of this report.

If a sump pit and permanent pump system are provided to remove any seepage into the granular fill around the structure, then uplift pressures should not develop. The sump pump should discharge intercepted water away from the structure such that it will not be reintroduced into the subsurface. A backup pump and emergency power source should be part of any sump design.

CORROSIVITY

Laboratory testing for chlorides, sulfates, resisitivity, and pH were performed on selected samples to assist others in evaluating the corrosion potential for underground pipes and concrete pile caps. Results of these tests are summarized in **Laboratory Test Results**. General guidelines for the interpretation of the test results are provided below. If you have more specific guidelines related to this project, then please refer to them.

Design of corrosion protection systems is beyond the scope of the geotechnical engineering services Terracon was retained to provide. The discussion provided in this section is only for general consideration. We recommend a corrosion protection specialist be contacted to develop a corrosion protection plan for this project.

pH

The pH value is a measure of how acidic (pH<7) or alkaline (pH>7) the soil environment is. Soils generally have a pH range of 5 to 8. In this range, the pH is generally not considered to be the dominant variable affecting corrosion rates. More acidic soils represent a corrosion potential to

common construction materials. Alkaline soils tend to have high sodium, potassium, magnesium and calcium contents. The latter two elements can form calcareous deposits on buried structures with protective properties against corrosion. The soils tested had pH values of 6.53 to 7.50.

Resistivity

Soil resistivity is a measure of how easy it is for electrons to flow in the soil, and historically has been used as a broad indicator of soil corrosivity. The flow of electrons is essential in most types of corrosion reactions. Other factors being equal, corrosion reactions will proceed more easily when the resistance to electron flow is lower and proceed more slowly in soils with high resistivity. Soil resistivity is affected by both the amount of dissolved solids (salts) in the soil, and the moisture content of the soil. Higher concentrations of dissolved solids will result in lower resistivity values. Likewise, higher moisture contents will result in lower resistivity values. While soil resistivity is generally considered to be the dominant variable in assessing soil corrosivity potential, it is not the only parameter affecting the risk of corrosion damage, and a high resistivity alone does not rule out the potential for corrosion. The table below is typical of the various ranges of soil resistivity values and their associated corrosion potential.

Soil Resistivity (ohm-cm)	Corrosivity Rating
>20,000	Essentially Non-Corrosive
10,000 to 20,000	Mildly Corrosive
5,000-10,000	Moderately Corrosive
3,000 to 5,000	Corrosive
1,000 to 3,000	Highly Corrosive
<1,000	Extremely Corrosive

The resistivity values ranged from 310 to 970 ohm-cm, which correspond to a strong corrosion potential.

Sulfates

Sulfate is a naturally occurring form of sulfur. Sulfates are generally considered to be less corrosive towards metals; however, the presence of sulfates can pose a major risk if they are converted to sulfides. Sulfate attack on concrete can be very serious causing expansion, cracking, and loss of strength. In reinforced concrete, sulfate may expose the rebar to corrosion

by other compounds such as chloride or sulfide. The table below is typical of the various ranges of sulfate concentrations and their associated attack potential.

Water Soluble Sulfate (percent)	Attack Potential	Cement Type
0.00 to 0.10	Negligible	I
0.10 to 0.20	Positive	II
0.20 to 2.00	Severe	V [1]
>2.00	Very Severe	V plus pozzolan [2]

1. Or approved Portland-pozzolan cement providing comparable sulfate resistance when used in concrete.
2. Should be approved pozzolan that has been determined by tests to improve sulfate resistance when used in concrete with Type V cement.

The sulfate concentrations for the samples tested generally ranged from 66 ppm to 322 ppm. The 66 ppm is approximately 0.01 percent and the 322 ppm is approximately 0.03 percent.

Chlorides

Chloride ions are harmful, as they participate directly in anodic dissolution reactions of metals and their presence tends to decrease the soil resistivity. Concentrations of 500 ppm or more are typically considered to indicate corrosive potential. The samples tested had chloride concentrations of 45 to 98 ppm.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations may occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during construction. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Support of floor slabs and pavements over existing fill is discussed in this report. However, even with the recommended construction testing, there is a risk that unsuitable materials within or buried by the fill will not be discovered. This risk cannot be eliminated without removing the fill but can be reduced by thorough exploration and testing.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation costs. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation costs. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet) [1]	Planned Location
6	35 to 47	Planned building areas

1. Below ground surface.

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet). Approximate elevations were obtained from aerial imagery software. If more precise elevations and boring locations are desired, we recommend the borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted rotary drill rig using continuous-flight, hollow-stem augers to a depth of 20 feet in each borehole. Mud-rotary methods were then used to extend the boring to refusal on limestone bedrock. Each of the borings were extended at least 10 feet beyond refusal utilizing NQ2 rock coring.

Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge was pushed hydraulically into the soil to obtain a relatively undisturbed sample. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Refraction Microtremor (ReMi) Testing

Terracon used a seismic refraction system consisting of one SeismicSource DAQLink III seismograph and 24 geophones to derive subsurface seismic velocity information. Linear arrays of 24 geophones were arranged and the Refraction microtremors (ReMi) produced by ambient seismic noise were recorded. The data was then processed using a wavefield-transformation data-processing technique and an interactive Rayleigh-wave dispersion-modeling tool. The refraction microtremor exploits aspects of spectral analysis of surface waves (SASW) and multi-channel analysis of surface waves (MASW) to derive a shear wave (s-wave) profile and an average shear-wave velocity along the array for a corresponding depth.

Laboratory Testing

Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System. The project engineer reviewed the field data and assigned laboratory tests to better understand the engineering properties of the various soil strata. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- Standard Test Method for Laboratory Determination of Density (Unit Weight) of Soil Specimens
- Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
- Standard Test Method for Unconfined Compressive Strength of Rock Core

Rock classification was conducted using the Description of Rock Properties and locally accepted practices for engineering purposes. Petrographic analysis may reveal other rock types.

SITE AND EXPLORATION PLANS

Contents:

Site Location Plan
SD-001 Preferred Alt A
SD-002 Preferred Alt B
Geologic Map
Exploration Plan
Refraction Microtremor Diagram

Note: All attachments are one page unless noted above.

SITE LOCATION

VAMC – SLJC Project Book ■ St. Louis, MO
August 26, 2019 ■ Terracon Project No. 15185268

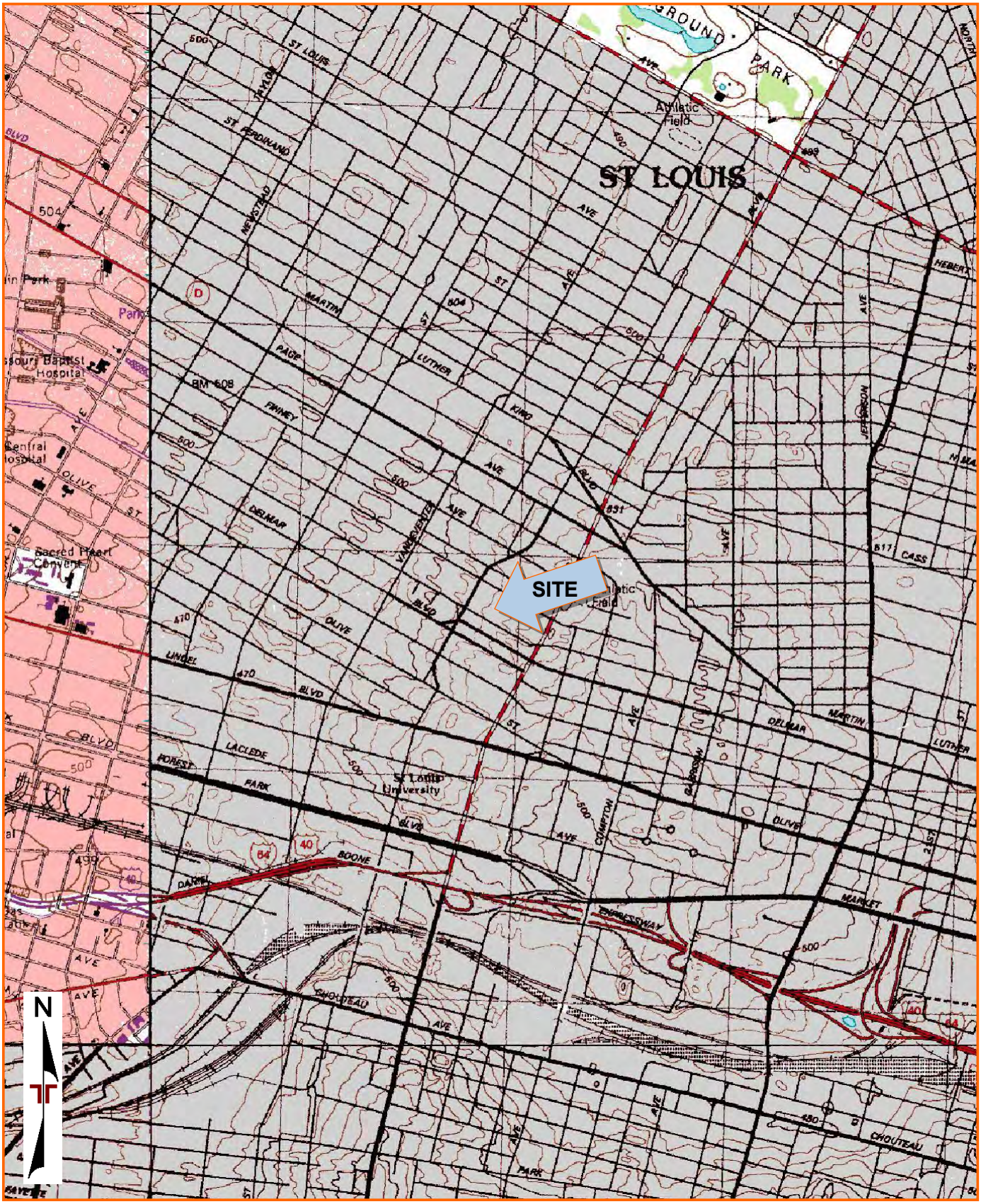
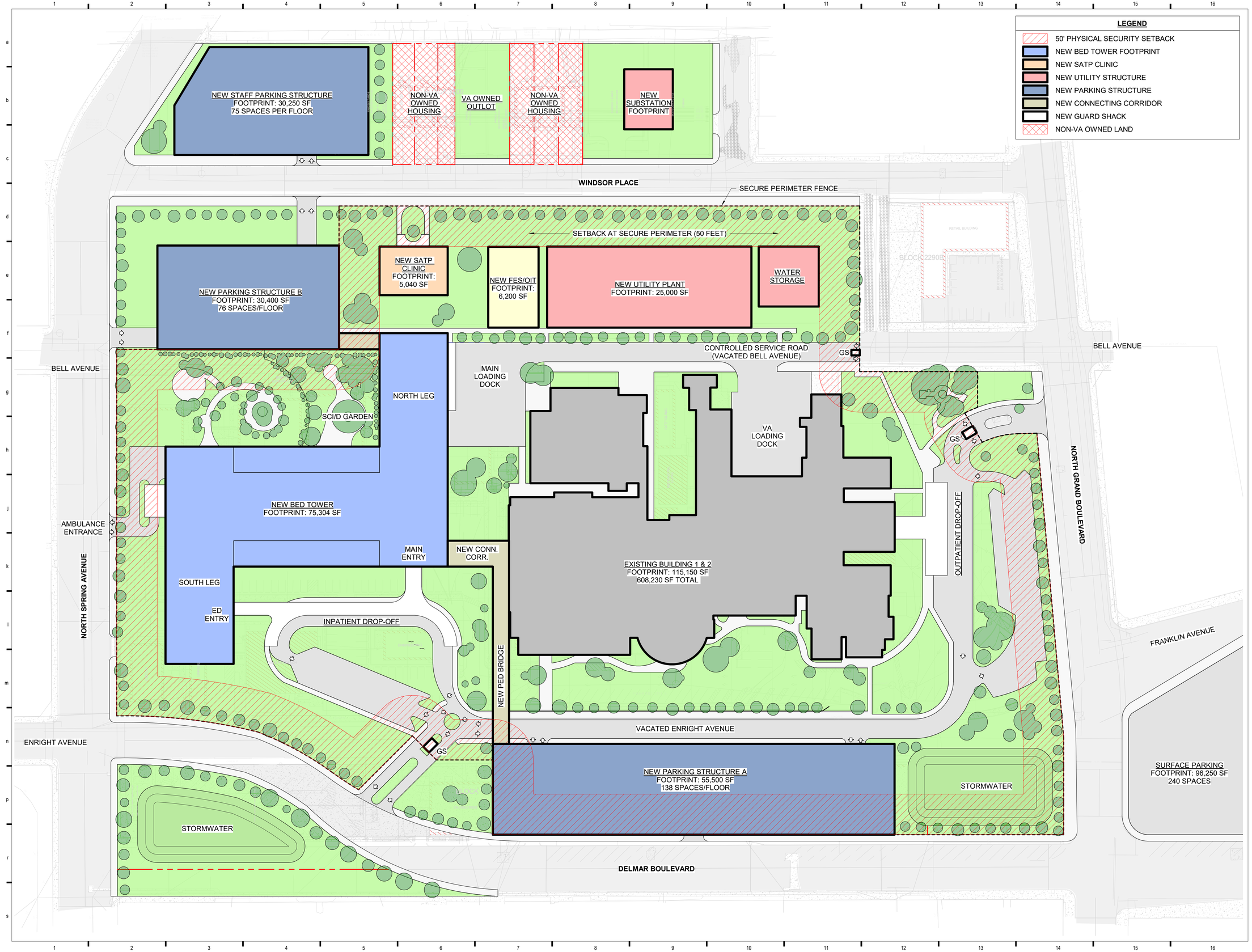


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: CLAYTON, MO (1/1/1993), GRANITE CITY, IL (1/1/1998), WEBSTER GROVES, MO (1/1/1998) and CAHOKIA, IL (1/1/1998).



Oculus Inc.
CONNECT • SHAPE • MOVE
ARCHITECTURE • INTERIOR DESIGN • PLANNING
ONE SOUTH MEMORIAL DRIVE I, SUITE 1500 ST. LOUIS, MO 63102 |
(314) 367-6100

#	Description	Date

These drawings/specifications are the property of Oculus Inc. They are furnished as contract documents only. The seal(s) and signature(s) apply only to the document to which they are affixed, and expressly disclaim any responsibility for all other plans, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project. Additionally these drawings and seal(s) shall in no way convey or imply any type of warranty or certification relating to the performance of products and materials beyond those provided by their respective manufacturer.
© 2019 Oculus Inc.

Missouri Corporate Authority Number #814.
Missouri Architect in responsible Charge - Ronald Melvin Reim AR-5489.

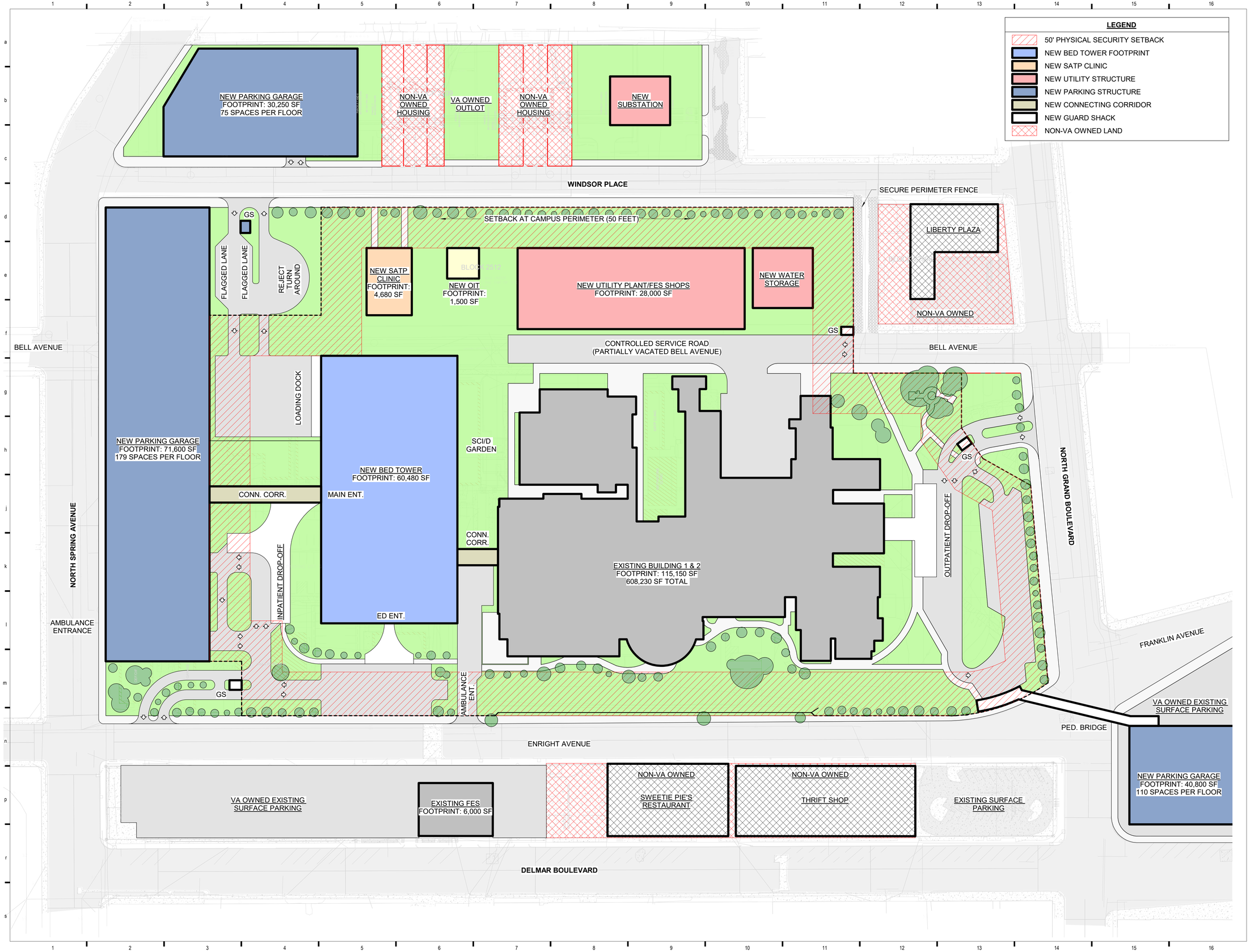
Client Approval

PREFERRED ALT A

Project #	
Issue Date	
Scale	1" = 50'-0"
Drawn by	Author
Checked by	Checker

SD-001

8/5/2019 2:08:46 PM



Oculus Inc.
CONNECT • SHAPE • MOVE
ARCHITECTURE • INTERIOR DESIGN • PLANNING
ONE SOUTH MEMORIAL DRIVE I. SUITE 1500 ST. LOUIS, MO 63102 |
(314) 367-6100

#	Description	Date

These drawings/specifications are the property of Oculus Inc. They are furnished as contract documents only. The seal(s) and signature(s) apply only to the document to which they are affixed, and expressly disclaim any responsibility for all other plans, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project. Additionally these drawings and seal(s) shall in no way convey or imply any type of warranty or certification relating to the performance of products and materials beyond those provided by their respective manufacturer.
© 2019 Oculus Inc.

Missouri Corporate Authority Number #814.
Missouri Architect in responsible Charge - Ronald Melvin Reim AR-5489.

Client Approval

PREFERRED ALT B

Project #	
Issue Date	
Scale	1" = 50'-0"
Drawn by	Author
Checked by	Checker

SD-002

7/22/2019 1:43:55 PM

GEOLOGIC MAP

VAMC - SLJC Project Book ■ St. Louis, Missouri

August 26, 2019 ■ Terracon Project No. 15185268

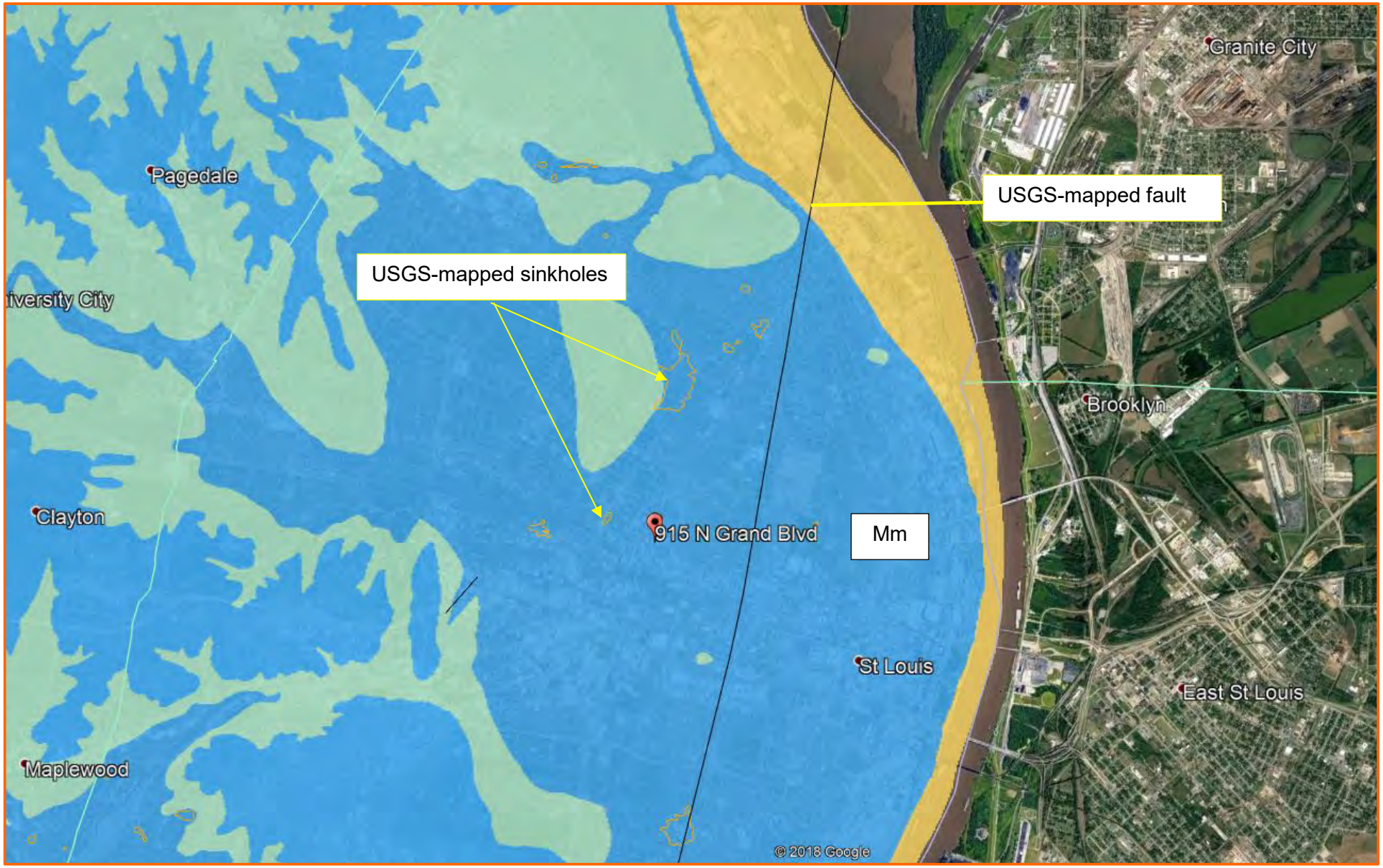


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

EXPLORATION PLAN

VAMC – SLJC Project Book ■ St. Louis, MO

August 26, 2019 ■ Terracon Project No. 15185268

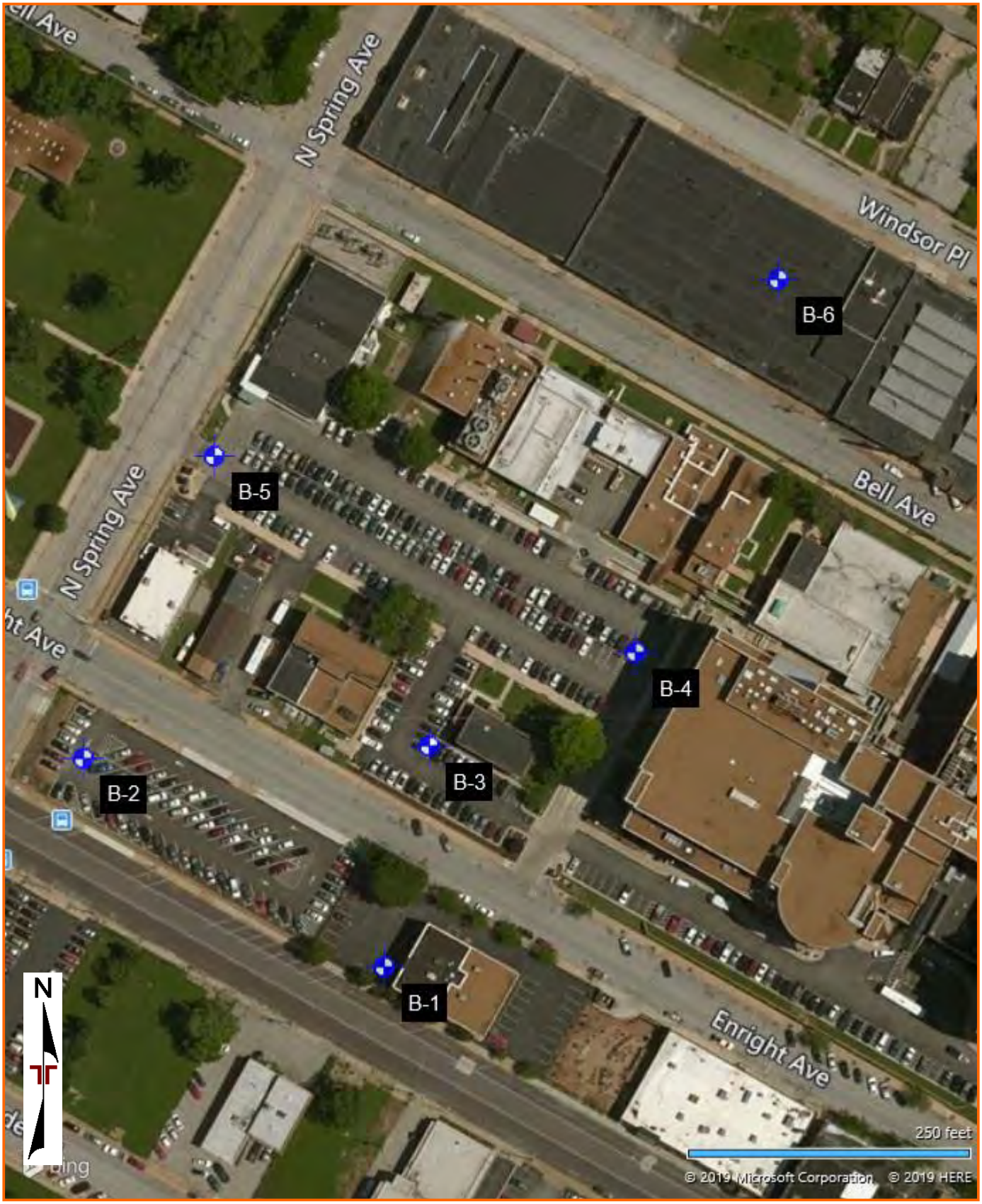


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

REFRACTION MICROTREMOR DIAGRAM

VAMC – SLJC Project Book ■ St. Louis, Missouri

August 26, 2019 ■ Terracon Project No. 15185268

EXPLORATION RESULTS

Contents:

Boring Logs (B-1 through B-6)
Rock Core Photographs
GeoModel
Refraction Microtremor Results (2 pages)

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.642° Longitude: -90.2328°

Approximate Surface Elev.: 515 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.5	514.5+/-	**Approximately 6" of asphalt**
1.0	514+/-	**Approximately 6" of base rock**
3.0	512+/-	**FILL - LEAN CLAY**, trace sand, gravel, and brick debris, brown and very dark gray
6.0	509+/-	**LEAN CLAY (CL)**, trace silt, brown and gray, medium stiff
17.0	498+/-	**LEAN TO FAT CLAY (CL/CH)**, trace silt, brown, medium stiff
25.0	490+/-	**FAT CLAY (CH)**, trace sand, reddish brown, soft; hard

MODEL LAYER	DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
			8	1-1-1 N=2	1	0.75		23		
			16		2	1.5	1940	22	101	41-19-22
4				2-2-2 N=4	3	0.5		30		
				2-2-2 N=4	4	0.25		28		
				2-2-2 N=4	5	0.25		28		
5				2-1-2 N=3	6	0.25		29		
				2-14-29 N=43	7	0.5		40		

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-25 feet: Mud rotary
25-35 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with concrete

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-16-2019
Boring Completed: 07-16-2019
Drill Rig: CME 550X
Driller: JM
Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-1

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.642° Longitude: -90.2328°

Approximate Surface Elev.: 515 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
6		30				Rec: 100% RQD: 68%	Run-1		13630 14200			
		35										

LIMESTONE, light gray, unweathered to slightly weathered, strong rock, fair RQD

35.0 480+/-

Boring Terminated at 35 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-25 feet: Mud rotary
25-35 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with concrete

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-16-2019	Boring Completed: 07-16-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-2

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6425° Longitude: -90.2337°

Approximate Surface Elev.: 521 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		0.3	**Approximately 4" of asphalt**	520.5+/-											
		1.0	**Approximately 8" of base rock**	520+/-											
			FILL - LEAN CLAY, trace sand, dark brown				X	14	2-1-2 N=3	1	1.5		24		
							X	18	2-3-3 N=6	2	4.0		16		
		5.0	**LEAN CLAY (CL)**, trace sand, brown	516+/-	5										
		6.0	**LEAN TO FAT CLAY (CL/CH)**, trace silt, brown and grayish brown, stiff	515+/-			X	16	2-5-4 N=9	3	0.25		29		45-20-25
4							■	16		4	1.25	2330	17	108	
			medium stiff		10										
							X	18	1-2-2 N=4	5	0.25		23		
		17.0	**FAT CLAY (CH)**, trace sand, grayish brown, medium stiff to stiff	504+/-	15										
5							X	10	2-3-4 N=7	6	1.25		21		
					20										
							X	10	3-4-5 N=9	7	0.5		35		
		25.0		496+/-	25										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-37 feet: Mud rotary
37-47 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-16-2019	Boring Completed: 07-16-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-2

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6425° Longitude: -90.2337°

Approximate Surface Elev.: 521 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
5		**FAT CLAY (CH)**, trace sand, brown and light gray, medium stiff to stiff												
				30			18	3-5-5 N=10	8	1.75		24		
		soft												
				35			18	1-2-1 N=3	9	1.25		30		
		37.0	484+/-											
6		**LIMESTONE**, light gray, slightly weathered, very strong, good RQD		40				Rec: 100% RQD: 77%	Run-1		17180			
		medium strong		45							4790			
		47.0	474+/-											
		Boring Terminated at 47 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-37 feet: Mud rotary
37-47 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-16-2019 | Boring Completed: 07-16-2019

Drill Rig: CME 550X | Driller: JM

Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-3

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6425° Longitude: -90.2326°

Approximate Surface Elev.: 520 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	MODEL LAYER	DESCRIPTION
0.3	519.5+/-		**Approximately 4" of asphalt**
0.8	519+/-		**Approximately 8" of base rock**
3.0	517+/-		**FILL - LEAN CLAY**, trace gravel and brick debris, dark brown and dark gray
6.0	514+/-		**LEAN CLAY (CL)**, trace sand, brown, medium stiff
22.0	498+/-	4	**LEAN TO FAT CLAY (CL/CH)**, trace sand, brown, medium stiff to stiff
25.0	495+/-	5	**FAT CLAY (CH)**, trace sand, reddish brown, soft

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		8	2-4-4 N=8	1	3.25		23		
		18	2-3-3 N=6	2	1.75		21		40-18-22
5		17		3	0.75	2740	22	99	
		18	2-2-2 N=4	4	0.5		28		
10									
15		18	1-2-2 N=4	5	0.75		26		
20		18	1-2-2 N=4	6	0.25		29		
		18	1-2-1 N=3	7	1.0		29		
25									

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-25 feet: Mud rotary
25-40 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019 | Boring Completed: 07-18-2019
Drill Rig: CME 550X | Driller: JM
Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-3

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6425° Longitude: -90.2326°

Approximate Surface Elev.: 520 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
6						Rec: 13% RQD: 0%	Run-1					
		30										
						Rec: 100% RQD: 97%	Run-2		8550			
		35							14730			
		40										

LIMESTONE, light gray, highly weathered, very poor RQD

unweathered to slightly weathered, strong rock, excellent RQD

40.0 480+/-

Boring Terminated at 40 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-25 feet: Mud rotary
25-40 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019	Boring Completed: 07-18-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-4

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6428° Longitude: -90.232°

Approximate Surface Elev.: 512 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	Description
1	0.5	511.5+/-	**Approximately 6" of asphalt**
	1.3	510.5+/-	**Approximately 10" of base rock**
2	3.0	509+/-	**FILL - LEAN CLAY**, trace sand and gravel, very dark gray and dark brown
	6.0	506+/-	**FILL - LEAN CLAY**, trace silt, brown
	8.0	504+/-	**POSSIBLE FILL - FAT CLAY**, trace sand, brown
4	23.0	489+/-	**LEAN TO FAT CLAY (CL/CH)**, trace sand, brown, soft to medium stiff
5	25.0	487+/-	**FAT CLAY (CH)**, trace sand and gravel, reddish brown, soft

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		10	5-11-15 N=26	1	4.5		15		
		6	4-3-3 N=6	2	1.25		23		
5									
		12	2-4-6 N=10	3	2.0		27		
		10	2-3-3 N=6	4	0.5		30		47-22-25
10									
		24		5	0.0	800	22	103	
15									
		10	2-2-1 N=3	6	0.0		29		
20									
		18	1-1-2 N=3	7	0.5		24		
25									

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-27.5 feet: Mud rotary
27.5-46.5 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019	Boring Completed: 07-18-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-4

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6428° Longitude: -90.232°

Approximate Surface Elev.: 512 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
5		**FAT CLAY (CH)**, trace sand and gravel, reddish brown, soft												
		27.0	485+/-											
6		**LIMESTONE**, with clay seams, light gray and reddish brown, highly weathered					1	50/1"	8			53		
		28.0	484+/-											
5		**FAT CLAY (CH)**, with limestone fragments, brown												
		30.0	482+/-											
6		**LIMESTONE**, light gray, unweathered to slightly weathered, strong to very strong rock, poor RQD		30				Rec: 47% RQD: 30%	Run-1		15070			
		3 inch clay seam at 32.5 feet fair RQD		35				Rec: 97% RQD: 67%	Run-2		11240			
		excellent RQD		40				Rec: 97% RQD: 93%	Run-3		9160			
				45				Rec: 100% RQD: 100%	Run-4		13000			
		46.5	465.5+/-											
		Boring Terminated at 46.5 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-27.5 feet: Mud rotary
27.5-46.5 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019	Boring Completed: 07-18-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-5

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC
Plymouth, MN

SITE: 915 N Grand Boulevard
St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6433° Longitude: -90.2333°

Approximate Surface Elev.: 525 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.4	524.5+/-	**Approximately 5" of asphalt**
0.9	524+/-	**Approximately 6" of base rock**
		FILL - LEAN CLAY, trace silt and brick debris, dark brown and dark gray
6.0	519+/-	
		LEAN CLAY (CL), trace sand, gray and brown, very soft to stiff
		brown below 8 feet
22.0	503+/-	
		FAT CLAY (CH), trace sand, brown, medium stiff
25.0	500+/-	

MODEL LAYER: 5

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		6	2-1-2 N=3	1	1.0		23		
5		8	2-1-2 N=3	2	1.25		19		
		16	1-2-2 N=4	3	0.25		27		
10		17		4	1.25	2430	19	108	
		18	1-2-1 N=3	5	0.75		27		
15									
		16	1-1-1 N=2	6	0.5		29		
20									
		18	2-2-2 N=4	7	0.5		26		52-18-34
25									

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-36 feet: Mud rotary
36-46 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019
Boring Completed: 07-18-2019
Drill Rig: CME 550X
Driller: JM
Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-5

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6433° Longitude: -90.2333°

Approximate Surface Elev.: 525 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
5		**FAT CLAY (CH)**, trace sand, brown, medium stiff												
				30			16	2-2-2 N=4	8	1.25		24		
		brown and gray												
				35			18	2-2-2 N=4	9	1.75		34		
		36.0	489+/-											
6		**LIMESTONE**, light gray, unweathered to slightly weathered, strong to very strong rock, excellent RQD		40				Rec: 100% RQD: 93%	Run-1		15790			
				45							13850			
		46.0	479+/-											
		Boring Terminated at 46 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-36 feet: Mud rotary
36-46 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Not encountered prior to mud rotary

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-18-2019	Boring Completed: 07-18-2019
Drill Rig: CME 550X	Driller: JM
Project No.: 15185268	

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-6

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6437° Longitude: -90.2315°

Approximate Surface Elev.: 522 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	DESCRIPTION
2	0.0	522	**FILL - LEAN CLAY**, trace sand, gravel, and brick debris, dark brown and very dark gray
4	6.0	516+/-	**LEAN TO FAT CLAY (CL/CH)**, trace silt, brown, medium stiff
			soft
5	17.0	505+/-	**FAT CLAY (CH)**, trace sand, reddish brown, soft to medium stiff
	25.0	497+/-	

SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	6	13-15-8 N=23	1	3.25		18		
	8	3-4-3 N=7	2			10		
	14	2-2-3 N=5	3	0.75		25		
	16	2-3-3 N=6	4	1.25		27		49-21-28
	12	1-1-2 N=3	5	1.25		28		
	20		6	0.25	870	18	108	
	18	3-3-4 N=7	7	0.0		30		

DEPTH (Ft.): 5, 10, 15, 20, 25

WATER LEVEL OBSERVATIONS: ▽ 16 feet while drilling

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-27 feet: Mud rotary
27-37 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

▽ *16 feet while drilling*

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

Boring Started: 07-19-2019 | Boring Completed: 07-19-2019

Drill Rig: CME 550X | Driller: JM

Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

BORING LOG NO. B-6

PROJECT: VAMC - SLTC Project Book

CLIENT: Anderson Engineering of Minnesota, LLC Plymouth, MN

SITE: 915 N Grand Boulevard St. Louis, MO

LOCATION See Exploration Plan

Latitude: 38.6437° Longitude: -90.2315°

Approximate Surface Elev.: 522 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DESCRIPTION
5		26.0	496+/-	**FAT CLAY (CH)**, trace sand, reddish brown, soft to medium stiff
6		37.0	485+/-	**LIMESTONE**, light gray, slightly weathered, strong to very strong rock, fair to good RQD
				Boring Terminated at 37 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	HAND PENETROMETER (tsf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
			0	50/1"	8					
				Rec: 98% RQD: 70%	Run-1		8170			
30										
				Rec: 100% RQD: 88%	Run-2		18000			
35										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
0-20 feet: Hollow-stem augers
20-27 feet: Mud rotary
27-37 feet: NQ2 rock core

Abandonment Method:
Boring backfilled with Auger Cuttings
Surface capped with asphalt

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations obtained from Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

16 feet while drilling

Terracon
11600 Lilburn Park Rd
Saint Louis, MO

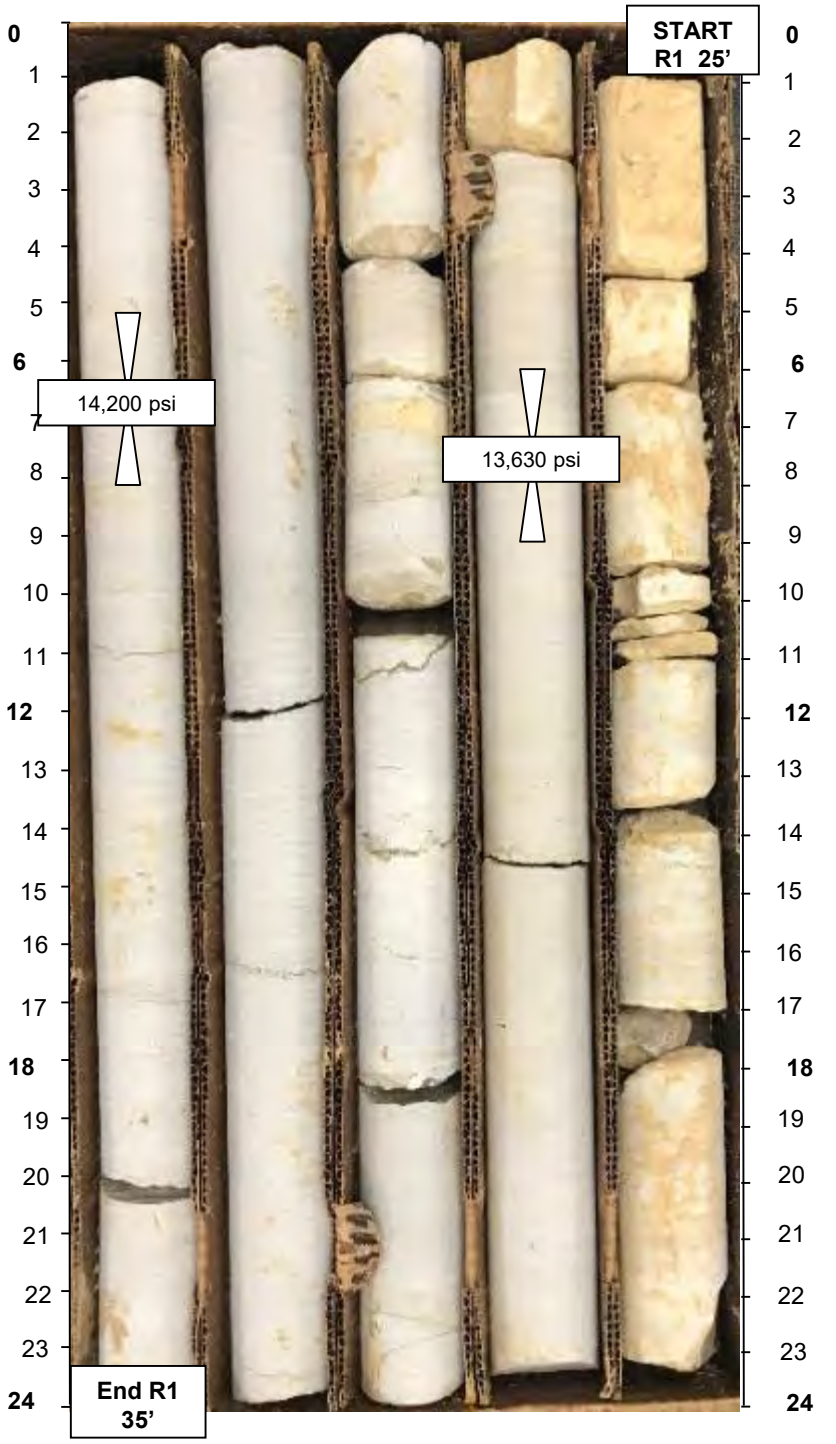
Boring Started: 07-19-2019 | Boring Completed: 07-19-2019

Drill Rig: CME 550X | Driller: JM

Project No.: 15185268

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 15185268 VAMC.GPJ TERRACON_DATATEMPLATE.GDT 8/26/19

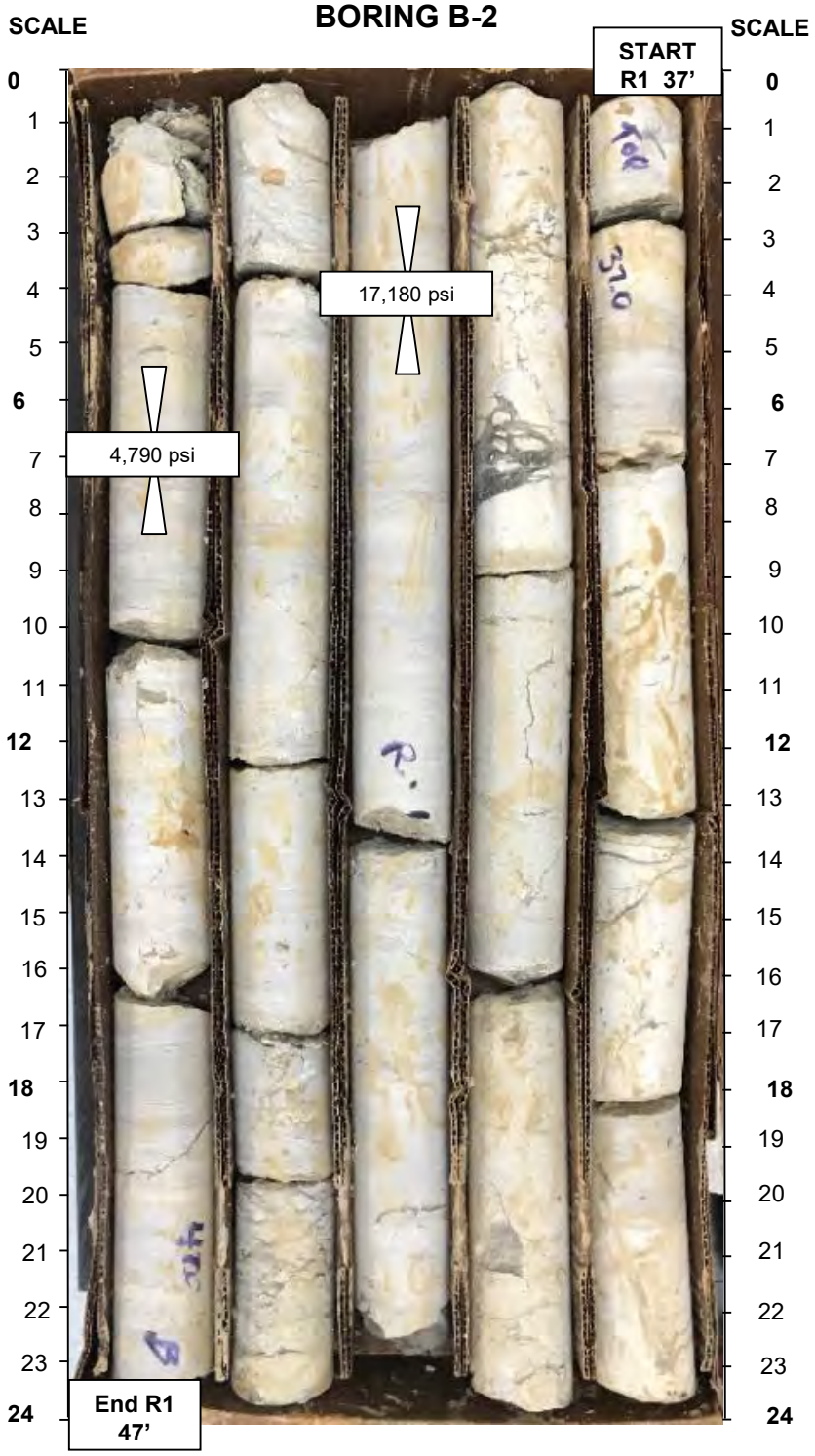
BORING B-1



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

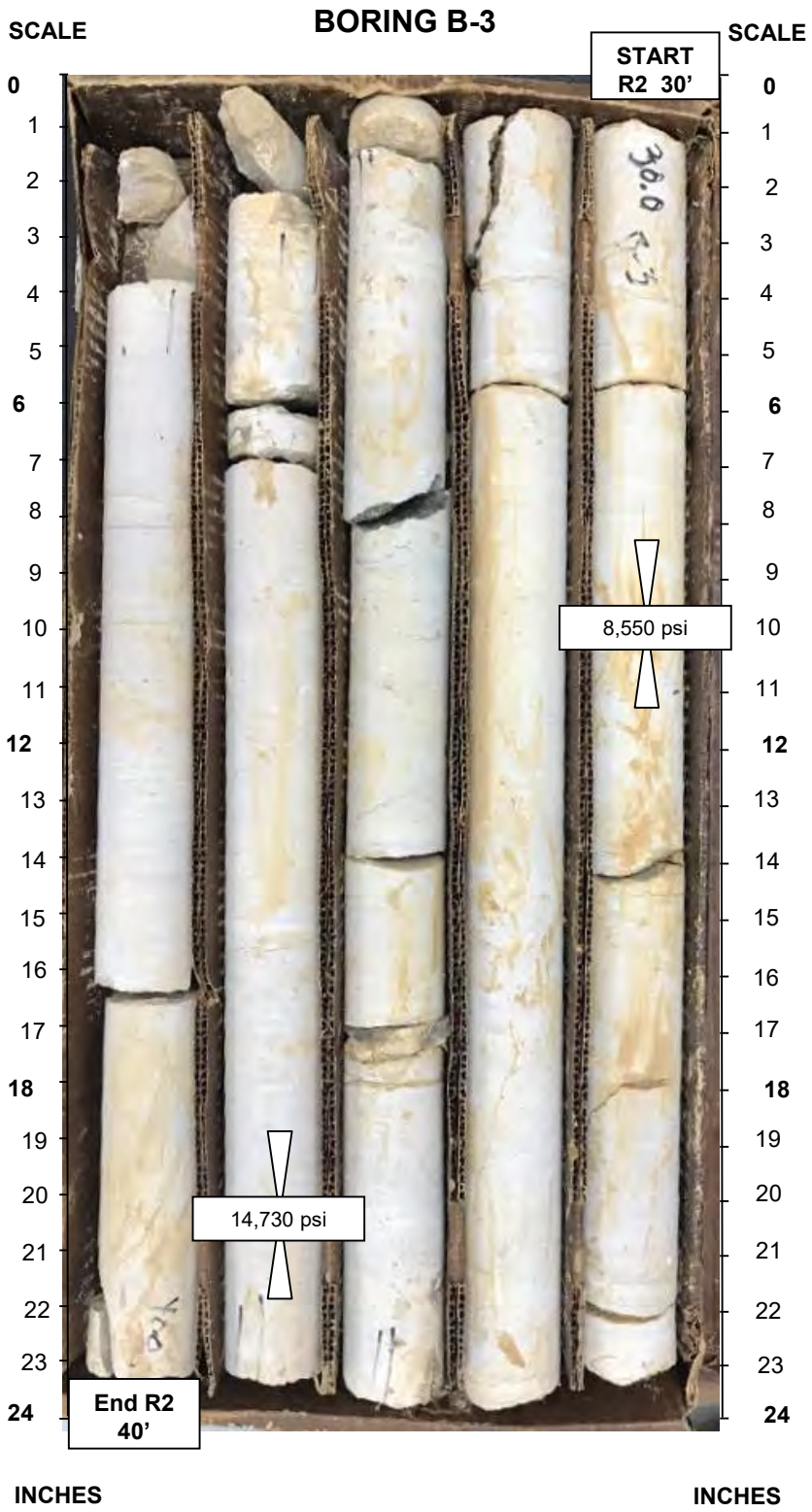
BORING B-2



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

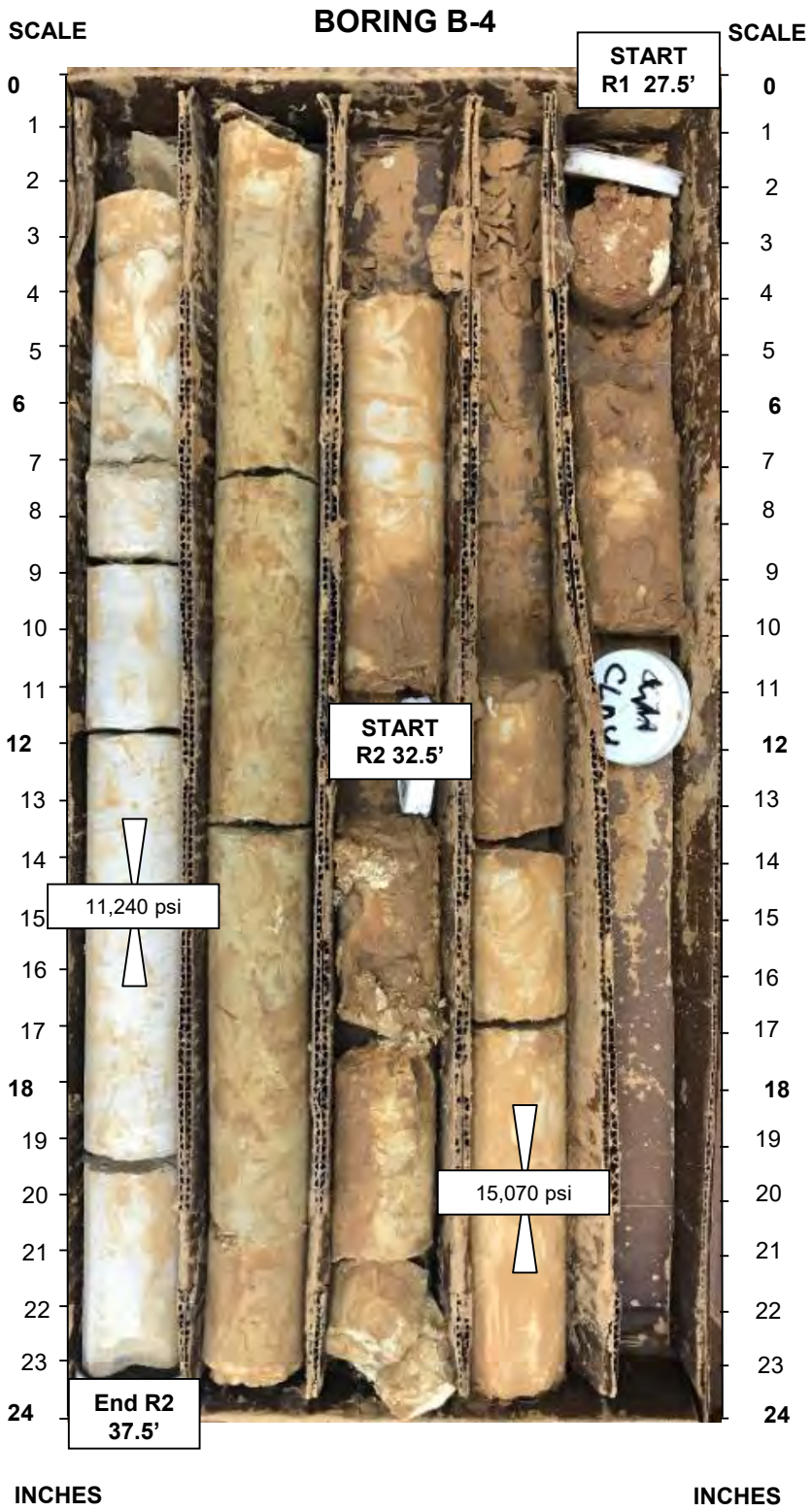
BORING B-3



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

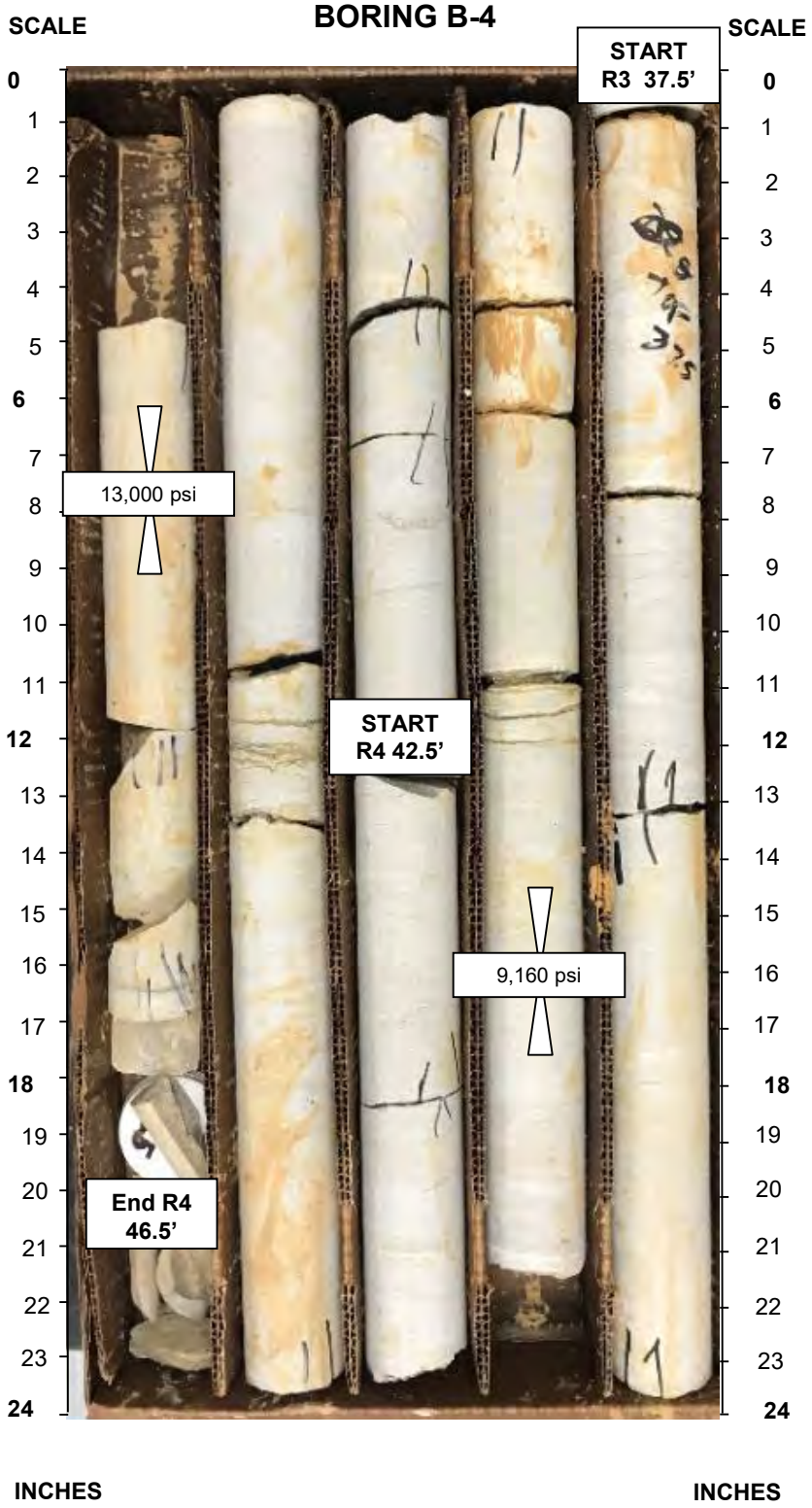
BORING B-4



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

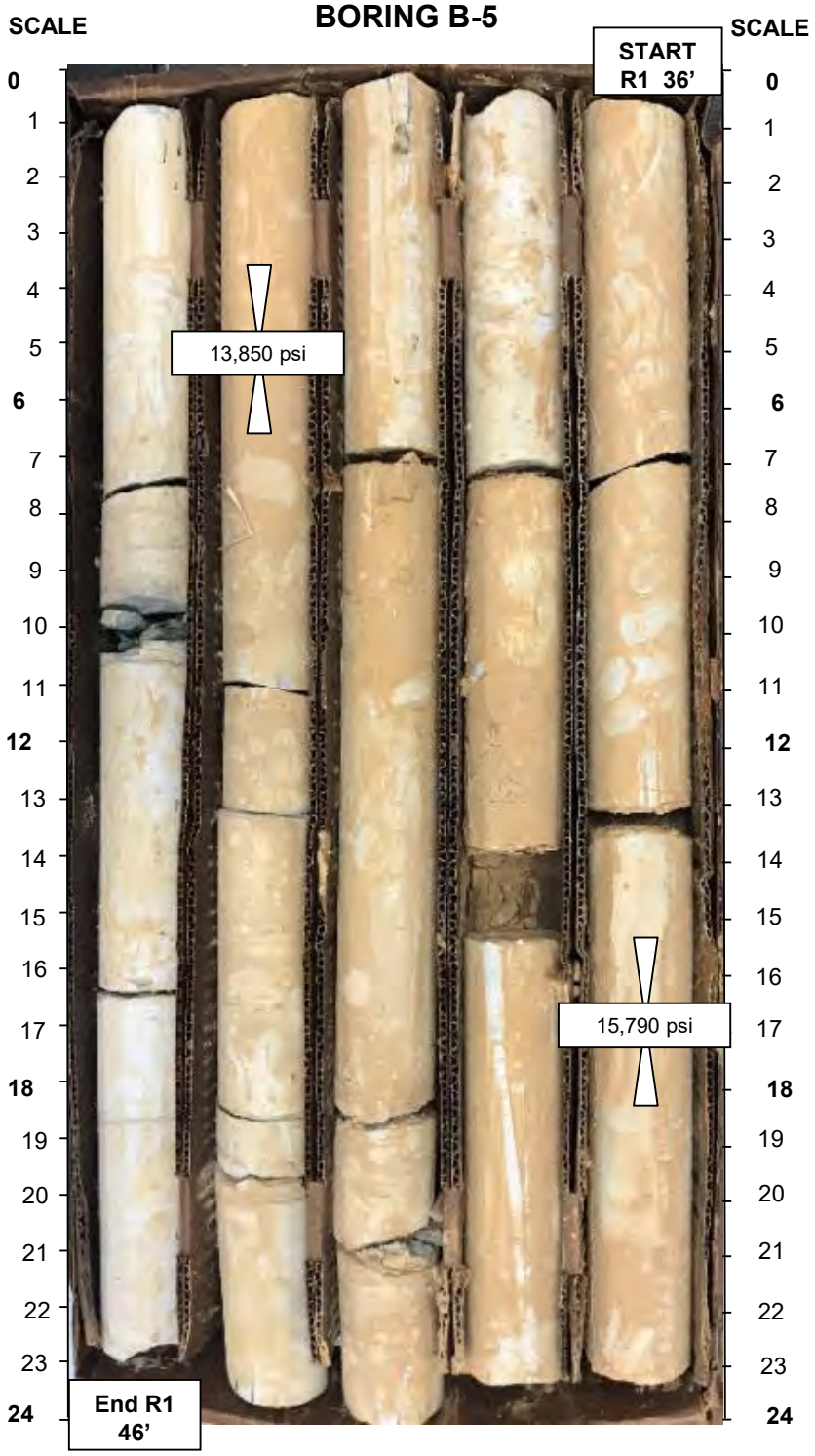
BORING B-4



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

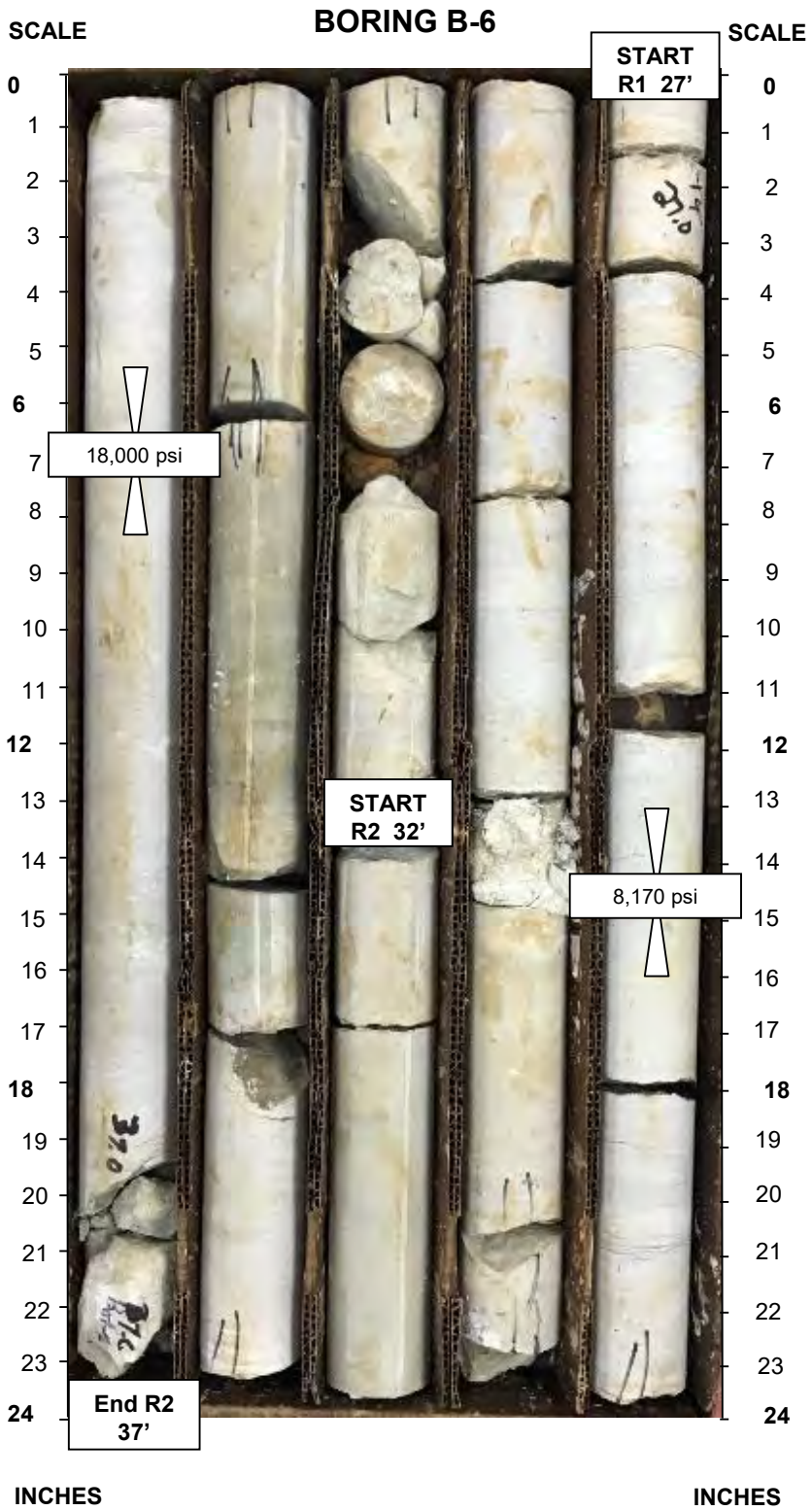
BORING B-5



psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

BORING B-6

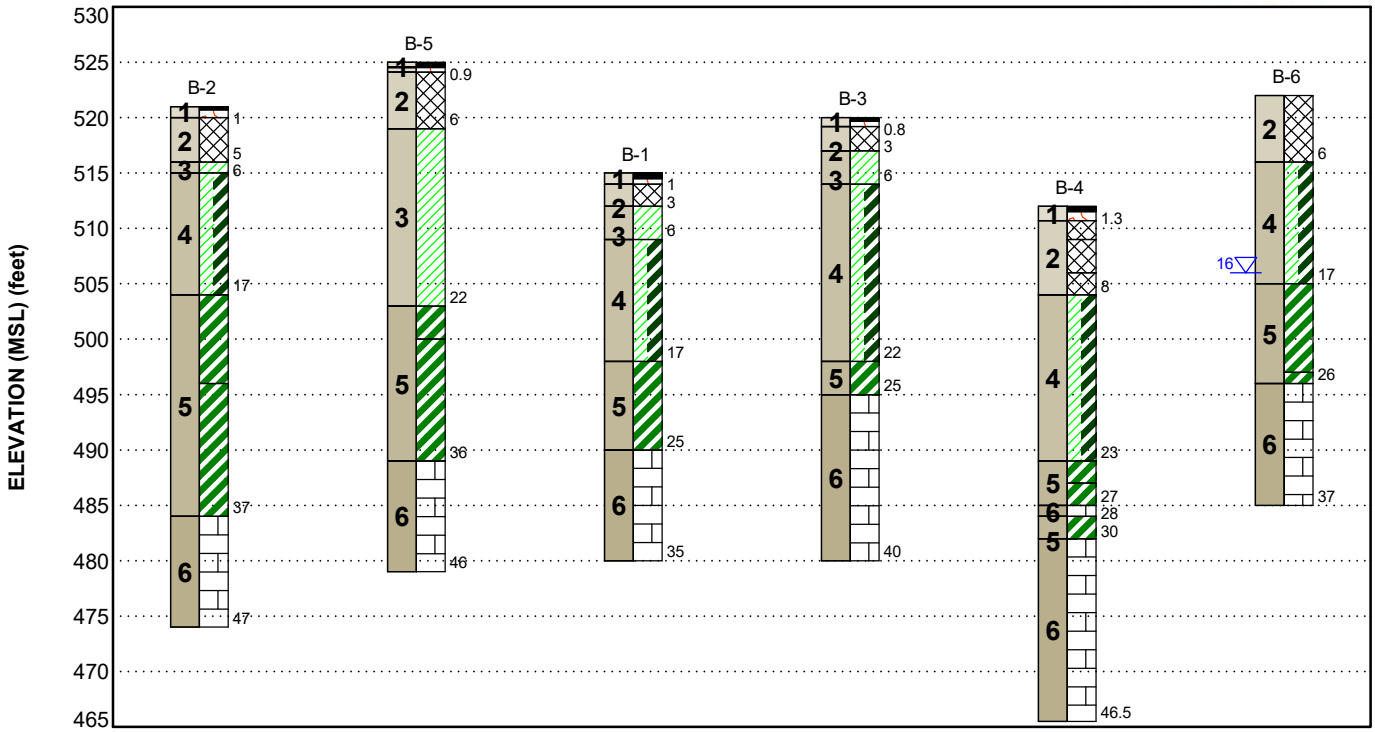


psi Unconfined Compression Test Result

Project Manager: AGM	Project No. 15185268	Terracon GeoReport	ROCK CORE PHOTOGRAPH
Drawn by: JMC	Scale: As shown	11600 Lilburn Park Rd.	VAMC
Checked by: AGM	File Name: Rock Core Photo	St. Louis, MO 63146	St. Louis, Missouri
Approved by: AGM	Date: 07/26/2019		

GEOMODEL

VAMC - SLTC Project Book ■ St. Louis, MO
Terracon Project No. 15185268



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	PAVEMENT	Asphalt pavement (4 to 6 inches) over crushed limestone base rock (6 to 10 inches).
2	EXISTING FILL	Lean clay and fat clay, with variable amounts of sand, gravel, and brick.
3	LEAN CLAY	Lean clay (CL), with variable amounts of sand and silt, very soft to stiff.
4	LEAN TO FAT CLAY	Lean to fat clay (CL/CH), with variable amounts of sand and silt, soft to stiff.
5	FAT CLAY	Fat clay (CH), with variable amounts of sand and gravel, soft to hard.
6	LIMESTONE BEDROCK	Unweathered to slightly weathered, medium strong to very strong rock, RQD fair to excellent. Highly weathered with very poor RQD above competent rock in B-3 and B-4.

LEGEND

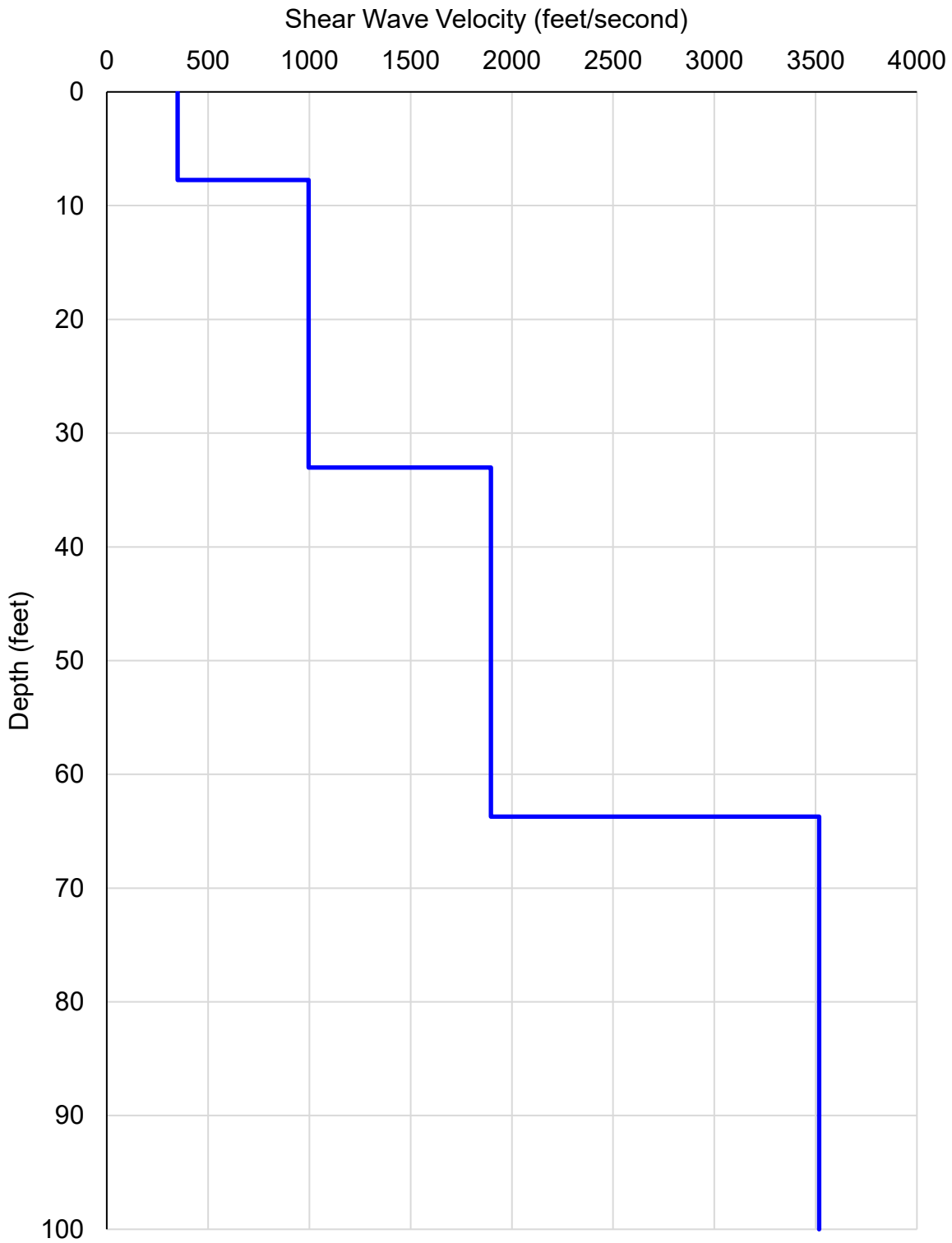
- Asphalt
- Aggregate Base Course
- Fill
- Lean Clay
- Lean Clay/Fat Clay
- Fat Clay
- Limestone

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.

First Water Observation

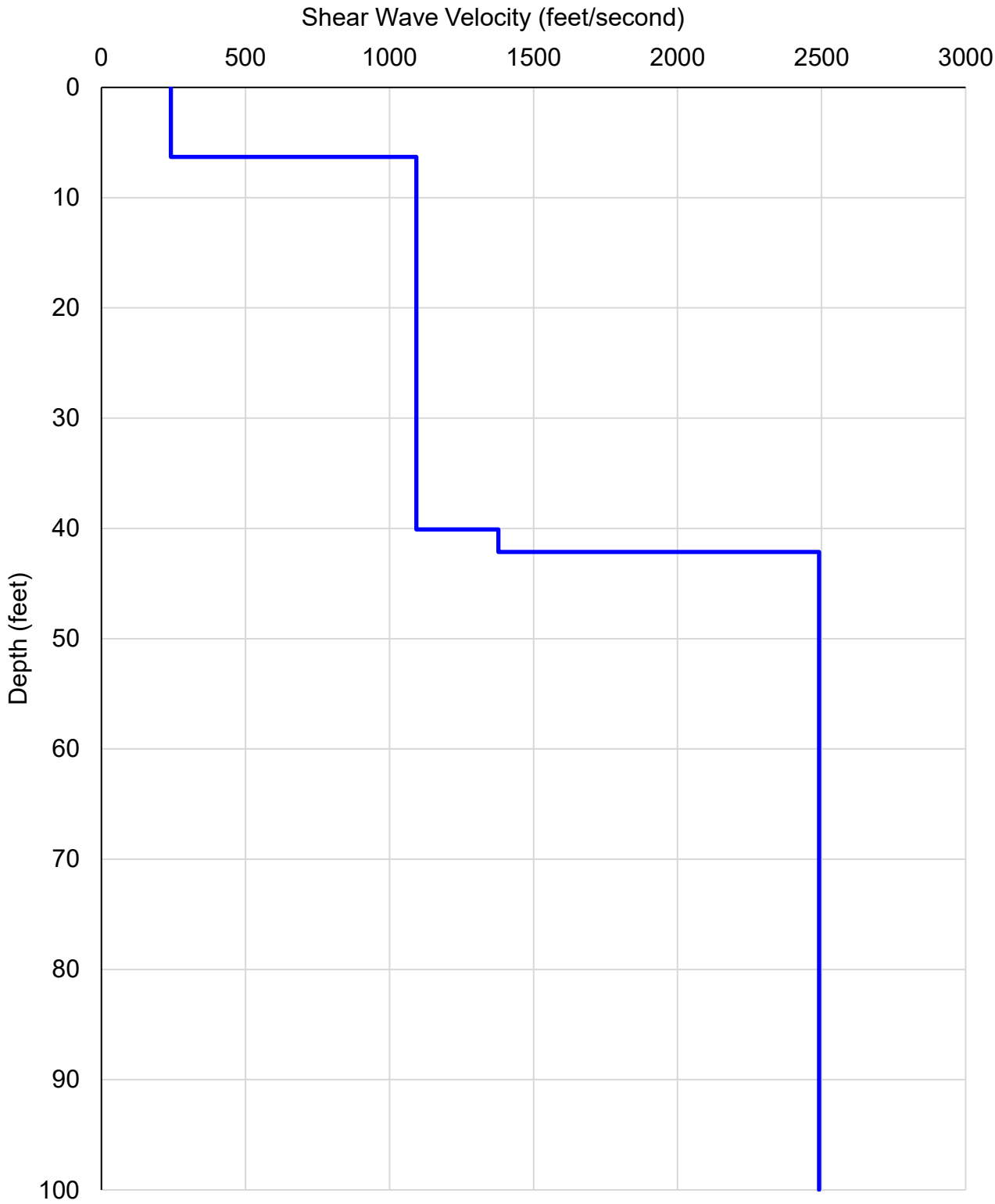
North-South Vs Model



Average Shear Wave Velocity (rounded) = 1,340 ft/s

Project Manager: PBL	Project No. 15185286	Terracon GeoReport 11600 Lilburn Park Rd Saint Louis, MO 63146-3535	SHEAR WAVE PROFILE
Drawn by: PBL	Scale: NA		VA Medical Center 915 North Grand Boulevard St. Louis, Missouri
Checked by: AGM	File Name: Attachments		
Approved by: AGM	Date: 07/23/2019		

East-West Vs Model



Average Shear Wave Velocity (rounded) = 1,220 ft/s

Project Manager: PBL	Project No. 15185286	Terracon GeoReport 11600 Lilburn Park Rd Saint Louis, MO 63146-3535	SHEAR WAVE VELOCITY PROFILE
Drawn by: PBL	Scale: NA		VA Medical Center 915 North Grand Boulevard St. Louis, Missouri
Checked by: AGM	File Name: Attachments		
Approved by: AGM	Date: 07/23/2019		

LABORATORY TEST RESULTS

Contents:

Chemical Laboratory Test Report

Note: All attachments are one page unless noted above.

CHEMICAL LABORATORY TEST REPORT

Project Number: 15185268
Service Date: 08/15/19
Report Date: 08/20/19
Task:

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
Anderson Engineerings of Minnesota, LLC

Project
VAMC

Sample Submitted By: Terracon (15) **Date Received:** 8/13/2019 **Lab No.: 19-0917**

Results of Corrosion Analysis

Sample Number				
Sample Location	B-1	B-3	B-4	B-6
Sample Depth (ft.)	3.0-5.0	6.0-8.0	1.0-5.0	1.0-5.0
pH Analysis, AWWA 4500 H	7.11	6.53	7.00	7.50
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	124	80	66	322
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	45	55	98	67
Red-Ox, AWWA 2580, (mV)	+684	+687	+692	+684
Total Salts, AWWA 2540, (mg/kg)	1915	1652	4766	1893
Resistivity, ASTM G 57, (ohm-cm)	776	883	310	970

Analyzed By: Trisha Campo
Trisha Campo
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SUPPORTING INFORMATION

Contents:

General Notes
Unified Soil Classification System
Description of Rock Properties

Note: All attachments are one page unless noted above.

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ≥ 4 and 1 ≤ Cc ≤ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ≥ 6 and 1 ≤ Cc ≤ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K, L, M, N]
						Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K, L, M, P]
						Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

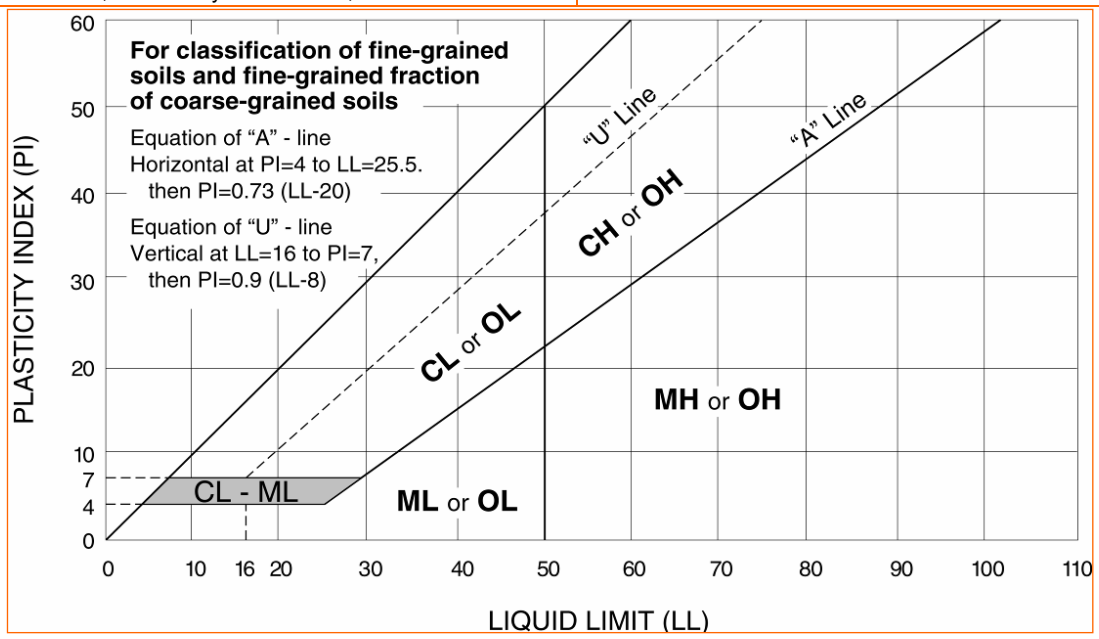
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft. (50 – 300 mm)
Moderate	8 in – 2 ft. (200 – 600 mm)	**Medium**	1 ft. – 3 ft. (300 – 900 mm)
Wide	2 ft. – 6 ft. (600 mm – 2.0 m)	**Thick**	3 ft. – 10 ft. (900 mm – 3 m)
Very Wide	6 ft. – 20 ft. (2.0 – 6 m)	**Massive**	> 10 ft. (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0-degree angle.

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009
Technical Manual for Design and Construction of Road Tunnels – Civil Elements

DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" no discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)	
Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding, and Foliation Spacing in Rock [1]

Spacing	Joints	Bedding/Foliation
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

1. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.

Rock Quality Designator (RQD) [1]

RQD, as a percentage	Diagnostic description
Exceeding 90	Excellent
90 – 75	Good
75 – 50	Fair
50 – 25	Poor
Less than 25	Very poor

1. RQD (given as a percentage) = length of core in pieces 4 inches and longer / length of run

Joint Openness Descriptors

Openness	Descriptor
No Visible Separation	Tight
Less than 1/32 in.	Slightly Open
1/32 to 1/8 in.	Moderately Open
1/8 to 3/8 in.	Open
3/8 in. to 0.1 ft.	Moderately Wide
Greater than 0.1 ft.	Wide

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976. U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

In Reply Refer To: August 06, 2019
Consultation Code: 03E14000-2019-SLI-2546
Event Code: 03E14000-2019-E-05933
Project Name: VAMC St. Louis Replace Bed Tower, Clinical Expansion, and Parking Garage Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).

Thr eatened and Endanger ed Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the r egulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region S7 Technical Assistance website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects: projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features particularly within stream corridors, riparian areas, or associated upland woodlots gray bats could be affected.

Indiana and northern long-ear ed bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags 5 inches diameter at breast height (dbh) for Indiana bat, and 3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have no effect on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for No Effect determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project other than bats (see #3 below) then project proponents can conclude the proposed activities may affect those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the S7 Technical Assistance website.

3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities may affect these bat species IF one or more of the following activities are proposed:

a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
b. Any activity in or near the entrance to a cave or mine;
c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
d. Construction of one or more wind turbines; or
e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have no effect on listed bat species. Concurrence from the Service is not required for No Effect determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities may affect one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the Range-wide Indiana Bat Summer Survey Guidelines.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities may affect any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Karen Herrington

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
(573) 234-2132

Project Summary

Consultation Code: 03E14000-2019-SLI-2546

Event Code: 03E14000-2019-E-05933

Project Name: VAMC St. Louis Replace Bed Tower, Clinical Expansion, and Parking Garage Project

Project Type: ** OTHER **

Project Description: VAMC St. Louis Replace Bed Tower, Clinical Expansion, and Parking Garage Project encompasses a roughly 36 acre proposed project that Anderson Engineering is responsible for creating a project book for the Corp of Engineers. The Project Book requires inter agency consultation and the species list will aide in project scope and environmental determinations.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.642416747652135N90.23155302397342W

Counties: St. Louis, MO

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat Myotis sodalis There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

Spack CONSULTING
ENGINEERING TRAFFIC FORWARD

Transportation Impact Study

Veterans Affairs Medical Center
John Cochran Division
St. Louis, Missouri

I hereby certify this report was prepared by me or under my direct supervision, and I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Max Moreland, P.E., P.T.O.E.
License No. 52665

Date: October 11, 2019

Executive Summary

Background:

The Veterans Affairs Medical Center is proposing the expansion of the hospital facilities at the John Cochran Division in St. Louis, Missouri. The purpose of this study is to determine the traffic and parking impacts associated with the build-out of the proposed expansion on the study roads and intersections where significant impact is anticipated as well as determine the existing and future parking demands on site.

Results:

The principal findings of this study are:

Site Generated Trips:

Scenario & Size	Daily	AM Peak Hour	PM Peak Hour
Existing (615,000 sq. ft.)	6,590	550	600
Preferred Alternative (975,220 sq. ft.)	10,450	870	950
Secondary Alternative (994,030 sq. ft.)	10,660	880	960

Intersection Operations:

All intersections are forecast to operate acceptably through the build scenarios with the intersection modifications per the Great Streets program as well as with or without the vacation of Bell Avenue and Enright Avenue between Spring Avenue and Grand Boulevard.

Site Parking Needs:

Scenario	Parking Need	
Existing	1,431 spaces	
Preferred Alternative	Remaining Existing Building	1,093 spaces
	New Construction	1,199 spaces
	Total	2,292 spaces
Secondary Alternative	Remaining Existing Building	1,093 spaces
	New Construction	1,243 spaces
	Total	2,336 spaces

Both alternatives will utilize 240 off-site surface parking stalls in the lot on the northeast corner of Grand Boulevard and Delmar Boulevard. The Preferred Alternative has 164 on-site surface parking spaces and the Secondary Alternative has 126 on-site surface parking spaces. To accommodate the site parking needs, the Preferred Alternative would need 1,888 ramp parking spaces and the Secondary Alternative would need 1,970 ramp parking spaces. Over 800 additional off-site, off-street parking spaces currently being leased could continue to be used towards the site parking supply if desired.

Recommendations:

The following recommendations are made based on the above findings:

- Provide additional parking spaces through on-site surface lot and parking ramp spaces to reach the calculated peak parking demand for the new construction. Off-site parking areas can continue to be leased to accommodate parking needs for the portion of the existing building that remains occupied.
- Have at least 5% of the total parking spaces be ADA accessible, with at least 10% of patient and visitor parking spaces being ADA accessible.
- Include at least six SCI/D parking spaces, four of which are sized to accommodate accessible vans.
- The signals along Grand Boulevard be closely coordinated to minimize queues on Grand Boulevard, especially when reduced to one through lane.

- Emergency vehicle preemption be in place at the signals along Grand Boulevard throughout all phases of reconstruction along Grand Boulevard.
- If the valet area is still in operation with the chosen layout for the site, valet staffing may need to increase to ensure any vehicle backups are contained within the site.
- For new largest parking ramp on site that includes gate arms, two entering and two exiting lanes be included.
- If a roundabout is constructed at Spring Avenue/Delmar Boulevard, the Spring Avenue/Enright Avenue intersection be converted from a signalized intersection to side-street stop control.
- If a roundabout is constructed at Spring Avenue/Delmar Boulevard, pedestrian crossings should not occur in the middle of the roundabout but should be located on the approaches.
- If the Secondary layout is chosen, move the parking access on Enright Avenue further east away from Spring Avenue.
- Include a direct connection to the building from the future Spring Avenue trail. Bicycle parking areas be included in that portion of the site.

TABLE OF CONTENTS

1. Introduction 1
2. Existing Conditions 5
3. Forecasted Traffic 12
4. Parking Analyses 15
5. Vehicular Analyses 19
6. Circulation Analyses 26
7. Conclusions and Recommendations 28
8. Appendix 30

LIST OF FIGURES, TABLES & CHARTS

Figure 1 – Existing Site Layout 1
Figure 2 – Preferred Future Site Layout 2
Figure 3 – Secondary Future Site Layout 2
Table 1 – Study Corridor Characteristics 5
Figure 4 – Existing Study Intersection Configurations 6
Figure 5 – 2019 Daily Volumes 7
Figure 6 – Off-Street Parking Locations 8
Figure 7 – On-Street Parking Locations 9
Table 2 – Off-Street Parking Capacity by Type and Location 10
Table 3 – Off-Street Parking Demand by Location 10
Table 4 – On-Street Parking Demand by Location Type 11
Table 5 – Total VAMC Parking Demands 11
Table 6 – Trip Generation 13
Table 7 – Daily Volume Impacts 13
Table 8 – Parking Lot Demand Per the VAMC Parking Demand Model 15
Table 9 – Required Parking Spaces 16
Table 10 – New Parking Needs 17
Figure 8 – Future Study Intersection Configurations 20
Chart 1 – A.M. Peak Hour Delays: Signal Controlled Intersections 21
Chart 2 – P.M. Peak Hour Delays: Signal Controlled Intersections 21
Chart 3 – Peak Hour Queues: Roundabout Controlled Intersection 22
Chart 4 – A.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections 23
Chart 5 – P.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections 23

1. Introduction

a. Proposed Development

The Veterans Affairs Medical Center (VAMC) is proposing a redevelopment of its John Cochran Division site in St. Louis, Missouri. This redevelopment will remove some existing buildings, add new buildings, and change the site parking facilities. Street vacations will also occur for Bell Avenue and Enright Avenue between Spring Avenue and Grand Boulevard. Figure 1 shows the existing layout of the site, Figure 2 shows the Preferred Alternative future layout of the site and Figure 3 shows a Secondary Alternative future layout of the site.

Figure 1 – Existing Site Layout

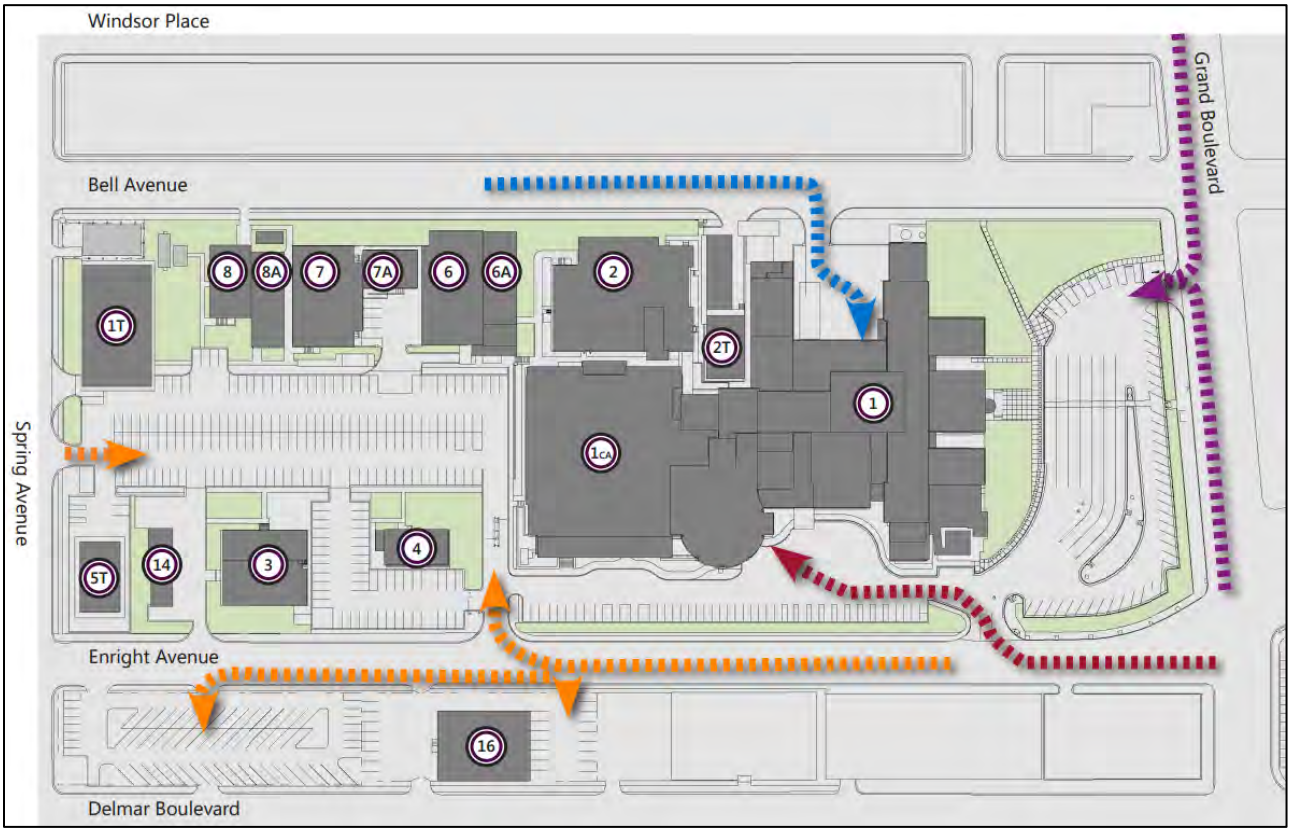


Figure 2 – Preferred Future Site Layout

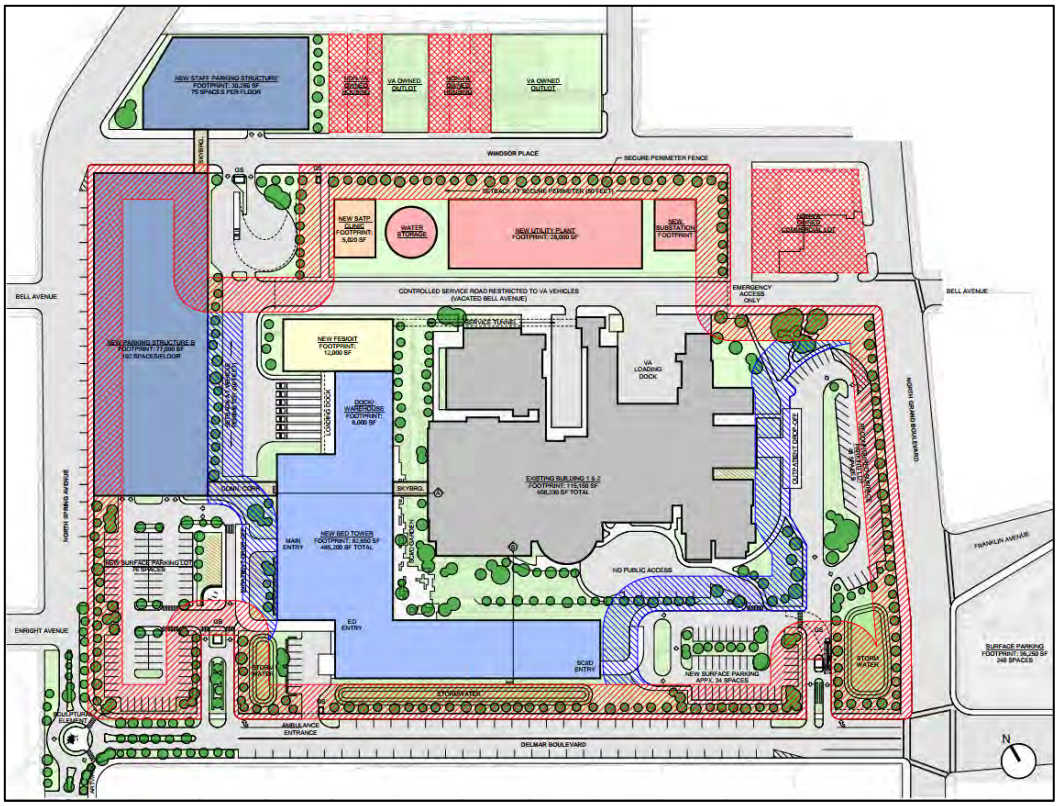
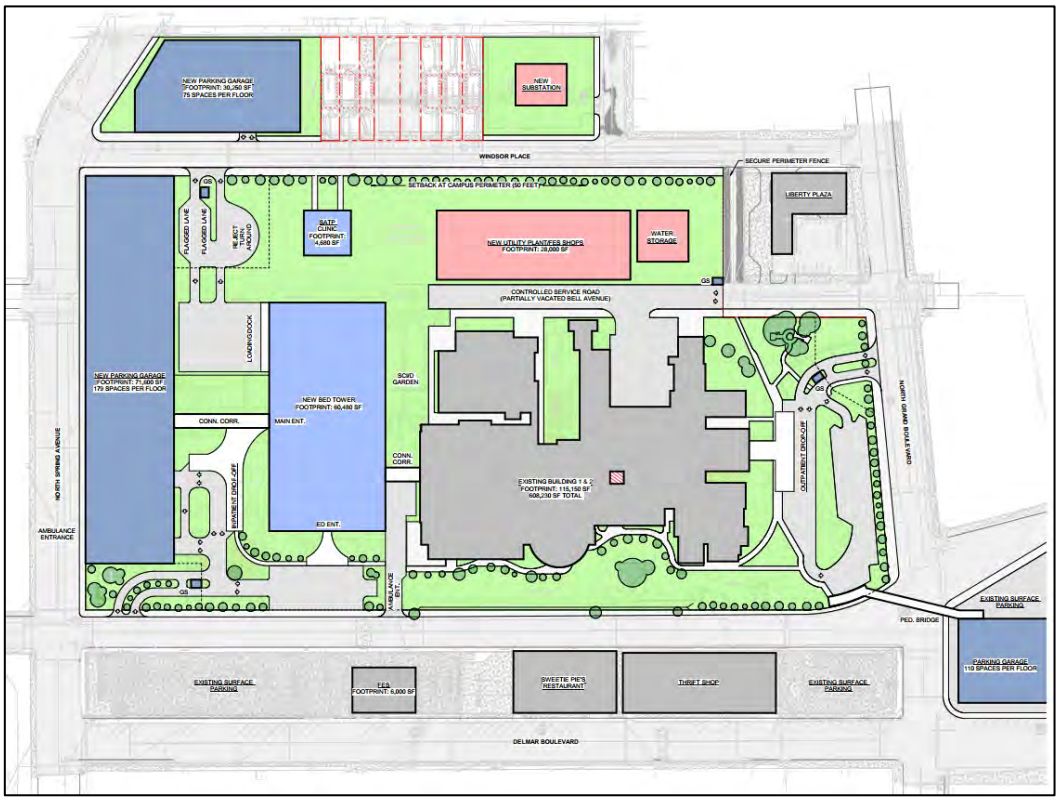


Figure 3 – Secondary Future Site Layout



The following are key attributes of the proposed development:

i. Added parking on site will change circulation patterns around the site. In the Preferred Alternative most vehicles will access the site via Windsor Place and Delmar Boulevard. In the Secondary Alternative most vehicles will access the site via Windsor Place and Enright Avenue.
ii. Both future scenarios have an anticipated street vacation of Bell Avenue east of Spring Avenue to either Grand Boulevard or the west side of Liberty Plaza. The Preferred Alternative also anticipates a street vacation of Enright Avenue between Spring Avenue and Grand Boulevard.
iii. Both layouts will utilize 465,000 square feet of the existing 615,000 square feet of building. The Preferred Alternative will include 538,220 square feet of new building construction and the Secondary Alternative will include 557,030 square feet of new building construction.
iv. For the purposes of this study, the development is expected to be fully redeveloped and occupied by 2038.

b. Purpose of Study

The purpose of this study is to determine the traffic and parking impacts associated with the build-out of the proposed VAMC redevelopment. The traffic impacts are studied on the roads and intersections where significant impact is anticipated, and improvements recommended where mitigation is needed. The parking impacts require examining the current capacity and demand, determining the parking demand after the expansion, and establishing the number of additional stalls required, if necessary.

For those not familiar with the general concepts and terms associated with traffic engineering, *The Language of Traffic Engineering* guide is included in the Appendix.

c. Study Objectives

The objectives of this study are to:

i. Document how the study intersections and roadways currently operate.
ii. Document existing parking demand.
iii. Forecast the amount of traffic expected to be generated by the proposed redevelopment.
iv. Determine how the study intersections and roadways will operate in the future with and without the proposed redevelopment.
v. Forecast the parking demand with the redevelopment.
vi. Recommend appropriate mitigation measures if poor operations or a deficiency in parking are identified.

The roadway corridors studied in this document include those surrounding the proposed site, which are:

- Spring Avenue
- Grand Boulevard
- Windsor Place
- Bell Avenue

- Enright Avenue/Franklin Avenue
- Delmar Boulevard

For the purposes of this traffic study, the study intersections closest to the proposed development and where the greatest impact is expected were chosen for review and included:

- Spring Avenue & Windsor Place
- Spring Avenue & Bell Avenue
- Spring Avenue & Enright Avenue
- Spring Avenue & Delmar Boulevard
- Grand Boulevard & Windsor Place
- Grand Boulevard & Bell Avenue
- Grand Boulevard & Enright Avenue/Franklin Avenue
- Grand Boulevard & Delmar Boulevard

It should be noted traffic expected from the proposed development will have minor impacts on other corridors and intersections beyond those studied here. Furthermore, this study does not account for the existing roadway conditions such as pavement quality or appropriate drainage.

2. Existing Conditions

a. Corridor Characteristics

As mentioned, the proposed site is located on the existing VAMC John Cochran Division campus on Grand Boulevard in St. Louis, Missouri. Table 1 shows the characteristics of the key roadway corridors around this site and within the study area.

Table 1 – Study Corridor Characteristics

Name	Classification[1]	Speed Limit	Lanes	Fixed Route Transit[2]	Peds/ Bicycles
Spring Avenue	Major Collector	30 mph	4 Undivided	None	Sidewalks Both Sides
Grand Boulevard	Principal Arterial	30 mph	4 Undivided	Route 70 5 buses/hour	Sidewalks Both Sides
Windsor Place	Local	30 mph	2 Undivided	None	Sidewalks Both Sides
Bell Avenue	Local	30 mph	2 Undivided	None	Sidewalks Both Sides
Enright Avenue[3]	Local	25/30[4] mph	2 Undivided	Route 97 2 buses/hour	Sidewalks Both Sides
Delmar Boulevard	Local	30 mph	2 Undivided	Route 97 2 buses/hour	Sidewalks Both Sides

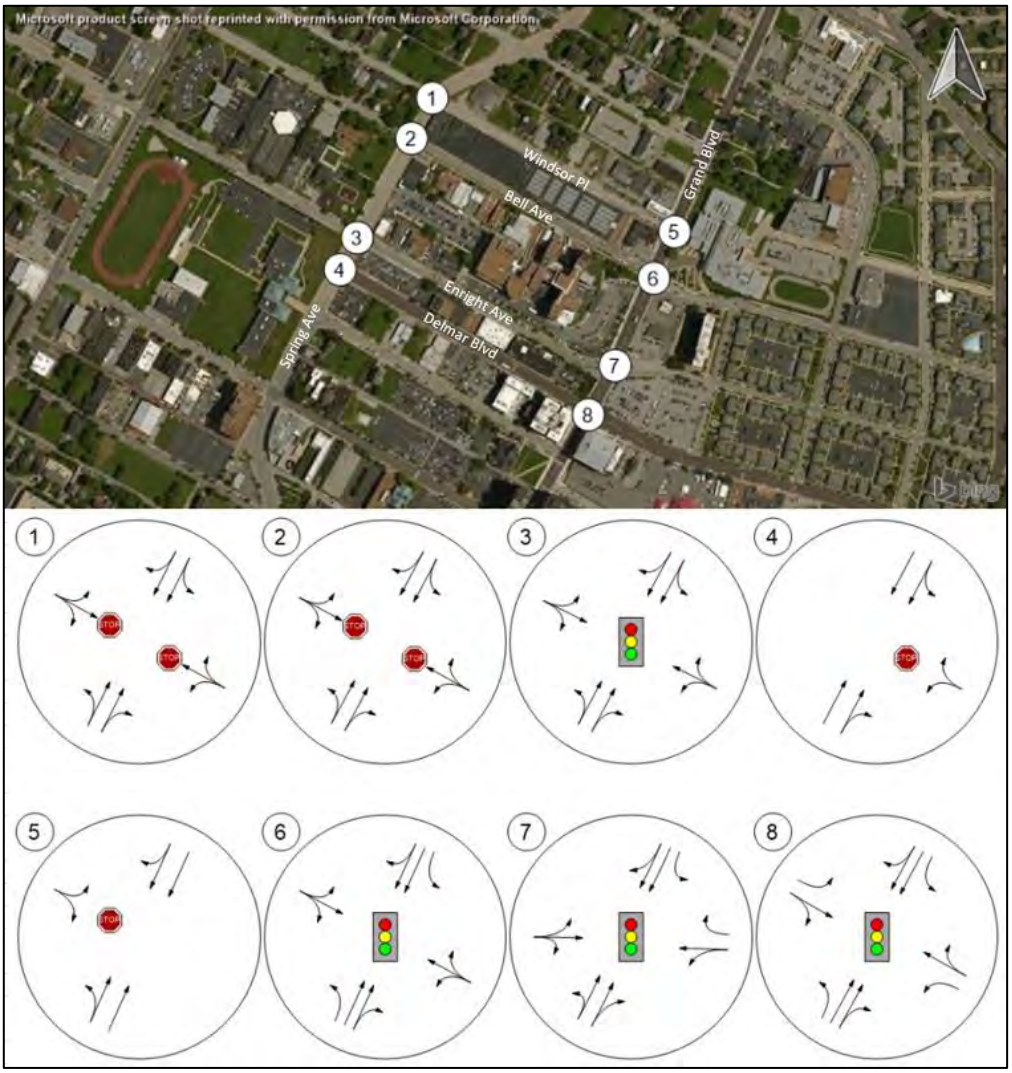
[1] Source: MoDOT Functional Classification Maps.
[2] Route followed by the frequency of transit service during the peak periods.
[3] Enright Avenue becomes Franklin Avenue east of Grand Boulevard.
[4] Enright Avenue is 25 mph between Spring Avenue and Grand Boulevard.

On-street parking is available on most roadways within the study area. The only road segment that does not allow on-street parking is Grand Boulevard north of Delmar Boulevard. On-street parking in the study area is free everywhere except for on Bell Avenue, Enright Avenue and Delmar Boulevard between Spring Avenue and Grand Boulevard as well as Franklin Avenue between Grand Boulevard and Theresa Avenue. The on-street parking is provided in the form of parallel parking except for the north side of Enright Avenue between Spring Avenue and the eastern site access as well as on the north side of Delmar Boulevard east of Spring Avenue where 45-degree angled parking is provided. It is noted that demolition was occurring in the area between Windsor Place and Bell Avenue during site visits which temporarily impacted the on-street parking and pedestrian facilities.

b. Intersection Characteristics

The Spring Avenue/Enright Avenue, Grand Boulevard/Bell Avenue, Grand Boulevard/Enright Avenue and Grand Boulevard Delmar Boulevard intersections are under signalized control. The other study intersections are under side-street stop control with Spring Avenue and Grand Boulevard having free-flow conditions. Intersection configurations can be seen in Figure 4.

Figure 4 – Existing Study Intersection Configurations



It was noted that, due to the demolition work occurring between Windsor Place and Bell Avenue as well as on-street parking on Spring Avenue, the sight distance for the westbound approach on Windsor Place at Spring Avenue is limited.

During the site visit and traffic counts, there was utility work causing some lane blockages at the Grand Boulevard & Enright Avenue/Franklin Avenue intersection. The southbound approach was restricted to one through lane and the lanes on the west leg were narrowed. All movements were still open traffic, so it is assumed the impacts to volumes were minimal.

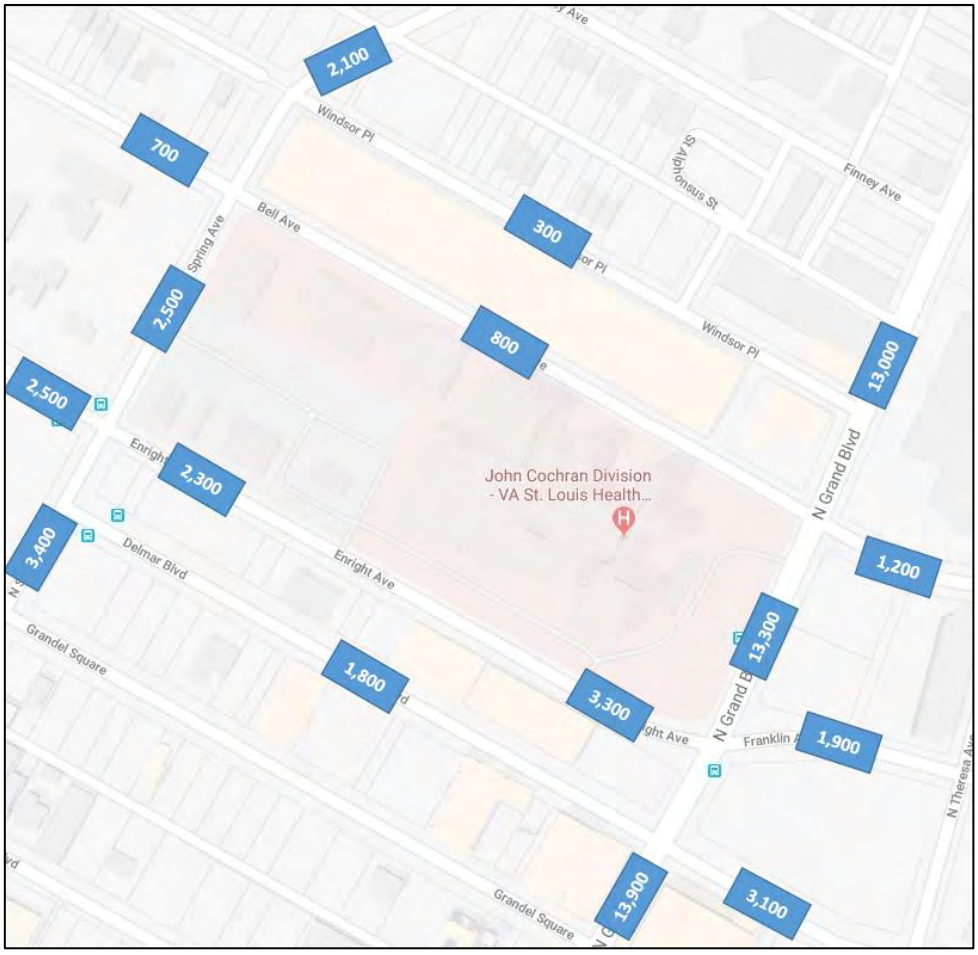
c. *Traffic Volumes*

Intersection video was collected at the existing study intersections under normal weekday conditions in February 2019. Using these videos, 48-hour turning movement counts were obtained at the study intersections. The data from the two days was averaged to provide the base traffic for a “typical weekday.”

The average a.m. and p.m. peak hours were found to be from 7:30 to 8:30 a.m. and 3:15 to 4:15 p.m. The “typical day” counts from these two peak hours were used at the study intersections for analysis. The turning movement count data from the counts are contained in 15-minute intervals in the Appendix.

Figure 5 shows the current daily volume based on the “typical day” turning movement volumes.

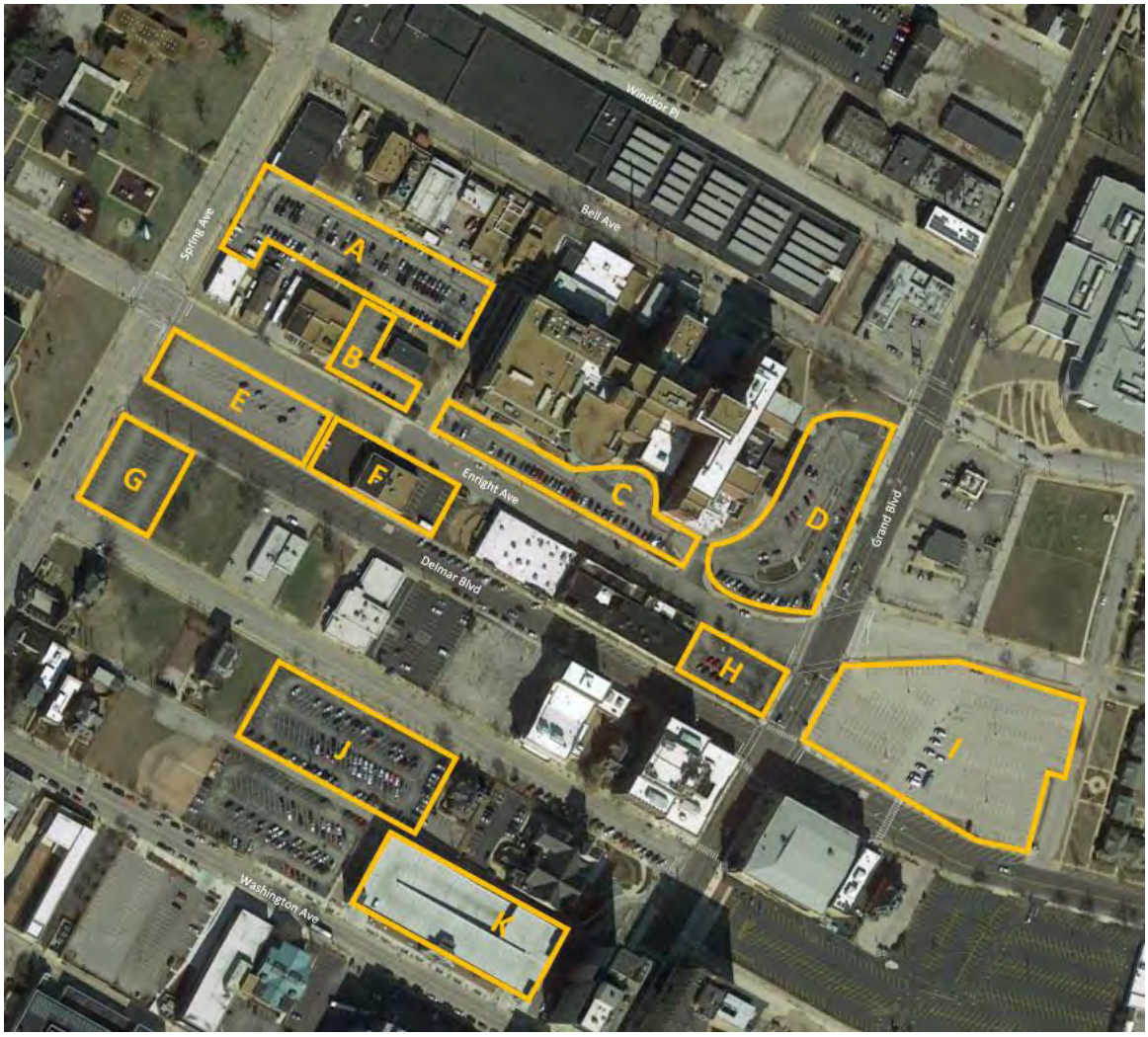
Figure 5 – 2019 Daily Volumes



d. Parking Demand

Parking for the site is currently spread out across a number of different areas. Figure 6 below shows off-street parking facilities that are used by staff and visitors of the VAMC. Lots A, B, E, F, G and J are exclusively used by VAMC staff. Lot C is used by visitors and for drop-offs as well as emergency vehicles. Lot D has some visitor parking and operates as the valet loading/unloading area. Lot H is a valet parking area. Lot I contains a split between valet parking and visitor parking. Parking area K is a ramp that is leased during the day for VAMC use but is also utilized by other area businesses.

Figure 6 – Off-Street Parking Locations



The total existing parking capacity in these off-street areas is 1,567 parking spaces.

On-street parking is also available on most roadways surrounding the site. Figure 7 shows where on-street parking is available on roads close enough to the site that on-street parking may be used by people going to the VAMC.

Figure 7 – On-Street Parking Locations

The total existing parking capacity in these on-street areas is 524 parking spaces; 314 free and 210 metered. It is noted that due to road work, eight on-street spaces on Enright Avenue west of Grand Boulevard were not available for use during the site visit.

Counts in the parking lots and on-street sections were taken in February of 2019, providing a snapshot of the current parking use. Table 2 shows the breakdown of the type of parking spaces for each of the off-street areas. Table 3 shows the parking demand compared to the capacity of each off-street area based on the counts completed throughout the day. Table 4 shows the parking capacity and demand during these same time periods for the on-street sections shown in Figure 7. Detailed parking counts can be seen in the Appendix.

Based on site observations, it appeared that a large majority of the vehicles parked in Ramp K during midday periods were for the VAMC, so it is assumed all vehicles during the parking lot counts are for the VAMC. This may result in a parking demand calculation slightly higher than actual.

Because the on-street spaces are available to anyone, it cannot be assumed that it is all VAMC related vehicles using these spaces. However, the spaces on Enright Avenue between Spring Avenue and Theresa Avenue were noted to be almost exclusively used by VAMC visitors and they are therefore included in the total VAMC parking demand. Due to the uncertainty of who is utilizing the other on-street spaces, those numbers are provided for informational use only.

Table 2 – Off-Street Parking Capacity by Type and Location

Lot	Regular	Handicap	Visitor	Carpool / Vanpool	Total Capacity
A	151	17	0	15	183
B	46	2	0	0	48
C	7	13	17	4	41
D	61	21	14	0	96
E	63	0	0	0	63
F	26	1	0	0	27
G	64	0	0	0	64
H	31	2	0	0	33
I	0	0	260	0	260
J	141	5	0	0	146
K	584	22	0	0	606
TOTALS	**1,174**	**83**	**291**	**19**	**1,567**

Table 3 – Off-Street Parking Demand by Location

Lot	Parking Demand per Survey Date and Time					Peak Parking Demand
	2/19/2019 11:15 - 12:00	2/19/2019 15:15 - 16:00	2/20/2019 9:00 - 9:45	2/20/2019 12:45 - 13:30	2/21/2019 10:00 - 10:45	
A	168	145	175	178	183	100%
B	46	35	47	47	46	98%
C	38	35	36	35	40	98%
D	82	70	94	87	86	98%
E	63	53	62	63	63	100%
F	31	25	31	31	31	115%
G	64	26	64	64	64	100%
H	28	8	29	23	31	94%
I	170	51	126	164	165	65%
J	120	103	120	123	141	97%
K	476	440	444	469	475	79%
TOTALS	1,286	991	1,228	1,284	1,325	85%

As seen in Table 3, all of the off-street parking areas were at or very close to capacity at some point during the parking lot counts. The only exceptions were areas I and K which are the two largest parking areas. Area F is noted to exceed its parking capacity at times as a number of vehicles were observed to be double parked within the lot. During the five parking lot counts, the handicap accessible spaced averaged 75% occupancy.

Table 4 – On-Street Parking Demand by Location Type

Location/Type	Stalls Provided	Parking Demand per Survey Date and Time					Peak Parking Demand
		2/19/2019 11:00	2/19/2019 15:00	2/20/2019 8:45	2/20/2019 13:00	2/21/2019 9:45	
Enright Ave – Spring Ave to Theresa Ave	84	69	56	66	81	76	96%
Other Metered Spaces	126	54	64	38	50	41	51%
Other Free Spaces	314	209	185	187	190	204	67%
TOTALS	524	332	305	291	321	321	63%

As seen in Table 4, the on-street parking spaces on Enright Avenue that are likely to be solely used by VAMC visitors were nearly at capacity during the parking counts. The other on-street spaces are typically between a half and two-thirds occupied during weekday midday periods with free spaces seeing higher occupancy rates.

Summing up the on-street parking on Enright Avenue from Spring Avenue to Theresa Avenue plus all the off-street parking gives an approximate amount of the VAMC parking demand and capacity.

Table 5 – Total VAMC Parking Demands

Location/Type	Stalls Provided	Parking Demand per Survey Date and Time					Peak Parking Demand
		2/19/2019 11:00 - 12:00	2/19/2019 15:00 - 16:00	2/20/2019 8:45 - 9:45	2/20/2019 12:45 - 13:30	2/21/2019 9:45 - 10:45	
On-Street	84	69	56	66	81	76	96%
Off-Street	1,567	1,286	991	1,228	1,284	1,325	85%
TOTALS	1,651	1,355	1,047	1,294	1,365	1,401	85%

Based on this information, the existing peak parking demand observed for the site was 1,401 vehicles, 85% of the total capacity. This peak occurred during the late-morning timeframe, which is what would be expected for a medical facility.

3. Forecasted Traffic

a. Site Traffic Forecasting

A trip generation analysis was performed for the development site based on the methods published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition*. The ITE manual compiles studies from across the country to provide a national average traffic for various land uses.

Utilizing cameras that were placed at each of the parking area access points in February of 2019, a trip generation rate could potentially be developed specifically for this site. In a 24-hour period an average of just over 4,000 vehicles were counted entering the parking areas and 4,000 vehicles exiting the parking areas, or 8,000 total trips. However, with the use of the valet, one vehicle may have several entering and exiting counts as the vehicle owner drives into parking area D, a valet drives to another parking area to park the vehicle, a valet drives back to parking area D and the vehicle owner exits the site. With these types of operations, plus the use of on-street parking, the 4,000 entering and exiting trips do not necessarily correspond to 4,000 unique vehicle trips to the site. Because of this, an accurate site-specific trip generation rate is not able to be made and the ITE rates are used for future forecasting. The detailed parking area counts are included in the Appendix for reference.

The raw trip generation can generally be divided among three types of trips – new, pass-by, and internal. New trips represent traffic increasing the overall number of vehicles at the intersections. Pass-by trips are those vehicles already on the roads which will stop at the development site in the future. Internal trips are those vehicles within the site visiting two or more stores. For the purposes of this study, all trips would be new trips to the site.

The resultant new trips generated by the different scenarios of the development are shown in Table 6. It should be noted that the trips for all the proposed facilities were added together for the trip generation. The square footage shown for both layouts reflects the new construction plus the 465,000 square feet of existing building planned to be utilized. The square footage for the new proposed utility plant is not included in the forecasts. The Preferred Alternative totals at 975,220 square feet and the Secondary Alternative totals at 994,030 square feet.

Table 6 – Trip Generation

Land Use Code Source	Description & Size	Daily		AM Peak Hour		PM Peak Hour	
		In	Out	In	Out	In	Out
610 - ITE	Existing Hospital (615,000 sq. ft.)	3,296	3,296	372	175	191	406
610 - ITE	Preferred Alternative Hospital (975,220 sq. ft.)	5,227	5,227	590	278	303	643
Added Trips with Preferred Layout		*1,931*	*1,931*	*218*	*103*	*112*	*238*
610 - ITE	Secondary Alternative Hospital (994,030 sq. ft.)	5,328	5,328	602	283	309	656
Added Trips with Secondary Layout		*2,032*	*2,032*	*229*	*108*	*118*	*250*

From Table 6, the trips at the existing hospital accounts for vehicles that are already on the road. The difference between the existing and future trip generations reflects the number of trips that will be added to the roadways.

A trip distribution pattern was developed for the generated traffic going to and from the proposed development. This pattern is based on the existing traffic volumes, site access and access to the regional transportation system. The general trip distribution pattern for this study is:

i. 20% to/from the north on Grand Boulevard
ii. 10% to/from the east on Delmar Boulevard
iii. 40% to/from the south on Grand Boulevard
iv. 15% to/from the south on Spring Avenue
v. 15% to/from the west on Enright Avenue

Traffic generated by the site development was assigned to the area roadways per this distribution pattern. Based on the trip generation and distribution, the impact to the daily volumes shown Figure 5 can be determined. Table 7 lists those changes.

Table 7 – Daily Volume Impacts

Roadway	Location	Existing Daily Volume	Preferred Alternative		Secondary Alternative	
			Added Volume	% Increase	Added Volume	% Increase
Grand Boulevard	North of Windsor	13,000	800	6%	800	6%
Grand Boulevard	South of Delmar	13,900	1,500	11%	1,600	12%
Delmar Boulevard	East of Grand	3,100	400	13%	400	13%
Spring Avenue	South of Delmar	3,400	600	18%	600	18%
Enright Avenue	West of Spring	2,500	600	24%	600	24%

As seen in Table 7, the surrounding roadways will see increases in daily traffic volumes. Nearly all will be less than a 20% increase with the exception of Enright Avenue west of the site. According to the Highway Capacity Manual, 6th Edition, a road like Enright Avenue has a daily capacity of around 10,000 vehicles. With the existing volumes on that segment of Enright Avenue being relatively low, the future volumes on that roadway will be well within the capacity of the road.

b. Non-site Traffic Forecasting

The impacts of the proposed development are studied in 2038. To forecast future traffic volumes in the study area outside of the proposed development's traffic, the general growth in traffic is considered.

A traffic study was done for this site in 2012. In that study, traffic counts were conducted at the same eight study intersections. To see if any growth has occurred between 2012 and 2019, the peak hour turning movement counts at each of the study intersections were compared. In that seven-year period, the intersections along Spring Avenue saw an average of three percent total growth in volumes while the intersections along Grand Boulevard saw an average of eight percent decrease in total volumes. Overall, the study intersections have seen a decrease in peak hour volumes as compared to the 2012 traffic study.

Based on this information, a growth rate of approximately 0.2% per year was utilized. This equates to a 4% increase from 2019 traffic volumes to 2038 traffic volumes. This matches the 2012 traffic study and allows for the ability to analyze some growth at the study intersections. This growth rate was applied to all movements in the study network except for those directly accessing the VAMC, since those movements will only be increased with the development's forecast trip generation.

Applying this background growth rate to the existing traffic volumes established the 2038 No-Build forecasts.

c. Total Traffic

Traffic forecasts were developed for the 2038 scenarios by adding the traffic generated by the proposed development to the non-site forecast volumes.

4. Parking Analyses

a. *Existing Calculated Parking Demand*

As mentioned, our count of the parking area revealed approximately 85% of the existing parking stalls are occupied at the peak demand. This count occurred in February under typical weekday conditions. However, this captured parking use over only two days. Daily and seasonal variations, normal for any land use, could impact the amount of parking on those counting days.

To account for these variations, the Veterans Affairs Medical Center Parking Demand Model is used to determine the peak demand of a VA hospital. This model is a calculation based on the size of a hospital, its location, the type and number of staff, the number of patients, and the number of visitors. Using the 2011 population provided by the VA in this calculation, the model determined the peak parking demand for the existing conditions is 1,301 occupied spaces. This is similar to the observed peak parking demand of 1,401 shown in Table 5 suggesting that this is a realistic parking demand. Table 8 shows the breakdown of the VA parking model by population group.

Table 8 – Parking Lot Demand Per the VAMC Parking Demand Model

Population Group	Peak Population	Selected Demand Ratio	Peak Parking Demand
Staffing			
Full-time	1,038	0.49	510
Part-time	79	0.49	40
Physicians	156	0.70	110
Service Organization	8	0.55	4
Volunteers	49	0.14	7
Students	255	0.17	40
Total Staffing	**1,585**	**---**	**711**
Patients			
Outpatients	1,975	0.20	400
Inpatient Admissions	90	0.24	20
ED Patients	50	0.40	20
Total Patients	**2,115**	**---**	**440**
Visitors			
Inpatient & ED Visitors	125	0.38	50
Non-treatment Visitors	150	0.54	80
Vendors	50	0.38	20
Total Visitors	**325**	**---**	**150**
Total	**4,025**	**---**	**1,301**

The VA further states the practical capacity of a parking lot should be 10% higher than demand due to misaligned parkers taking two stalls and other factors (snow storage, etc.) that reduce the availability of some stalls. With a calculated peak parking demand of 1,301 vehicles using the existing 1,651 spaces, the current parking is about 79% full. According to these calculations, the current parking is within the practical capacity. However, the current parking supply includes on-street parking spaces and off street areas several blocks from the site.

b. Projected Parking Demand

Future parking demand is estimated based on a ratio of parking demand to building square footage. This ratio can be developed using the existing parking demand and building area. Table 9 shows the results of the future parking demand calculations.

Table 9 – Required Parking Spaces

Parking Criteria	Existing Building	Future Remaining Existing Building	Preferred Alternative		Secondary Alternative	
			New Buildings	Total	New Buildings	Total
Square Footage	615,000	465,000	510,220	**975,220**	529,030	**994,030**
Parking Demand	1,301	984	1,079	**2,063**	1,119	**2,103**
Practical Parking Capacity Need (Demand/0.9)	1,431	1,093	1,199	**2,292**	1,243	**2,336**

Assuming the practical capacity of 90%, the needed number of parking spaces to accommodate the new construction on site is 1,079 parking stalls in the Preferred Alternative and 1,119 parking stalls in the Secondary Alternative. With the plan to utilize 465,000 square feet of the existing building, there will be a total parking capacity need of 2,292 parking stalls in the Preferred Alternative and 2,336 parking stalls in the Secondary Alternative.

c. Fulfilling the Projected Parking Demand

Comparing Figures 2 and 3 to Figure 1, it can be seen that a number of surface and on-street parking areas are planned to be removed, with new surface and ramp parking areas to be added to the site. Both the Preferred Alternative and Secondary Alternative show three parking ramps proposed on site.

For the Preferred Alternative, the parking areas that would be removed are, based on Figure 6, areas A, B, C, E, F and H. The street vacations will also remove on-street availability for the site. For the Secondary Alternative, the parking areas that would be removed are, based on Figure 6, areas A, B, C, and a portion of I. For both layouts, parking area D would remain but be reconfigured. Parking area I is flagged as remaining with 240 surface parking stalls in the Preferred Alternative and it is assumed that would also be the case for the Secondary Alternative. Parking areas G, J and K could remain for off-site parking.

It is anticipated that the new on-site parking ramps will be able to accommodate the parking capacity needs for the new construction. Table 10 summarizes the parking capacity needing to be accommodated in the new ramps assuming the existing building is not occupied, and all off-site parking is not used.

Table 10 – New Parking Needs

Scenario	Preferred Alternative	Secondary Alternative
Off-Site Parking Capacity	816 (Areas G, J, K)	939 (Areas E, F, G, H, J, K)
On-Site Surface Spaces (Including Parking Area I)	404	366
Practical Parking Capacity Need	2,292	2,336
Ramp Spaces Needing to Be Provided if Off-Site/On-Street Parking **Not Used**	1,888	1,970
Ramp Spaces Needing to Be Provided if Off-Site/On-Street Parking **Is Used**	1,072	1,031

As seen in Table 10, it is assumed the 240 parking spaces in parking area I located on the northeast corner of Grand Boulevard/Delmar Boulevard will be utilized for the site. If the other off-site parking areas were not used, approximately 1,888 parking spaces would be needed to be provided in parking ramps on site in the Preferred Alternative and 1,970 ramps spaces would be needed in the Secondary Alternative. If all the off-site parking areas were used, less than 1,100 ramp parking spaces would be needed on site. If only a portion of the off-site parking areas were used, the on-site ramp parking needed would be between those two bounds.

d. Accessible Parking Spaces

The VA Parking Design Manual suggests, as a starting point for determining the number of ADA accessible spaces to provide, 5% of the total number of parking spaces for the VAMC be ADA accessible. That is in line with the current supply and demand observed at the site during the parking counts. 5% of total parking supply would equate to:

- 72 ADA spaces of 1,431 total spaces in the Existing scenario
- 115 ADA spaces of 2,292 total spaces in the Preferred Alternative scenario
- 117 ADA spaces of 2,336 total spaces in the Secondary Alternative scenario

Patient and visitor parking spaces serving hospital outpatient facilities should have 10% of spaces be ADA accessible. That means that a higher concentration of the ADA spaces throughout the site should be located in patient and visitor parking areas.

Parking requirements for spinal cord injury/disorder (SCI/D) areas are more detailed in the VA Parking Design Manual and are as follows:

- 0.2 accessible spaces per SCI/D inpatient bed with these spaces specifically dedicated for SCI/D patients
- 0.5 spaces per bed in SCI/D long-term care facilities

- 5.6 spaces per SCI/D clinic exam room
- 60% of accessible spaces be designated as van accessible in the design

For 30 proposed SCI/D beds, at least six accessible spaces specifically needed for SCI/D patients would be needed, four of which are sized to accommodate accessible vans.

The VA Parking Design Manual does not have guidance on how much electric vehicle parking to provide on-site. As electric vehicles become more common, it is recommended that spaces be available on site for them to charge at. If possible, it is recommended that 1% of the on-site parking have electric vehicle charging capabilities. As with the total parking supply, at least five percent of electric vehicle charging spaces should be ADA accessible.

5. Vehicular Analyses

a. *Intersection Vehicular Analysis*

Capacity analyses are performed for the study intersections to determine if they need improvements, such as turn lanes or an upgrade in traffic control. The existing and forecasted turning movement volumes were used to develop the average delay per intersection in each study scenario. As mentioned, it is conservatively assumed that the existing building will remain fully occupied on site in addition to the new construction for the sake of this analysis. The delay calculations were done in accordance with the *Highway Capacity Manual, 6th Edition* using the Vistro software package. The full calculations for each study scenario, including Level of Service (LOS) grades and queue lengths, are included in the Appendix. Also, included in the Appendix is a guide explaining the Level of Service grade concept.

For these calculations, the existing configurations and traffic control were used for the existing scenarios. However, different intersection layouts were utilized in the future scenarios.

For both layouts, Bell Avenue is proposed to be vacated from east of Spring Avenue to the west side of Liberty Plaza. In the Preferred layout, Enright Avenue is proposed to be vacated between Spring Avenue and Grand Boulevard. Delmar Boulevard at Spring Avenue is proposed to become a single lane roundabout.

The East-West Gateway Council of Governments has an initiative called St. Louis Great Streets. The Great Streets initiative is a complete streets program aimed at redesigning particular streets throughout the City of St. Louis to make them more accessible to all modes of transportation. One of the Great Streets projects is in the Grand Center District around the area of the VAMC. Within the study area, the changes that are proposed by the Great Streets project are along Grand Boulevard, Spring Avenue and Delmar Boulevard. Those changes include:

- Converting Grand Boulevard from a four-lane road with left turn lanes to a two-lane road with left turn lanes. Sidewalks and boulevards would be expanded with bus pullouts built into them.
- Converting Spring Avenue south of Enright Avenue from a four-lane road to a two-lane road. Cut-outs for on-street parking would be provided and a multi-use trail would be provided on the east side of Spring Avenue.
- Converting Delmar Boulevard to a three-lane road with a two-way left turn lane down the middle. On-street parking would be converted to parallel parking on both sides.

All of these proposed changes were accounted for in the future capacity analyses. Figure 8 shows the intersection layouts used. With the reduction in through lanes on Grand Boulevard and Spring Avenue, it is possible that will naturally cause a reduction in volumes as drivers may divert from the area. No reductions of this type were made which presents a conservative analysis.

Figure 8 – Future Study Intersection Configurations

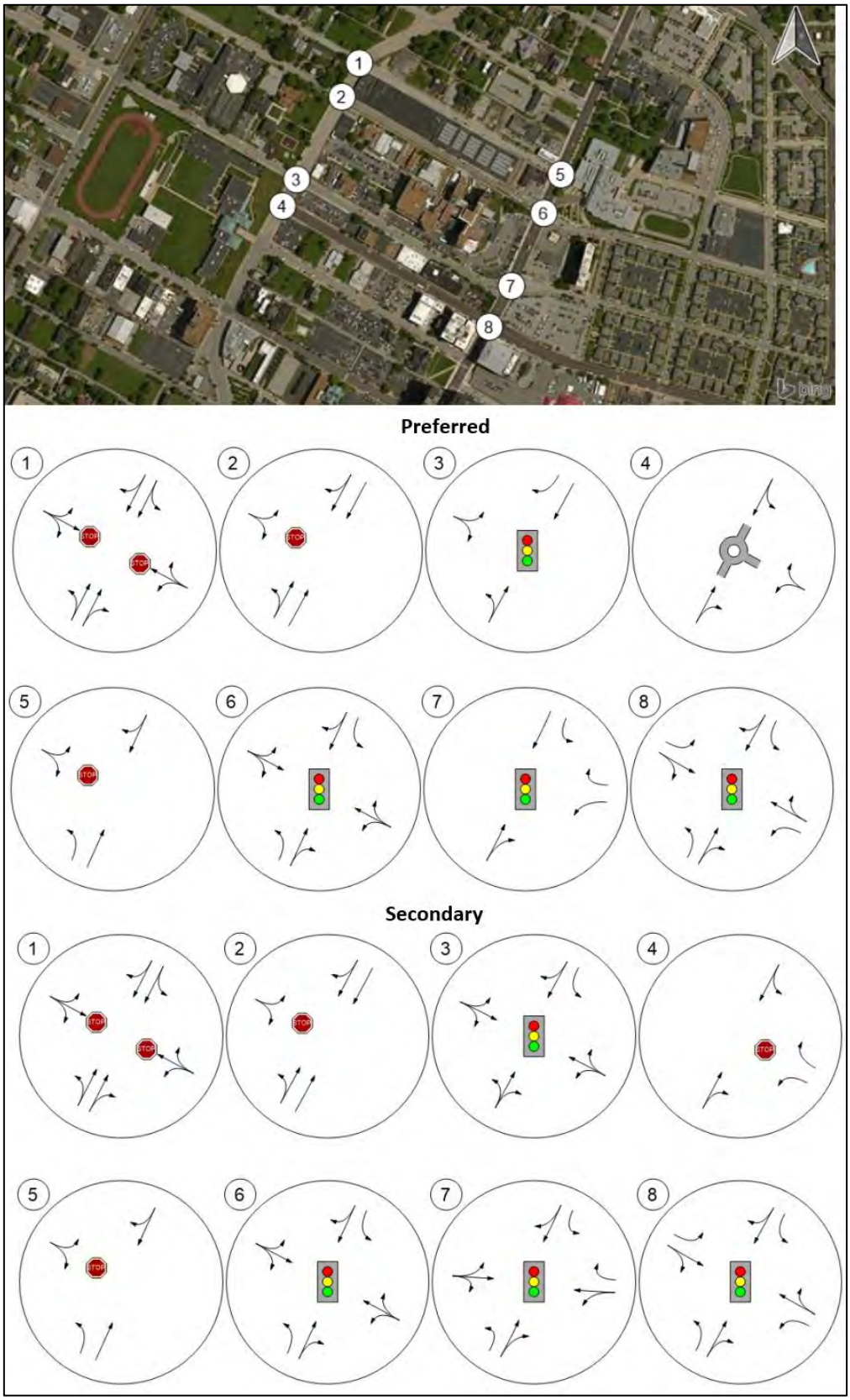


Chart 1 (a.m. peak hour) and Chart 2 (p.m. peak hour) show the average peak hour delay per traffic signal-controlled intersection for each study scenario. The LOS D/E boundary of 55 seconds of delay per vehicle is considered the threshold between acceptable and unacceptable traffic signal operation.

The signal timing for the existing conditions was taken from observation. Signal timing plans are modified in the Build scenarios to account for intersection layout changes where applicable.

Chart 1 – A.M. Peak Hour Delays: Signal Controlled Intersections

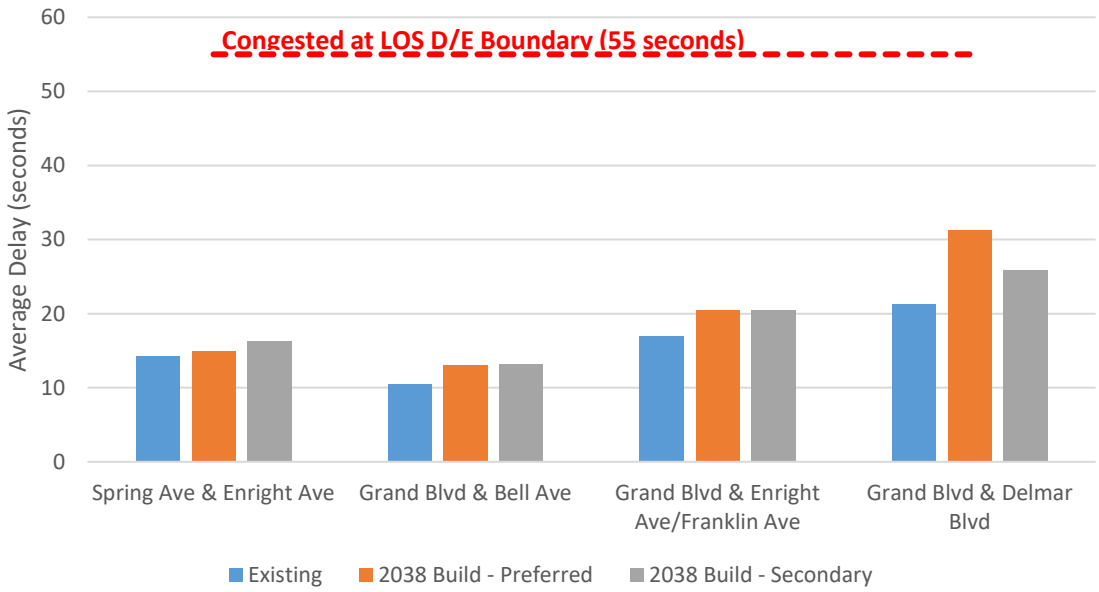


Chart 2 – P.M. Peak Hour Delays: Signal Controlled Intersections

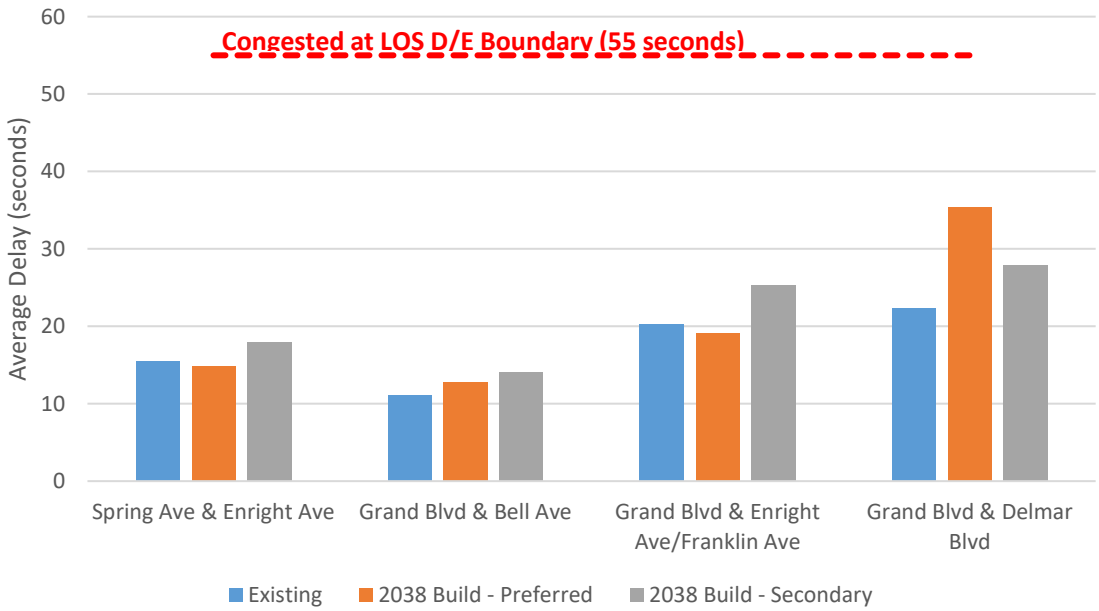
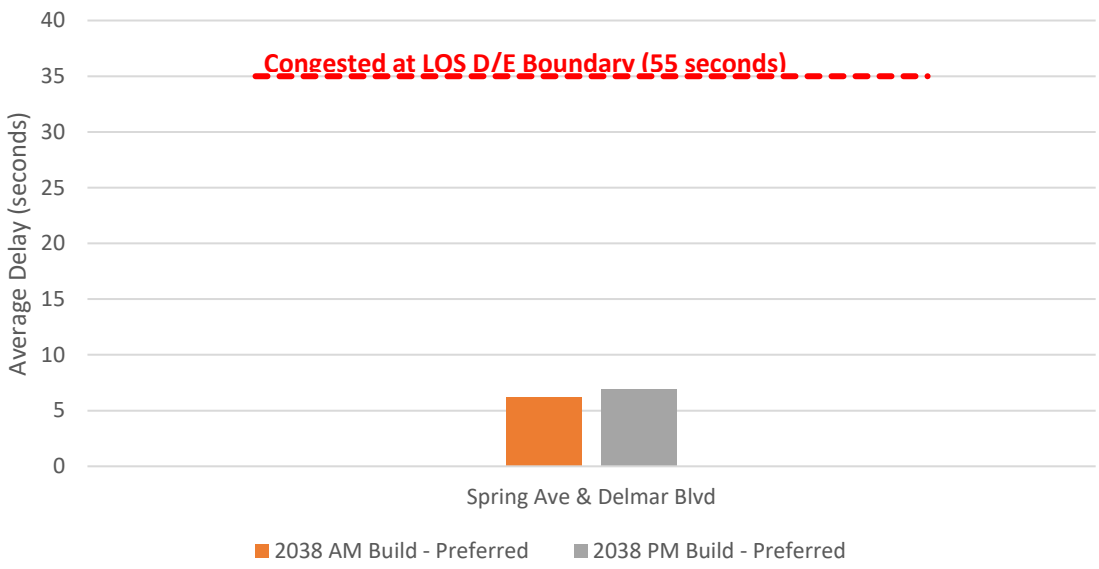


Chart 3 shows the average peak hour delay per roundabout controlled intersection for each study scenario. The LOS D/E boundary of 35 seconds of delay per vehicle is considered the threshold between acceptable and unacceptable all-way stop and roundabout operation. The *Highway Capacity Manual* sets the threshold lower at all-way stop signs and roundabouts then at traffic signal controlled intersections based on the theory motorists have more patience at traffic signal controlled intersections and accept longer delays at a red light.

Chart 3 – Peak Hour Queues: Roundabout Controlled Intersection



Instead of reporting average approach delays like the previous charts, Chart 4 (a.m. peak hour) and Chart 5 (p.m. peak hour) show the 95th percentile queue lengths on the busiest controlled approach at side-street stop sign control intersections. Average delays are not presented for intersections with side-street stop sign control because the vast majority of vehicles going through the intersection are on the main roadway and have zero delay, which leads to low overall average delays. At side-street stop sign controlled approaches to busy roadways, the average delay for all the vehicles on the approach often exceeds 60 seconds. This result can be the case for a few vehicles waiting at the stop sign where improvements would not be justified for the low traffic volume. Based on our experience, improvements are not warranted at these types of intersections until the 95th percentile queue at a stop sign is in the five to ten vehicle range.

Chart 4 – A.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections

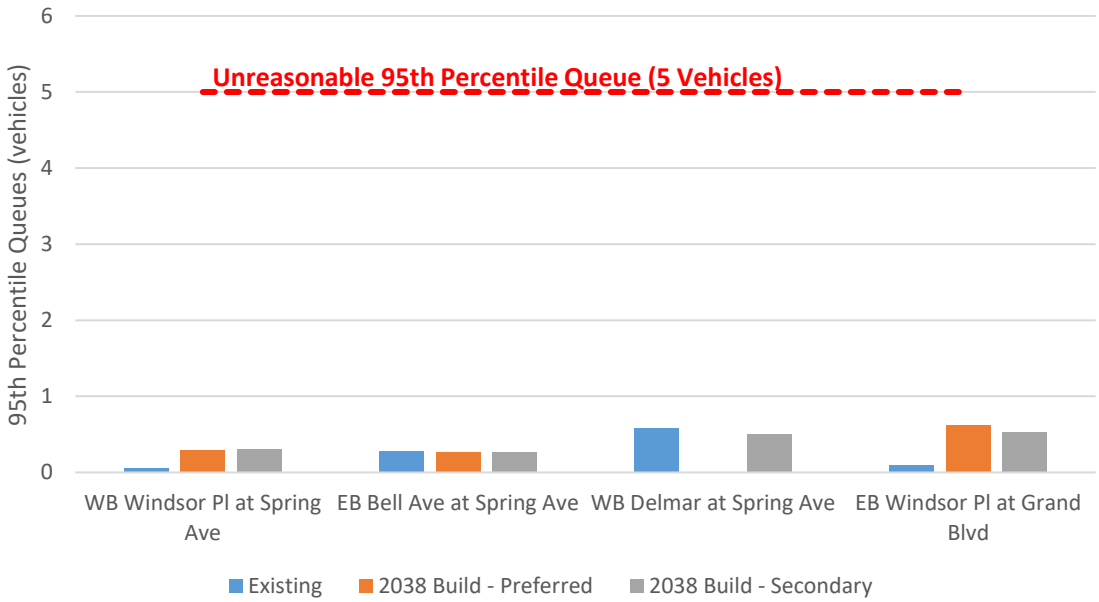
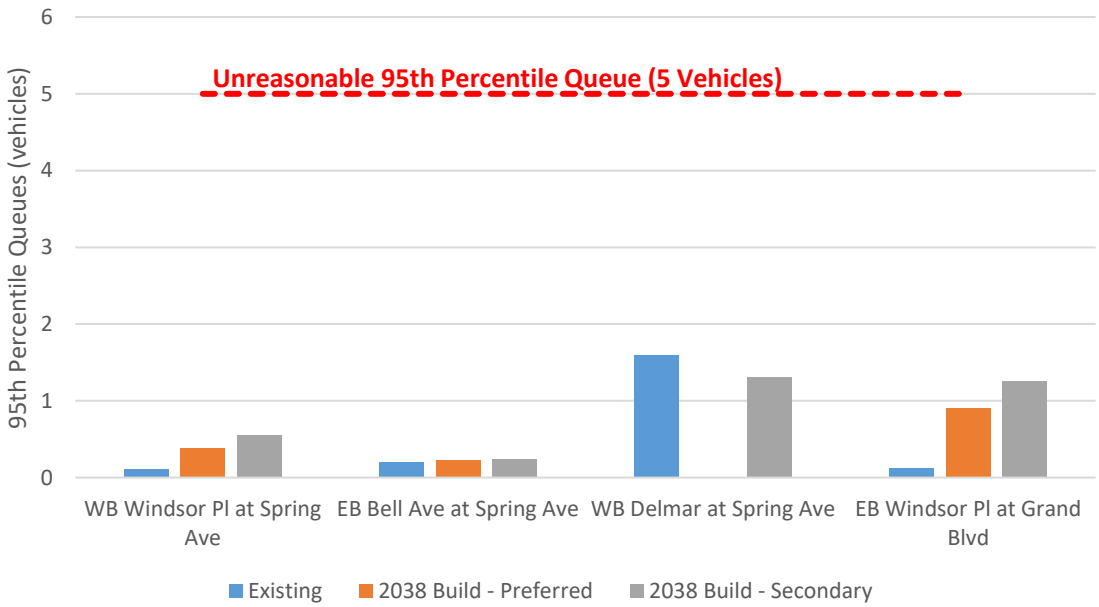


Chart 5 – P.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections



b. Vehicular Mitigation Analysis

Per the above analyses, all intersections are forecast to operate with acceptable levels of service and queueing through the 2038 Build scenarios. No additional modifications to lane configurations or traffic control are needed.

There is forecast to be queueing along Grand Boulevard that extends to adjacent intersections, especially with the reduction to one through lane. Having closely coordinated signals along this corridor can aid in minimizing queues. Emergency vehicle preemption should also be in place at the signals along Grand Boulevard to allow emergency vehicles to have faster access to and from the medical center

In the Preferred layout, with the removal of Enright Avenue the signals at Enright Avenue on Spring Avenue and Grand Boulevard may not be needed. Both intersections would operate acceptably with side-street stop control in the 2038 Build peak hour scenarios. With the proposed roundabout at Spring Avenue/Delmar Boulevard, due to the close spacing to Enright Avenue, having a signal at Spring Avenue/Enright Avenue would not be recommended as queues from that intersection could potentially extend back into the roundabout. It is therefore recommended that if a roundabout is installed at Spring Avenue/Delmar Boulevard the Spring Avenue/Enright Avenue intersection be converted to side-street stop control.

It was noted during the turning movement counts that vehicles entering the site access on Grand Boulevard just south of Bell Avenue would occasionally queue up and extend into Grand Boulevard while waiting to utilize the valet area. If this valet area is still in operation with the chosen layout for the site, valet staffing may need to increase to ensure backups are contained within the site. The Great Streets plan for Grand Boulevard includes a left turn lane down the middle of Grand Boulevard that can accommodate vehicles waiting to turn into the site from the south.

c. Parking Access Analysis

An analysis was conducted to forecast operations at future parking area accesses. Using the peak hour entering and exiting volumes from Table 6, those were proportionally spread to the different parking areas, based on size, for each layout. Hourly entering and exiting volumes per parking area are then known and the operations at the parking accesses can be determined. Detailed peak hour volumes for future parking areas can be seen in the Appendix.

Based on those numbers, during peak hours the accesses to surface parking lots do not see excessive vehicle volumes. The highest total entering or exiting volume at any surface lot in a peak hour totals to about 180 vehicles, which averages to three vehicles per minute. Even if there is some peaking during these hours, significant queues are not anticipated at surface lot accesses.

At the parking ramp accesses, the hourly volumes are higher and are looked at more closely. For this analysis, it is assumed that there will be gated entry and exit points for the ramps. Due to the sizes of the proposed ramps, to avoid queueing at the gates, if payment is needed, it is recommended that payment be encouraged not occur at the gate but rather at machines located elsewhere in the ramp. It is assumed vehicles will take an average of 6 seconds to get through a gate for entering and 10 seconds to get through a gate for exiting.

For both the Preferred and Secondary scenarios, the estimated peak volumes at the larger parking ramp were used and VISSIM microsimulations were conducted analyzing anticipated queues at the ramp gates. Five simulations were run for each scenario with the results averaged. Not knowing the layout of the ramp accesses, simulations were run with both one and two lanes for each entering and exiting approach.

Detailed parking access analysis results can be seen in the Appendix. With only one entering lane and one exiting lane, queues of up to 25 vehicles in the a.m. peak hour and 33 vehicles in the p.m. peak hour are expected. Adding a second entering and second exiting lane has a significant impact on the anticipated queues lowering them to seven vehicles or less.

Based on those results, for largest ramp included on site in the Preferred and Secondary scenarios, it is recommended that there be two entering and two exiting lanes. The other, smaller ramps are anticipated to operate without significant queues with one entering and one exiting lanes.

These results are based off of average service times of six seconds for entering vehicles and 10 seconds for exiting vehicles. If servicing times are slower, additional entering and exiting lanes may be needed.

6. Circulation Analyses

a. Emergency Vehicle Access

Currently, the emergency vehicle access for the site is off of Enright Avenue in parking area C. In both future scenarios, there will be direct, exclusive access for emergency vehicles on Enright Avenue.

b. Passenger Vehicle Access

As previously discussed throughout this report, multiple parking areas will be available throughout the site. With the appropriate number of entering and exiting lanes, acceptable operations are anticipated at the passenger vehicle accesses to the site.

In the Secondary layout, the access to the western parking garage and surface lot is located on Enright Avenue just east of Spring Avenue. If this layout is chosen it is recommended this be moved further east to give greater spacing between this access and the Spring Avenue/Enright Avenue intersection.

If parking area K is still in use, a shuttle can still be utilized to get people to/from that location. If parking area K is not still in use, shuttle service is not anticipated to be needed.

c. Non-Vehicular Access

Currently, pedestrian crossings are located at all signalized intersections and sidewalks are available on both sides of all surrounding roadways. That allows for good pedestrian access to and from the site. On Enright Avenue, there is a raised pedestrian crossing allowing safe access between portions of the site.

With the proposed site layouts, there will be more on-site parking than there currently is. However, some off-site parking may still be utilized. Pedestrian connections will need to be made from the surrounding sidewalk network to the main accesses at the site, notably to/from the southwest and southeast sides of the site.

The Secondary layout is proposing a pedestrian bridge over Grand Boulevard from the parking area on the southeast side of the site allowing unimpeded pedestrian access to the site. Other pedestrian bridge connections are shown to/from the site buildings from the new parking ramps located south of Windsor Place. The Preferred layout shows a pedestrian bridge connecting the new parking ramp north of Windsor Place.

For the Secondary layout, Pedestrian facilities will also be needed from the parking area north of Windsor Place. This could either occur at the Spring Avenue/Windsor Place intersection or at a new mid-block pedestrian crossing location.

A future trail is proposed along Spring Avenue. The site should have a direct connection between that trail and the building to allow for employees and visitors to access the site in that manner. Bicycle parking racks are also recommended in that area.

In the Preferred layout, pedestrian crossings are shown through the middle of the Spring Avenue/Delmar Boulevard roundabout. It is not recommended to have pedestrians cross through a roundabout as that does not allow for adequate driver sight/reaction time. Pedestrian crossings should be included at this intersection but should be located on the approach legs and not in the roundabout itself.

7. Conclusions and Recommendations

The traffic and parking impacts of the proposed redevelopment were thoroughly studied, and the principal findings are:

Site Generated Trips:

Scenario & Size	Daily	AM Peak Hour	PM Peak Hour
Existing (615,000 sq. ft.)	6,590	550	600
Preferred Alternative (975,220 sq. ft.)	10,450	870	950
Secondary Alternative (994,030 sq. ft.)	10,660	880	960

Intersection Operations:
All intersections are forecast to operate acceptably through the build scenarios with the intersection modifications per the Great Streets program as well as with or without the vacation of Bell Avenue and Enright Avenue between Spring Avenue and Grand Boulevard.

Site Parking Needs:

Scenario	Parking Need	
Existing	1,431 spaces	
Preferred Alternative	Remaining Existing Building	1,093 spaces
	New Construction	1,199 spaces
	Total	2,292 spaces
Secondary Alternative	Remaining Existing Building	1,093 spaces
	New Construction	1,243 spaces
	Total	2,336 spaces

Both alternatives will utilize 240 off-site surface parking stalls in the lot on the northeast corner of Grand Boulevard and Delmar Boulevard. The Preferred Alternative has 164 on-site surface parking spaces and the Secondary Alternative has 126 on-site surface parking spaces. To accommodate the site parking needs, the Preferred Alternative would need 1,888 ramp parking spaces and the Secondary Alternative would need 1,970 ramp parking spaces. Over 800 additional off-site, off-street parking spaces currently being leased could continue to be used towards the site parking supply if desired.

The following recommendations are made based on the above findings:

- Provide additional parking spaces through on-site surface lot and parking ramp spaces to reach the calculated peak parking demand for the new construction. Off-site parking areas can continue to be leased to accommodate parking needs for the portion of the existing building that remains occupied.
- Have at least 5% of the total parking spaces be ADA accessible, with at least 10% of patient and visitor parking spaces being ADA accessible.
- Include at least six SCI/D parking spaces, four of which are sized to accommodate accessible vans.

- The signals along Grand Boulevard be closely coordinated to minimize queues on Grand Boulevard, especially when reduced to one through lane.
- Emergency vehicle preemption be in place at the signals along Grand Boulevard throughout all phases of reconstruction along Grand Boulevard.
- If the valet area is still in operation with the chosen layout for the site, valet staffing may need to increase to ensure any vehicle backups are contained within the site.
- For new largest parking ramp on site that includes gate arms, two entering and two exiting lanes be included.
- If a roundabout is constructed at Spring Avenue/Delmar Boulevard, the Spring Avenue/Enright Avenue intersection be converted from a signalized intersection to side-street stop control.
- If a roundabout is constructed at Spring Avenue/Delmar Boulevard, pedestrian crossings should not occur in the middle of the roundabout but should be located on the approaches.
- If the Secondary layout is chosen, move the parking access on Enright Avenue further east away from Spring Avenue.
- Include a direct connection to the building from the future Spring Avenue trail. Bicycle parking areas be included in that portion of the site.

8. Appendix

A. The Language of Traffic Engineering

B. Traffic Counts

C. Parking Spot Counts

D. Parking Access Counts

E. Level of Service (LOS)

F. Capacity Analysis Backup

- AM Existing
- PM Existing
- AM 2038 Build – Preferred
- PM 2038 Build – Preferred
- AM 2038 Build – Secondary
- PM 2038 Build – Secondary

G. Parking Access Analysis

H. VAMC 2011 Parking Demand Model Printout

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM
EMISSIONS INVENTORY QUESTIONNAIRE (EIQ)
REDUCED REPORTING FORM 1.0

Mailing Address: PO Box 176, 1659 E. Elm St. Jefferson City, MO 65102-0176
Web Address: www.dnr.mo.gov/env/apcp/moeis/emissionsreporting.htm
Phone: (573) 751-4817 Email: EIQ@dnr.mo.gov

If you qualify for the Reduced Reporting Form EIQ this year, simply check the information for accuracy, sign it, and mail it in with your fee payment.

You qualify for this reduced reporting form if:
-Chargeable emissions changed by < 5 tons since the last full EIQ report, and
-This facility did not modify its construction permit during the reporting year, and
-You do not want to change the emissions totals that affect your fee.

HELP KEEP OUR RECORDS CURRENT!
If any preprinted information has changed, simply cross it out and correct it.

Do not change emissions data values unless you file a Full EIQ.

Facility Name	FIPs County No.	Plant No.	Reporting Year
VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN~~E~~ DIV	510	0056	**2018**

Facility Street Address	Parent Company Name
915 N GRAND	VETERANS ADMINISTRATION MED CENTER

City	ZIP Code	Parent Company Mailing Address
ST. LOUIS	63106	915 NORTH GRAND

Facility Mailing Address	Parent City	State	ZIP Code
915 N GRAND BLVD	ST. LOUIS	MO	63106

City	State	ZIP Code	Parent Company Contact	Parent Co. Phone (+Ext)
SAINT LOUIS	MO	63106	CHRIS KEUSS	314-652-4100

Facility Contact Person	Phone Number (+Ext)	Parent Co Email Address	Parent Co Fax Number
~~ABBEY AKINOLA~~ Brandon Huston Leslie Kasprzyk	314-652-4100	christopher.keuss@va.gov	

Email Address	Fax Number	Where to Send EIQ in Future (Check One)
~~ABBEY.AKINOLA@va.gov~~ brandon.huston@va.gov Leslie.Kasprzyk@va.gov		☐ Facility Mailing Address ☐ Parent Co. Mailing Address

TOTAL PLANT EMISSIONS FROM LAST EIQ (TONS PER YEAR)
If you want to change these values, you must complete a Full EIQ.

PM10	*SOx*	*NOx*	*VOC*	*CO*	*Lead*	*HAPs*	*PM2.5*	*NH3*	*Year of Data*
1.83	0.05	4.89	0.28	3.83			1.24		**2014**

Shaded pollutants are non-chargeable.

The undersigned hereby certifies that he/she has personally examined and is familiar with the information and statements contained herein and further certifies that he/she believes this information and statements to be true, accurate and complete. The undersigned certifies that knowingly making a false statement or misrepresenting the facts presented in this document is a violation of state law.

Print Name of Authorized Company Representative	*Title*
Brandon Huston	Environmental Protection Specialist
Signature	***Date***
Brandon Huston	3/19/2019

SEE INVOICE FOR PAYMENT AMOUNT.
SIGNED FORM MUST BE RETURNED TO DNR BY DUE DATE.

MO 780-1648 (12-08)

Appendix E
Public
Comment

ST. LOUIS POST-DISPATCH

St. Charles County, Madison County Suburban Journals

AFFIDAVIT OF PUBLICATION

Department of Veterans Affairs
Attn: Affidavit Enclosed – Wyatt Benton
13605 1st Ave. N., Suite 100
Plymouth, New Mexico 55441

Ad # 15830

THE ATTACHED ADVERTISEMENT WAS PUBLISHED
In the St. Louis Post-Dispatch and online STLToday.com on the following dates:
November 9, 10 and 11, 2019

The Department of Veterans Affairs (VA) announces the preparation and availability of the Draft Supplemental Environmental Assessment (SEA) for the proposed seismic upgrade and expansion of the St. Louis VA Medical Center – John Cochran Division located at 915 North Grand Boulevard St. Louis, Missouri. The Draft SEA has been prepared in accordance with the regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA), (Public Law 91-190, 42 USC 4321-4347 January 1, 1970), amendments, and VA's Implementing Regulations (38 CFR Part 26). The Draft SEA will be available for review and comment for a fifteen-day period. The public comment period will end on November 25, 2019. A public meeting will be held on Wednesday, November 20th from 6:00-8:00 PM at the Hampton Inn located at 333 Washington Ave. St. Louis, MO 63102.

A copy of the Draft SEA is available for review on the following website: https://www.stlouis.va.gov/

If you would like to comment on the proposed project at this time, please contact Gary Drikow at gary.drikow@va.gov or at the following mailing address:

U. S. Department of Veterans Affairs
VA St. Louis Health Care System
Attn: Gary Drikow
915 N. Grand Blvd.
St. Louis, MO 63106

Cynthia L. Alderton

Cynthia L. Alderton
COMPANY REPRESENTATIVE

SWORN TO AND SUBSCRIBED BEFORE ME
THIS November 13, 2019.

Madeline Keller
NOTARY PUBLIC, CITY OF ST. LOUIS

MADELINE KELLER
Notary Public - Notary Seal
St Charles County - State of Missouri
Commission Number 19569759
My Commission Expires Mar 12, 2023

PohlmanUSA®
Court Reporting and
Litigation Services

December 10, 2019

Wyatt Benton
Anderson Engineering
13605 1st Avenue North, Suite 100
Plymouth, MN 55441

Re: Deposition of **DEPARTMENT OF VETERANS AFFAIRS PUBLIC MEETING**
11/20/2019
Draft Supplemental Environmental Assessment (SEA)

Dear Mr. Benton:

Enclosed herein please find your original transcript in regards to the above-mentioned deposition taken 11/20/2019.

The invoice will follow under separate cover.

If you have any questions, please feel free to give us a call.

Sincerely,

PohlmanUSA Court Reporting

No. 216782
Enclosure

ORIGINAL

PohlmanUSA®
Court Reporting and
Litigation Services

Department of Veterans Affairs Public Meeting

November 20, 2019

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

PROPOSED EXPANSION OF

ST. LOUIS VA MEDICAL CENTER

JOHN COCHRAN DIVISION

DEPARTMENT OF VETERANS AFFAIRS PUBLIC MEETING

Taken at the Hampton Inn, 333 Washington Avenue,
St. Louis, Missouri 63102
Between the hours of 6:32 p.m. and 6:44 p.m.

November 20, 2019

Sherrie L. Merz, RDR/CSR/CCR
CSR No. 084-002840
CCR No. 995

1 A P P E A R A N C E S

2
BENJAMIN HODAPP, Environmental Lead
3 Anderson Engineering of Minnesota, LLC

4 LISA BREUER, Senior Project Manager
Anderson Engineering of Minnesota, LLC
5
WYATT BENTON, Environmental Associate
6 Anderson Engineering of Minnesota, LLC

7 KATIE RING, Environmental Associate,
Anderson Engineering of Minnesota, LLC
8
CHANDA JOSHI, COR/NCA Project Manager
9 VA Office of Construction and Facilities Management

10 GLENN WITTMAN, Regional Environmental Engineer
VA Office of Construction and Facilities Management
11
GARY DRIKOW, Chief of Major Projects
12 VA St. Louis Health Care Systems

13 KELLY WHITE, Historical Preservationist
Row 10, Historical Preservation Solutions, LLC
14
MICHAEL McCOLLUM, Architect
15 U.S. Army Corps of Engineers

16 JOHN SCHREINER, Project Manager
U.S. Army Corps of Engineers
17

18

19

20

21

22

23

24

25

1 (On the record at 6:32 p.m.)
2 MR. DRIKOW: So I'd like to welcome everyone
3 here tonight. My name is Gary Drikow. I'm with the
4 St. Louis VA Medical Center. We're here tonight to
5 discuss the Supplemental Environmental Assessment that
6 was published on the Internet or Intranet for the VA
7 Health Care System on their website.
8 And so tonight we'd like to take any comments
9 that we have from the public for incorporation into that
10 process. And with that, I would like to turn it over to
11 Ben Hodapp with Anderson Engineering. He'll take it
12 from here.
13 And if you do have any comments or questions,
14 my e-mail address can be found in the announcement as
15 well as on the website that's still published and out
16 there. And I'm sure Ben will reiterate that before the
17 end of tonight's presentation. So thank you for coming.
18 MR. HODAPP: Thanks, Gary. So as Gary
19 mentioned, we're here for the updated Supplemental
20 Environmental Assessment for the proposed expansion of
21 the St. Louis VA Medical Center, John Cochran Division.
22 And the VA has a requirement under NEPA, the National
23 Environmental Policy Act of 1969, to take into account
24 actions and incorporate environmental considerations
25 into their decision-making process. So it's part of the

1 front end planning process to evaluate whether there's
2 significant environmental impact.
3 As part of that NEPA process, one of the
4 first steps is to investigate current conditions of the
5 site. After we investigated the site, typically it
6 would be evaluating potential direct or indirect impacts
7 as a result of the proposed action, identify actions to
8 maintain or reduce impacts to less than significant
9 levels, and then determine if impacts could result that
10 could not be mitigated to lessen a significant level.
11 In 2014, there was an Environmental
12 Assessment completed for the proposed project at the
13 VAMC, John Cochran Division. A finding of no
14 significant impacts was published in January of 2014.
15 As part of that Environmental Assessment, it
16 evaluated a Southern Acquisition Alternative which was
17 determined to potentially have significant impacts to
18 cultural resources and identify that there's requirement
19 to do initial and additional analysis if that
20 alternative were to move toward.
21 The 2014 study also included a vacation of
22 various city streets and changes to parking and traffic.
23 That was determined to require additional analysis.
24 So the current effort is a draft Supplemental
25 Environmental Assessment. The current investment is a

1 supplement to the investigation and information that was
2 completed 2014. The reason to complete a supplement are
3 when there's a change in the project, a change to the
4 environment or the EA previously prepared is older than
5 five years, and the project has not been executed.
6 Again, the previous Environmental Assessment
7 and finding of no significant impact was signed February
8 25th of 2014. Thus we're outside of the five-year shelf
9 life in our current effort to renew that and update it.
10 As Gary mentioned earlier, the draft
11 Supplemental Environmental Assessment was published on
12 November 10th, 2019, and it is available on the VAMC
13 website.
14 Here are a couple images of the -- on the
15 left you'll see the area of the current VAMC. On the
16 right, you'll see a current facade. This is the
17 facility as it exists today.
18 The proposed action that's being evaluated in
19 the Supplemented Environmental Assessment is a seismic
20 upgrade and expansion of the facility. The purpose is
21 to continue to provide modern health care to veterans
22 while following current safety seismic requirements.
23 It's needed to meet Directive 7512 which establishes
24 safety requirements for VA buildings and provide modern
25 health care for veterans.

1 The project will also address current
2 shortfalls in bed space, medical facilities and parking
3 deficiencies that are currently identified at the
4 facility.
5 Some of the elements of the project it is
6 currently contemplating include a new inpatient med
7 tower, a new substance abuse treatment program clinic, a
8 new central utility plant to service the facility, a new
9 facility support information technology building, new
10 parking facilities, new water storage structure and
11 various site improvements including facility
12 infrastructure, roadways, sidewalks and landscaping.
13 Alternative A is one of the site layouts
14 contemplated. Alternative A is the current preferred
15 alternative. You can see the various elements I just
16 identified on the previous slide and how they might be
17 situated on the site.
18 Alternative A includes potential acquisition
19 of two properties to the south. In contrast,
20 Alternative B is a second alternative that is
21 contemplated and analyzed in the Supplemental
22 Environmental Assessment. Alternative B would not
23 include acquisition of two properties to the south.
24 There are a number of technical areas
25 evaluated in the current SEA effort. You can see a list

1 of these on screen. As I mentioned earlier, the 2014
2 effort, the FONSI identified a need for additional
3 cultural resource studies if the Southern Environmental
4 Acquisition acquiring properties were to be advanced.
5 Currently that Alternative A, which is our
6 current preferred alternative, is being advanced. As
7 such, we completed additional cultural resource studies
8 in 2019.
9 In September of 2019, we completed a
10 Preliminary Cultural Resource Impact Study, which
11 categorized and summarized the historical resources
12 within the area of potential effect of the project.
13 That Cultural Resource Study and analysis is included in
14 the SEA.
15 Also in October of 2019, the current effort
16 has completed a Traffic and Parking Study. That parking
17 study went through and identified that currently, the
18 VAMC has a deficiency of 679 stalls, and under
19 Alternative A there's a need for 1,888 stalls, thus the
20 inclusion of various parking structures in the preferred
21 alternative.
22 As part of that study, we also looked at
23 intersection operations due to forecasted traffic volume
24 increases. Generally, those increases are found to be
25 within the design capacity of the existing streets.

1 A number of additional studies were completed
2 in 2019. These included coordination in a National
3 Heritage Review with Missouri DNR, U.S. Fish and
4 Wildlife Service IPaC Review for threatened and
5 endangered species or critical habitat within the
6 project area. It also included Phase I Environmental
7 Site Assessments of two properties potentially to be
8 acquired, and a geotechnical report that identified and
9 analyzed subsurface conditions in the project area.
10 There were a lengthy number of stakeholders
11 consulted throughout development of the Supplemental
12 Environmental Assessment. These included various
13 federal agencies, state agencies, local municipal
14 agencies, as well as a number of Native American tribes.
15 The draft SEA is available for review at
16 www.stlouis.va.gov. That SEA will be available for
17 download through the public comment period. The public
18 comment period is anticipated it will be closing on the
19 25th of November. We'll take comments in writing on the
20 forms provided tonight.
21 Also any verbal comments that members of the
22 public have can be discussed shortly after the
23 presentation. You can write any comments in and submit
24 to the med center as well as submitting public comments
25 via e-mail to gary.drikow@va.gov.

1 The next steps in the process, the project
2 will evaluate all comments received. Any substantive
3 comments will be addressed in a final SEA. That final
4 Supplemental Environmental Assessment is anticipated to
5 be published in January of 2020.
6 And thank you for your participation tonight
7 and coming out. Again, comments can be provided through
8 November 25th via e-mail or written to the U.S.
9 Department of Affairs VA Health Care System at 915 North
10 Grand Boulevard, St. Louis, Missouri 63106.
11 At this point, I'd entertain any questions or
12 comments from members of the public. Seeing none, we
13 will adjourn the meeting.
14 MS. WITTIE: I also would like to ask that
15 any members of the public who have an interest in
16 cultural resources, specifically historic properties,
17 who would like to submit comments or ask questions,
18 please submit through any of the comment methods
19 presented during the presentation if you have any
20 questions or would like to provide additional
21 information.
22 (The meeting was adjourned at 6:44 p.m.)
23
24
25

1 CERTIFICATE

2

3 I, SHERRIE L. MERZ, Registered Diplomate Reporter, Certified Shorthand Reporter and Certified
4 Court Reporter, do hereby certify that the foregoing Public Hearing proceedings were taken by me at the
5 Hampton Inn, 333 Washington Avenue, St. Louis, Missouri 63102, and that this transcript is a true and correct
6 record of the proceedings recorded by me.

7

I further certify that I am neither attorney
8 nor counsel for nor related nor employed by any of the parties to the action in which this deposition is taken;
9 further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or
10 financially interested in this action.

11

IN WITNESS WHEREOF, I have hereunto
12 subscribed my name this day of 27th day of November, 2019.

13

14 Sherrie L Merz

15 SHERRIE L. MERZ, RDR, CSR, CCR

16

17

18

19

20

21

22

23

24

25

A

abuse 6:7
account 3:23
acquired 8:8
acquiring 7:4
acquisition 4:16 6:18,23 7:4
Act 3:23
action 4:7 5:18 10:8,10
actions 3:24 4:7
additional 4:19,23 7:2,7 8:1 9:20
address 3:14 6:1
addressed 9:3
adjourn 9:13
adjourned 9:22
advanced 7:4,6
Affairs 1:10 9:9
agencies 8:13,13 8:14
alternative 4:16 4:20 6:13,14,15 6:18,20,20,22 7:5,6,19,21
American 8:14
analysis 4:19,23 7:13
analyzed 6:21 8:9
Anderson 2:3,4,6 2:7 3:11
announcement 3:14
anticipated 8:18 9:4
Architect 2:14
area 5:15 7:12 8:6 8:9
areas 6:24
Army 2:15,16
Assessment 1:4 3:5,20 4:12,15 4:25 5:6,11,19 6:22 8:12 9:4
Assessments 8:7
Associate 2:5,7
attorney 10:7,9
available 5:12 8:15,16
Avenue 1:13 10:5

B

B 6:20,22
bed 6:2
Ben 3:11,16
BENJAMIN 2:2
BENTON 2:5
Boulevard 9:10
BREUER 2:4
building 6:9
buildings 5:24

C

C 2:1
capacity 7:25
care 2:12 3:7 5:21 5:25 9:9
categorized 7:11
CCR 1:20 10:15
center 1:6 3:4,21 8:24
central 6:8
CERTIFICATE 10:1
Certified 10:3,3
certify 10:4,7
CHANDA 2:8
change 5:3,3
changes 4:22
Chief 2:11
city 4:22
clinic 6:7
closing 8:18
Cochran 1:7 3:21 4:13
coming 3:17 9:7
comment 8:17,18 9:18
comments 3:8,13 8:19,21,23,24 9:2,3,7,12,17
complete 5:2
completed 4:12 5:2 7:7,9,16 8:1
conditions 4:4 8:9
considerations 3:24
Construction 2:9 2:10
consulted 8:11
contemplated 6:14,21
contemplating 6:6
continue 5:21
contrast 6:19
coordination 8:2
COR/NCA 2:8
Corps 2:15,16
correct 10:5
counsel 10:8,9
couple 5:14
Court 10:4
critical 8:5
CSR 1:19 10:15
cultural 4:18 7:3,7 7:10,13 9:16
current 4:4,24,25 5:9,15,16,22 6:1 6:14,25 7:6,15
currently 6:3,6 7:5,17

D

day 10:12,12
decision-making 3:25
deficiencies 6:3
deficiency 7:18
Department 1:10 9:9
deposition 10:8
design 7:25
determine 4:9
determined 4:17 4:23
development 8:11
Diplomate 10:3
direct 4:6
Directive 5:23
discuss 3:5
discussed 8:22
Division 1:7 3:21 4:13
DNR 8:3
download 8:17
draft 4:24 5:10 8:15
Drikow 2:11 3:2,3
due 7:23

E

E 2:1,1
e-mail 3:14 8:25 9:8
EA 5:4
earlier 5:10 7:1
effect 7:12
effort 4:24 5:9 6:25 7:2,15
elements 6:5,15
employed 10:8,9
employee 10:9
endangered 8:5
Engineer 2:10
Engineering 2:3,4 2:6,7 3:11
Engineers 2:15 2:16
entertain 9:11
environment 5:4
environmental 1:4 2:2,5,7,10 3:5,20,23,24 4:2 4:11,15,25 5:6 5:11,19 6:22 7:3 8:6,12 9:4
establishes 5:23
evaluate 4:1 9:2
evaluated 4:16 5:18 6:25
evaluating 4:6
executed 5:5
existing 7:25
exists 5:17
expansion 1:5 3:20 5:20

F

facade 5:16
facilities 2:9,10 6:2,10
facility 5:17,20 6:4,8,9,11
February 5:7
federal 8:13
final 9:3,3
financially 10:10
finding 4:13 5:7
first 4:4
Fish 8:3
five 5:5
five-year 5:8
following 5:22
FONSI 7:2
forecasted 7:23
foregoing 10:4
forms 8:20
found 3:14 7:24
front 4:1
further 10:7,9

G

Gary 2:11 3:3,18 3:18 5:10
gary.drikow@v... 8:25
Generally 7:24
geotechnical 8:8
GLENN 2:10
Grand 9:10

H

habitat 8:5
Hampton 1:13 10:5
He'll 3:11
health 2:12 3:7 5:21,25 9:9
Hearing 10:4
hereto 10:9
hereunto 10:11
Heritage 8:3
historic 9:16
historical 2:13,13 7:11
Hodapp 2:2 3:11 3:18
hours 1:14

I

identified 6:3,16 7:2,17 8:8
identify 4:7,18
images 5:14
impact 4:2 5:7 7:10
impacts 4:6,8,9 4:14,17
improvements 6:11
include 6:6,23
included 4:21 7:13 8:2,6,12
includes 6:18
including 6:11
inclusion 7:20
incorporate 3:24
incorporation 3:9
increases 7:24,24
indirect 4:6
information 5:1 6:9 9:21
infrastructure 6:12
initial 4:19
Inn 1:13 10:5
inpatient 6:6
interest 9:15
interested 10:10
Internet 3:6
intersection 7:23
Intranet 3:6
investigate 4:4
investigated 4:5
investigation 5:1
investment 4:25
IPaC 8:4

J

January 4:14 9:5
John 1:7 2:16 3:21 4:13
JOSHI 2:8

K

KATIE 2:7
KELLY 2:13

L

L 1:19 10:3,15
landscaping 6:12
layouts 6:13
Lead 2:2
left 5:15
lengthy 8:10
lessen 4:10
level 4:10
levels 4:9
life 5:9
LISA 2:4
list 6:25
LLC 2:3,4,6,7,13
local 8:13
looked 7:22
Louis 1:6,13 2:12 3:4,21 9:10 10:5

M

maintain 4:8
Major 2:11
Management 2:9 2:10
Manager 2:4,8,16
McCOLLUM 2:14
med 6:6 8:24
medical 1:6 3:4 3:21 6:2
meet 5:23
meeting 1:10 9:13 9:22
members 8:21 9:12,15
mentioned 3:19 5:10 7:1
Merz 1:19 10:3,15
methods 9:18
MICHAEL 2:14
Minnesota 2:3,4,6 2:7
Missouri 1:13 8:3 9:10 10:5
mitigated 4:10
modern 5:21,24
move 4:20
municipal 8:13

N

N 2:1
name 3:3 10:12
National 3:22 8:2
Native 8:14
need 7:2,19
needed 5:23
neither 10:7
NEPA 3:22 4:3
new 6:6,7,8,8,9,10
North 9:9
November 1:15 5:12 8:19 9:8 10:12
number 6:24 8:1 8:10,14

O

October 7:15
Office 2:9,10
older 5:4
operations 7:23
outside 5:8

P

P 2:1,1
p.m 1:14,14 3:1 9:22
parking 4:22 6:2 6:10 7:16,16,20
part 3:25 4:3,15 7:22
participation 9:6
parties 10:8,9
period 8:17,18
Phase 8:6
planning 4:1
plant 6:8
please 9:18
point 9:11
Policy 3:23
potential 4:6 6:18 7:12
potentially 4:17 8:7
preferred 6:14 7:6 7:20
Preliminary 7:10
prepared 5:4
presentation 3:17 8:23 9:19
presented 9:19
Preservation 2:13
Preservationist 2:13
previous 5:6 6:16
previously 5:4
proceedings 10:4 10:6
process 3:10,25 4:1,3 9:1
program 6:7
project 2:4,8,16 4:12 5:3,5 6:1,5 7:12 8:6,9 9:1
Projects 2:11
properties 6:19 6:23 7:4 8:7 9:16
proposed 1:5 3:20 4:7,12 5:18
provide 5:21,24 9:20
provided 8:20 9:7
public 1:10 3:9 8:17,17,22,24 9:12,15 10:4
published 3:6,15 4:14 5:11 9:5
purpose 5:20

Q

questions 3:13 9:11,17,20

R

R 2:1
RDR 10:15
RDR/CSR/CCR 1:19
reason 5:2
received 9:2
record 3:1 10:6
recorded 10:6
reduce 4:8
Regional 2:10
Registered 10:3
reiterate 3:16
related 10:8
relative 10:9
renew 5:9
report 8:8
Reporter 10:3,3,4
require 4:23
requirement 3:22 4:18
requirements 5:22,24
resource 7:3,7,10 7:13
resources 4:18 7:11 9:16
result 4:7,9
review 8:3,4,15
right 5:16
RING 2:7
roadways 6:12
Row 2:13

S

S 2:1
safety 5:22,24
SCHREINER 2:16
screen 7:1
SEA 6:25 7:14 8:15,16 9:3
second 6:20
see 5:15,16 6:15 6:25
Seeing 9:12
seismic 5:19,22
Senior 2:4
September 7:9
service 6:8 8:4
shelf 5:8
Sherrie 1:19 10:3 10:15
shortfalls 6:2
Shorthand 10:3
shortly 8:22
sidewalks 6:12
signed 5:7
significant 4:2,8 4:10,14,17 5:7
site 4:5,5 6:11,13 6:17 8:7
situated 6:17
slide 6:16
Solutions 2:13
south 6:19,23
Southern 4:16 7:3
space 6:2
species 8:5
specifically 9:16
St 1:6,13 2:12 3:4 3:21 9:10 10:5
stakeholders 8:10
stalls 7:18,19
state 8:13
steps 4:4 9:1
storage 6:10
streets 4:22 7:25
structure 6:10
structures 7:20
studies 7:3,7 8:1
study 4:21 7:10 7:13,16,17,22
submit 8:23 9:17 9:18
submitting 8:24
subscribed 10:12
substance 6:7
substantive 9:2
subsurface 8:9
summarized 7:11
supplement 5:1,2
Supplemental 1:4 3:5,19 4:24 5:11 6:21 8:11 9:4
Supplemented 5:19
support 6:9
sure 3:16
System 3:7 9:9
Systems 2:12

T

take 3:8,11,23 8:19
taken 1:13 10:4,8
technical 6:24
technology 6:9
thank 3:17 9:6
Thanks 3:18
threatened 8:4
today 5:17
tonight 3:3,4,8 8:20 9:6
tonight's 3:17
tower 6:7
traffic 4:22 7:16 7:23
transcript 10:5
treatment 6:7
tribes 8:14
true 10:5
turn 3:10
two 6:19,23 8:7
typically 4:5

U

U.S 2:15,16 8:3 9:8
update 5:9
updated 3:19
upgrade 5:20
utility 6:8

V

VA 1:6 2:9,10,12 3:4,6,21,22 5:24 9:9
vacation 4:21
VAMC 4:13 5:12 5:15 7:18
various 4:22 6:11 6:15 7:20 8:12
verbal 8:21
veterans 1:10 5:21,25
volume 7:23

W

Washington 1:13 10:5
water 6:10
We'll 8:19
we're 3:4,19 5:8
website 3:7,15 5:13
welcome 3:2
went 7:17

WHEREOF 10:11
WHITE 2:13
Wildlife 8:4
WITNESS 10:11
WITTIE 9:14
WITTMAN 2:10
write 8:23
writing 8:19
written 9:8
www.stlouis.va... 8:16
WYATT 2:5

X

Y

years 5:5

Z

0

084-002840 1:19

1

1,888 7:19
10 2:13
10th 5:12
1969 3:23

2

20 1:15
2014 4:11,14,21 5:2,8 7:1
2019 1:15 5:12 7:8 7:9,15 8:2 10:12
2020 9:5
25th 5:8 8:19 9:8
27th 10:12

3

333 1:13 10:5

4

5

6

6:32 1:14 3:1
6:44 1:14 9:22
63102 1:13 10:5
63106 9:10
679 7:18

7

7512 5:23

8

9

915 9:9
995 1:20

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

December 13, 2019

Mr. Chanda Joshi
Department of Veterans Affairs
Office of Construction & Facilities Management
1425 Tri-State Parkway, Suite 140
Gurnee, Illinois, 60031

Dear Mr. Joshi:

The Missouri Department of Natural Resources (Department) appreciates the opportunity to review the materials for the Proposed Seismic Upgrade and Expansion of the St. Louis VA Medical Center - John Cochran Division. The Department offers the following comments for consideration.

Project Location
The study area is in the City of St. Louis, Missouri, at 915 North Grand Boulevard. The following geographic descriptions apply to the approximate location of the study area.

Geographic Coordinates:
740990 E, 4280730 N

Public Land Survey System:
S2692
Landgrant 01659

8-Digit Hydrologic Unit Code:
Cahokia-Joachim (7140101)

Ecological Drainage Unit:
Ozark/Apple/Joachim

Geology and Geospatial Data
Based on geologic maps and well logs, the subject document accurately represents the bedrock at the project location.

There are no recorded faults mapped within or near (within 0.5 mile) the project area. Based upon the Center for Earthquake Research and Information data, the project area is not located on

or near a seismically active zone. In addition, seismic hazard databases indicate no landslide or liquefaction potential.

According to the mine inventory database, the project area does not lie within a former mining district.

Karst Topography
There is one known sinkhole 0.2 miles west of the project area and the bedrock is limestone. The Granite City Quadrangle, in which the proposed project area is located, has nine known caves. Springs, sinkholes, and caves are features on the landscape associated with karst topography that can act as direct conduits of surface water and pollutants to groundwater. As such, extra precaution should be taken to minimize disturbance of land in or around these features, and to avoid the introduction of pollutants to sensitive groundwater resources. Karst areas may also present the possibility of potential collapse.

Based upon the proximity of the site to known karst features, it should be assumed that at least some potential for collapse exists. Because the site does not appear to be located in a seismically active zone or in a former mining district, little to no collapse potential appears to be related to these activities. It should be noted that the seismic collapse database does list the eastern half of the subject area as having collapse potential due to underground cavities, though no information is known or provided which describes the cavities.

Other maps showing natural and cultural resources can be found at http://dnr.mo.gov/gis/.

Wells
There are seven known wells in the proposed project area, five of which are abandoned soil boring wells, and two are active monitoring wells. Wells can act as conduits of pollutants to groundwater resources. Abandoned wells should be plugged prior to any land disturbance, and care should be taken to utilize appropriate best management practices to protect any currently operating wells. For more information on locating and plugging wells, please visit the link below for the Department's Wellhead Protection Section webpage or contact the Department's Geological Survey Program directly. https://dnr.mo.gov/geology/geosrv/wellhd/.

Water Protection
Best Management Practices
Best management practices should be utilized during project activities to limit the amount of sediment and other pollutants entering waters of the state, and to protect the water's chemical, physical, and biological characteristics. These practices include, but are not limited to, conducting work during low flow conditions whenever possible, keeping heavy equipment out of the water, and taking all necessary precautions to avoid the release of fuel or other waste products to streams and other waters. In addition, the Department encourages the preservation of existing riparian or buffer areas around each water resource to limit the amount of sediments or other pollutants entering the water. Any stream banks, riparian corridors, lake shores, or wetlands denuded of vegetation should be stabilized and re-vegetated as soon as is practicable.

Watershed Conditions

Public Drinking Water

There are no public drinking water sources within the immediate project area. Work associated with any project should take into consideration the protection of surface and groundwater public drinking water supplies, implementing appropriate best management practices as necessary. For additional information regarding source water protection, please contact Mr. Ken Tomlin of the Department's Public Drinking Water Branch at 573-526-0269.

Designated Uses

Water Bodies with Specific Designated Uses

Water bodies are assigned specific designated uses according to State of Missouri Water Quality regulations at 10 CSR 20-7.031(2). These waters are protected by numeric water quality criteria outlined in 10 CSR 20-7.031(5) and Table A, as well as general water quality criteria outlined at 10 CSR 20-7.031(4).

The project is within the watershed of the Mississippi River (WBID 1707.02). This is a Class P water body, which are streams that maintain permanent flow even in drought periods. These streams are assigned the following specific designated uses in the Missouri Use Designation Dataset and at 10 CSR 20-7.031 Table H:

- Protection and propagation of fish, shellfish and wildlife – warm water habitat (WWH)
- Drinking Water Supply (DWS)—Mississippi River only (WBID 3701)
- Human health protection (HHP)
- Industrial (IND)—Mississippi River only (WBID 3701)
- Irrigation (IRR)
- Livestock and wildlife protection (LWP)
- Secondary contact recreation (SCR)

Water Bodies without Specific Designated Uses

Water bodies that are not assigned specific designated uses are still protected by general water quality criteria outlined at 10 CSR 20-7.031(4), and are subject to the acute toxicity criteria of Tables A and B, as well as whole effluent toxicity conditions.

According to the National Wetlands Inventory https://www.fws.gov/wetlands/, there is the likelihood of freshwater wetlands and ponds within the riparian corridors of the Mississippi River (WBID 1707.02). As such, the potential exists for wetlands, ponds, and the aforementioned tributaries and headwater streams to be impacted, depending on their proximity to land disturbance activities. Care should be taken to avoid such impacts through alternatives analysis before compensatory mitigation is considered. If wetlands, ponds, headwaters, or tributaries are not directly impacted but are near any land disturbance, care should be taken to protect water quality. While these water bodies are not assigned specific designated uses, they are protected by Missouri's general water quality criteria.

Sensitive Waters
There are no known waters designated for Cold Water Habitat, Outstanding National Resource Waters, Outstanding State Resource Waters, Metropolitan No-Discharge streams, biocriteria reference locations, losing streams, or 303(d) Impaired and 305(b) Threatened Waters.

Waters with Approved Total Maximum Daily Loads:
Within the proposed project area, the Mississippi River (WBID 1707.02) has an approved TMDL for PCBs and Chlordane. Impairments should not be made worse by this project's activities. The Department staff may require extra protections when developing permits or certifications in order to comply with total maximum daily load and wasteload allocations. Additional information can be found by contacting the Department's Water Protection Program at 573-526-1446 or by visiting the link below. http://www.dnr.mo.gov/env/wpp/tmdl/index.html

Permitting Obligations
Clean Water Act Sections 401 and 404
A Clean Water Act Section 404 Permit Authorization from the U.S. Army Corps of Engineers (USACE), and Section 401 Water Quality Certification from the Department may be required for projects that have the potential to discharge fill or dredged material into a jurisdictional water of the United States. More information about these permits can be found at the following links.
https://www.epa.gov/cwa-404/section-404-permit-program
http://dnr.mo.gov/env/wpp/401/

If discharge into water has occurred, or will occur, project personnel should immediately contact the appropriate USACE District (link below) and the Department's Operating Permits Section at 573-522-4502 for more information.
http://www.mvr.usace.army.mil/Portals/48/docs/regulatory/MORegBound.pdf

Mitigation
An alternatives analysis would need to be submitted prior to any impacts to jurisdictional waters as part of the avoidance and minimization measures that precede mitigating unavoidable impacts. Mitigation for wetlands should be in conformance with the *Missouri Wetland Mitigation Method*, http://www.nwk.usace.army.mil/Portals/29/docs/regulatory/mitigation/2017-11-17_MWMM.pdf while mitigation for streams should be in conformance with *Missouri Stream Mitigation Method*, http://www.mvm.usace.army.mil/Portals/51/docs/regulatory/May_2013_Missouri_Stream_Mitigation_Method.pdf. Any mitigation plans must be in conformance with the *Compensatory Mitigation for Losses of Aquatic Resources,* https://www.epa.gov/cwa-404/compensatory-mitigation. This rule establishes a hierarchy for mitigation, with the purchase of credits from a mitigation bank at the top of that hierarchy. The rule also emphasizes in-kind and in-watershed mitigation; to go outside the watershed may result in a higher credit purchase calculation. The applicant should receive mitigation plan approval from the Department prior to certification.

Land Disturbance
Acquisition of a Section 401 Certification should not be interpreted to mean that the requirements for other permits are replaced or superseded, including Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits. Work disturbing an area of one

acre or more requires issuance of a land disturbance permit prior to any earth work. Disturbance to valuable resource waters, including springs, sinkholes and losing streams, could require additional conditions or a site-specific permit.

Information and application for online land disturbance permits are located at http://www.dnr.mo.gov/env/wpp/epermit/help.htm. Questions regarding permit requirements may be directed to the appropriate Department Regional Office https://dnr.mo.gov/regions/.

Demolition and Construction Waste Management
Additional information on managing construction and demolition waste can be found at the following link https://dnr.mo.gov/pubs/pub2045.htm

Hazardous Waste
Additional information on hazardous waste and petroleum tanks can be found at https://dnr.mo.gov/ESTART/.

During the project, if any underground tanks or contaminated soil is discovered, workers should withdraw to a safe distance and notify the Department's spill line at 573-634-2436.

It is the generator's responsibility to determine if materials generated during construction and demolition are hazardous wastes. Demolition-related waste categories typically include: paint residue (paint chips, paint scrapings, etc.); demolition debris (metal and boards that have been painted with lead-based or other heavy metal-based paint); and scrap metal (metal objects that contain lead or other heavy metals). A hazardous waste determination is not required for materials that will be reused or recycled without additional processing.

Asbestos
Prior to demolition activities, regulated structures must be thoroughly inspected by a Missouri-certified asbestos inspector to determine if any Asbestos Containing Materials are present and a notification made to the Department at least 10 working days prior to demolition. Regulated structures include any building which has been used as a commercial, institutional or industrial building (even if it was historic use), and projects involving two or more residential structures. In addition, this includes but is not limited to the following "non-building" structures: bridges, pipelines, cooling towers, chimneys, dams, and tunnels. Any asbestos found must be properly managed to prevent release of asbestos fibers.

Solid Waste
Information about solid waste uncovered during construction activities can be found at the following link http://dnr.mo.gov/pubs/pub2192.htm.

No waste may be buried on-site or at an alternate site, except for clean fill. Clean fill is defined by the Revised Statutes of Missouri as "uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinder blocks, brick, minimal amounts of wood and metal and inert (non-reactive) solids...for fill, reclamation or other beneficial use." Clean fill must not contain protruding metals or demolition debris. Although not regulated as waste, placement of clean fill materials may be subject to requirements of the Department's Water Protection Program if it is

placed in contact with surface or subsurface waters of the state, or would otherwise violate water quality standards.

Air Pollution

Air Pollution Control Rules Specific to the St. Louis Metropolitan Area

Control of Heavy-Duty Diesel Vehicle Idling Emissions

10 CSR 10-5.385 restricts heavy duty diesel vehicles with a gross vehicle weight greater than 10,000 pounds that operate in the counties of Franklin, Jefferson, St. Charles and St. Louis, and the City of St. Louis from idling more than five minutes in any sixty-minute period, except as otherwise exempted from the rule.

Liquefied Cutback Asphalt Paving Restricted

10 CSR 105.310 restricts the use of or application of liquefied cutback asphalt in paving and maintenance operations on highways, roads, parking lots, and driveways in the counties of Franklin, Jefferson, St. Charles and St. Louis, and the City of St. Louis during the months of April through October, except as otherwise exempted from the regulations.

Air Pollution Control Regulations for the Entire State of Missouri

Conformity of General Federal Actions to State Implementation Plans

Any non-transportation project of the federal government taking place in all areas of the state of Missouri which are designated as nonattainment or maintenance for any criteria pollutant (https://www.epa.gov/green-book) and which does not conform to an applicable implementation plan is subject to the general conformity process found in 10 CSR 10-6.300.

Dust

Ensure fugitive particulate matter emissions, such as dust, resulting from the project do not remain on surfaces or in the air beyond the property line of origin. 10 CSR 10-6.170 restricts the emission of particulate matter to the ambient air beyond the premises of origin. Additional information on general dust emissions may be found here https://dnr.mo.gov/pubs/pub2200.htm.

Open Burning

The open burning of refuse and trade waste is restricted according to 10 CSR 10-6.045. Construction, demolition, and trade waste cannot be open burned, except for untreated wood. Brush from land clearing activities may be burned if the burning is conducted outside the city limits and greater than 200 yards from the nearest occupied structure. Additional information on open burning can be found at https://dnr.mo.gov/pubs/pub2047.htm.

Historic Preservation

Project personnel should check with the Department's State Historic Preservation Office to determine if a Section 106 Review is needed. Information on the Section 106 Review can be found on the Department's we site at https://dnr.mo.gov/shpo/sectionrev.htm.

Additional Considerations

Floodplain

For information concerning flood plains in Missouri, contact the Missouri State Emergency Management Agency, Floodplain Management and Mitigation Branch, at 573-526-9100 or 2302 Militia Drive, Jefferson City, MO 65101.

Endangered Species

The Missouri Department of Conservation (MDC) is responsible for collecting and managing information on the location and status of endangered species in the state. Contact MDC's Endangered Species Coordinator at 573-751-4115 or P.O. Box 180, Jefferson City, MO 65102 for general information.

We appreciate the opportunity to provide comments for the proposed project. If you have any questions or need clarification, please contact me at the Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102 or by phone at 573-522-2656. Thank you.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

Rob Hunt
Planning Coordinator

RH/man