SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [HELP]

1. Name of proposed project, if applicable:

LCM Modular Building

2. Name of applicant:

Washington State Department of Enterprise Services

3. Address and phone number of applicant and contact person:

Sidney Hunt, Architect

Washington State Department of Enterprise Services

1500 Jefferson Street, PO Box 41476

Olympia, WA 98504-1476

4. Date checklist prepared:

January 2022

5. Agency requesting checklist:

Department of Enterprise Services (DES)

6. Proposed timing or schedule (including phasing, if applicable):

Construction of the modular building is proposed to occur in the Spring thru Fall of 2022, to be ready for use by the end of 2022.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Remodels of existing buildings on the Capitol Campus (outside of the current project area) are planned for 2023 or later, which are the reason for the construction of this modular building. The modular building addressed in this proposal is planned to house displaced staff from the Legislative Campus Moderniation (LCM) Project that is planned for future years.

While the timing and details of the LCM subprojects at this time are not determined, the LCM Project will remove the Press Houses and Visitor Center, remove and replace the Newhouse Building, replace or rehabilitate the Pritchard Building, remodel the O'Brien Building, and close Water Street between Sid Snyder Ave and 15th SW.

Attached to this application are (3) site plans and one survey:

1) Sheet A-EXBT: Site plan during construction showing the extent of the construction area enclosed by a construction fence and the location of the proposed temporary building. Reduction of the number of existing parking spaces is shown on this drawings.
2) Sheet B-EXBT: Site plan after construction of the temporary building is complete, showing available parking count.
3) Sheet C-EXBT: Site plan of the existing parking lot after the temporary building is removed in 6-8 years, showing total number of parking spaces available in the existing parking lot.
4) Topographic survey of existing parking lot before any construction work begins.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Geotechnical Report – prepared by Insight Geologic, Inc. dated December 17, 2021 (attached to this report).

A Cultural Resources review of the project area has been completed (attached to this report).

The City requires, a qualified professional forester will be required to review and provide Tree Protection measures and inspections of potential trees impacted by this project, if tree protection measures are required.

The Capitol Campus Modular Predesign Report prepared by SCJ Alliance dated November 15, 2021 (attached to this report).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no known applications pending for governmental approval directly affecting the work covered in this proposal.

10. List any government approvals or permits that will be needed for your proposal, if known.

A Building Permit and associated Fire Sprinkler Permit, Underground Fire Line Permit and Fire Alarm Permit.

A SEPA determination will be needed for this proposal.

No new NPDES permit will be needed, the Capitol Campus has their own NPDES permit. That said, as Construction Stormwater management will be addressed, and the state usually provides the City of Olympia with courtesy notification.

The modular factory built structures will have approval tags from the Washington State Department of Labor and Industries.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Department of Enterprise Services (DES) is proposing an approximately 14,884 square-foot, 2-story, temporary modular building to house staff displaced during completion fo the LCM Project.

The proposed modular building would be located in the southeast corner of an existing Mansion Parking lot on the Capitol Campus, directly west of the Washington Supreme Court. The project area encompasses approximately 0.6+/- acres of paved areas, including staging areas for construction, and locations where excavation will be required for utility access and installation of foundations for the building.

Additional improvements will include ADA parking facilities and sewer, water, storm, dry utility infrastructure and trash enclosure required to service the facility.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The proposed project is located on the Washington State Capitol Campus, on Thurston County Parcel No. 09850005000 in Olympia, WA. Specifically, a parking lot directly west of the Temple of Justice located at 415 12th Ave SW W, Olympia, WA 98504. The street address assigned to this project by the City of Olympia: 505 12th Avenue SW, Olympia WA, 98501. Site coordinates are 47.036699, -122.906268.

B. Environmental Elements [HELP]

1. *Earth* [help]

a. General description of the site:

(circle one): **Flat**, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

Based on GIS data from GoogleEarth, the entire project area is a relatively flat parking lot with slopes in the 1%-5% range. There are steep slopes to the north and west of the subject parking lot, which are approximately 75% slopes.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The proposal does not include removal of additional soils.

According to the Geotech report prepared by Insight Geologic, Inc. the soils encountered were silt with fine sand and discontinuous lenses of silty fine sand in a stiff to hard and medium dense to very dense and moist condition.

According to the Cal SoiWeb, the area is mapped as Skipopa silt loam.
https://casoilresource.lawr.ucdavis.edu/gmap/

According to the USGS Websoil Survey the area is mapped as Skipopa silt loam.
https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are slopes north and west of the project site which are mapped via Thurston County Geodata as landslide hazard areas due to the steepness of the slopes. The project area is entirely flat, and no earthwork is proposed within 50' of the top of these slopes.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The proposed project will include pavement removal/replacement, excavation for utilities/footings and new water, sewer, storm, power and communication service connections. Aside from these temporary excavation measures, no permanent cut, fill, or grading is proposed.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

The project site is entirely within a currently paved parking area. No clearing is proposed, and no erosion is anticipated to occur as a result of construction or use of the proposed project. The project will comply with the City of Olympia's engineering requirements and best management practices will be applied to prevent erosion from occurring.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The project site is considered entirely within the currently paved parking area. The same portion of the site will be covered with impervious surfaces after project construction as before.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The project will meet or exceed the Engineering Design and Development Standards for erosion control and shall apply best management practices throughout the construction of the project such as silt fencing.

2. Air [help]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Types of emissions to the air would be from construction equipment and dust from construction. Quantities are unknown.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No offsite sources of emissions or odor that may affect this proposal are known.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Idling equipment will be turned off. Water trucks will be used to mitigate dust and will be used as necessary

3. Water [help]

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

According to Thurston County's GeoData, Capitol Lake is approximately 500' north from the proposed building site, and 500' west of the proposed construction site. The Deschutes river flows into Capitol Lake at the southern end, and Capitol Lake is connected to Budd Inlet at it's northern end.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No, the current proposal does not require surface water withdrawal or diversions.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

According to the FEMA website, the project is not located within the 100-year floodplain.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve discharges of waste materials to surface waters.

b. Ground Water: [help]

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater withdrawals or wells are currently proposed.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground. The proposed project will be served by existing sewer service (Olympia Wastewater Utility).

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The proposed project will not increase the amount of runoff onsite, as the new impervious surfaces (building roof) replace existing impervious (asphalt parking lot). Runoff from the building roof is currently proposed to be routed via roof drains to an existing stormwater drain catch basin (Engineering Site Plans, November 2021).

2) Could waste materials enter ground or surface waters? If so, generally describe.

No waste materials entering ground or surface waters will result from the proposed project.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No, The project as proposed does not alter or otherwise affect drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Runoff from the building roof is currently proposed to be routed via roof drains to an existing stormwater drain catch basin adjacent to the east side of the Modular building (Engineering Site Plans, November 2021). The project will meet or exceed all Engineering Design and Development Standards and employ best management practices as applicable. Mitigation of stormwater for this project follows **Washington State's Department of Ecology's 2019 Stormwater Management Manual for Western Washington**, as required by Washington State Law. No new impervious areas are being created as a result of this project and the total area of pollution generating impervious surfaces are being reduced due to the conversion from pollution generating parking to non-pollution generating building roof area, therefore no new stormwater flow control or treatment best management practices are being implemented. After this temporary building is removed from the site in 6 – 8 years, the site will be restored back to a parking lot, and the mitigation of stormwater of the restored parking lot will follow the above referenced Stormwater Management Manual in effect at that time.

4. Plants [help]

a. Check the types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
_x___evergreen tree: fir, cedar, pine, other
____shrubs
_x___grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Along the east side of the new modular project limits, the existing evergreen plans (arborvitae) and grasses will be removed and replaced with new landscaping/plants. The new landscaping will be completed to facilitate security and visibility around the building.

c. List threatened and endangered species known to be on or near the site.

According to WA DNR geodata, and the US Fish and Wildlife Service Information for Planning and Consultation, there are no listed threatened or endangered plant species known to be on or near the site.

https://www.dnr.wa.gov/natural-heritage-program

https://ecos.fws.gov/ipac/

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The existing landscaping/plant materials along the east side of the new modular building limits will be removed and replaced with new plantings to better facilitate security and visibility.

e. List all noxious weeds and invasive species known to be on or near the site.

No invasive weeds occur on the paved project site.

According to the WSDA State Noxious Weed Data Viewer and EDDmaps.org, there are no noxious or invasive plant species listed or known to be on or near the project site. That said, slopes near the project are known to contain common noxious weeds including English ivy (Hedera helix) and Himalayan blackberry (Rubus armeniacus). Nearby areas of the Capitol Campus also contain Canada thistle (Cirsium arvense).

https://www.nwcb.wa.gov/

https://www.eddmaps.org/tools/query

5. Animals [help]

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

mammals: (onsite) racoon, opossum, squirrel, deer, bats

birds: (near – wooded slopes to capitol lake) songbirds, great blue heron, osprey, bald eagle, red tailed hawk, and waterfowl (mallards, gadwalls, wigeons, scaups, buffleheads, ruddy ducks, ring-necked ducks, goldeneyes, pintail, hooded merganser, cormorant, seagull) – According to e.birds and WDFW Priority Habitats and Species mapping tool.

b. List any threatened and endangered species known to be on or near the site.

According to the WDFW Priority Habitats and Species mapping tool, no threatened or endangered species are on or near the site. Three species considered sensitive in Washington state are mapped in the vicinity – big brown bat (Eptesicus fuscus), little brown bat (Myotis lucifugus), and yuma myotis (Myotis yumanensis). The existing project site (asphalt parking lot) does not provide essential habitat for these species, nor would the quality of habitat change as a result of this proposal. The wooded slopes below the project site are considered a biodiversity area and corridor, due to their use by Myotis bats, bald eagles, ospreys, and great blue herons.

According to the US Fish and Wildlife Service (USFWS) IPaC tool, three bird species and two pocket gopher federally listed as 'threatened' may use this area: the marbled murrelet, the streaked horned lark, and the yellow-billed cuckoo; and the Olympia and Yelm pocket gophers. However, marbled murrelet seldom visits the South Puget Sound, and its critical habitats are in the Olympic Peninsula; the yellow billed cuckoo had not been observed in WA state for many years and may be extirpated in WA state; and the streaked horned lark depends on prairie habitats in

Thurston County, and is not known to occur nearby. Pocket gophers require vegetation to feed on, and would not occur under paved areas such as the project site.

http://apps.wdfw.wa.gov/salmonscape/

http://apps.wdfw.wa.gov/phsontheweb/

c. Is the site part of a migration route? If so, explain.

Washington State is part of the Pacific Flyway migratory bird route.

https://www.perkypet.com/articles/pacific-flyway-migration

d. Proposed measures to preserve or enhance wildlife, if any:

There are no anticipated impacts to wildlife. Stormwater will be treated and detained in accordance with all development standards.

e. List any invasive animal species known to be on or near the site.

According to the eddsmaps.org website, there are no known invasive animal species known to be on or near the project site.

https://www.eddmaps.org/tools/query

6. Energy and Natural Resources [help]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric – Site and building power, heating & cooling systems

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No, the project is not anticipated to affect potential solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Conservation features will include energy efficient HVAC equipment and LED bulbs. The design will accommodate all code provisions relating to energy conservation.

7. Environmental Health [help]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

There are no known environmental health hazards that could occur as a result of this project.

1) Describe any known or possible contamination at the site from present or past uses.

According to Ecology's "Facility/Site database" and Ecology's "What's in My neighborhood" map, there is no known contamination onsite from present or past uses.

According to Dirt Alert mapping, the project site is outside of the Tacoma Smelter Plume influence zone.

https://fortress.wa.gov/ecy/neighborhood/

https://apps.ecology.wa.gov/dirtalert

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

According to the National Pipeline Mapping Service, there are no hazardous liquid or gas transmission lines on or near the site. The nearest hazardous cleanup site is a steam plant with petroleum contamination approximately 400' away.

https://pvnpms.phmsa.dot.gov/PublicViewer/

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, petroleum products may be used or stored onsite to fuel construction machinery. During operation, hazardous chemicals could include standard cleaning products, such as surface disinfectants.

4) Describe special emergency services that might be required.

No new special emergency service are anticipated to be required as a result of the proposed project. Fire and medical emergency services may be required.

5) Proposed measures to reduce or control environmental health hazards, if any:

Enviromental health hazards are not anticipated as a part of this project. Any hazards encountered will be addressed in accordance with applicable standards.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None that may affect this project. Noise is currently produced from traffic along Capitol Way and vehicles on the Capitol Campus.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term construction noise will result from machinery used for site preparation and construction of the proposed building, and would occur during hours permitted by the City of Olympia (per OMC 18.40.080 Protection Standards). Minimal noise will be expected long-term from persons working at the proposed building.

3) Proposed measures to reduce or control noise impacts, if any:

Construction noises will be required to meet the local noise control ordinance.

8. Land and Shoreline Use [help]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The proposal will not affect current land uses on nearby or adjacent properties.

The site is currently used as a parking lot for the Capitol Campus. The Washington State Capitol, Campus is generally east of the project site. A historic steam plant is to the west of the project site, between it and Capitol Lake. North of the project site is a steep vegetated slope separating the site from a public park & trail which circles Capitol Lake. The Governers Mansion & grounds are south of the project site.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No, the project site has not been used as working farmands. According to historic aerials, it has been a cleared parking area for the capitol since the 1960's.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No

c. Describe any structures on the site.

There are currently no above-ground structures on site; only a parking lot.

d. Will any structures be demolished? If so, what?

No

e. What is the current zoning classification of the site?

According to the City of Olympia zoning maps, the project site is zoned as State Capitol Campus. The Washington State Capitol Committee alone has authority over land use for the State Capitol Campus.

f. What is the current comprehensive plan designation of the site?

The City of Olympia Comprehensive Plan's Future Land Use map shows the project site is designated as "Planned Developments".

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable. According to Thurston County GeoData, the project area is outside of shoreline jurisdiction.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the project site has been classified as a critical area.

i. Approximately how many people would reside or work in the completed project?

Approximately 70+/- employees and staff would work in the completed project.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable - the completed project would not displace any persons.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project will support the existing adjacent land uses, by providing a location for staff already working on the Capitol Campus while their current offices and buildings are restored for continued future use.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not applicable – there are no anticipated impacts to agricultural or forest lands of long-term significance.

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable. No impacts to housing are proposed.

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the proposed structure is about 40’ +/- from existing parking lot grades to the building peak.

The principal exterior building material(s) proposed is T-1-11 plywood, painted wood.

b. What views in the immediate vicinity would be altered or obstructed?

Views from the western windows of the Temple of Justice would be be altered. The proposed building would obscure current views of the parking lot and visibility beyond that.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The temporary office building has been located to reduce aesthetic impacts to visitors of the Capitol Campus, by situating the temporary building on the periphery of the primary campus and walking paths.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The existing parking lot currently contains a street light for safety purposes. Light and glare from the proposal would continue to mainly occur during similar evening hours, from exterior lighting used to illuminate the parking lot.

Measures will be taken to ensure light spill over into natural areas beyond the property lines is minimized.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light or glare is not expected to be a safety hazard or interfere with views, due to the location of the project proposal behind the Temple of Justice and distanced from roads and recreation areas.

c. What existing off-site sources of light or glare may affect your proposal?

Lighting for the existing parking lot and adjacent buildings may be present, but is not anticipated to affect the proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

Cutoff fixtures and lighting design to avoid spill over beyond the property will be completed.

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity?

The Capitol Campus itself is a tourism destination and favored walking area for visitors. Marathon Park and the trail that circumnavigates Capitol Lake are downslope from the project site. There is a landscaped path from the Capitol Campus down the slope to the Capitol Lake trail.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project will not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Not applicable - none needed.

13. Historic and cultural preservation [help]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.

According to the Department of Archaeology and Historic Preservation (DAHP), there are no historic buildings on the project site. The Capitol buildings on properties directly east of the proposed project are part of a historic register district.

https://wisaard.dahp.wa.gov/

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

According to the WISSARD Predictive Model, the project site shows a Very High Risk to contain environmental factors with archaeological resources.

https://wisaard.dahp.wa.gov/

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

Washington Information System for Architectural and Archaeological Records Data (WISSARD) was accessed in November 2021 to identify cultural and historic resources on or near the site.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required

An inadvertent discovery plan, as required by DAHP, will be in place and accessible to construction personnel. During construction all work will comply with the City of Olympia code regarding inadvertent discoveries of cultural resources. In the event that cultural resources are unearthed, construction will stop until an assessment and determination can be made.

14. Transportation [help]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is currently served by 12th Ave SW and the Governors Mansion Road.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

Olympia's public transit (intercity transit) has a stop 0.4 miles away at the intersection of Capitol Way & Union Ave.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The proposal will eliminate approximately 52 total parking spaces including 2 existing ADA stalls for the 6-8 year lifespan of the Modular building. As part of the Modular project, 2 new ADA stalls are being created along Pleasant Lane to replace the 2 existing ADA stalls being removed. After the Modular building has served its 6-8 year use, and been removed, the eliminated stalls will be restored to non-ADA parking stalls.

During construction approximately 85 spaces will be temporarily closed, in addition to the eliminated stalls listed above. The temporary closures will be required to facilitate construction operations and construction staging. The temporarily closed parking stalls will be reopened in January 2023.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

No traffic analysis was required for this project. No increases in vehicular trips are anticipated to be generated by the completed project. The offices will house persons already working on the Capitol Campus.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

h. Proposed measures to reduce or control transportation impacts, if any:

No measures to reduce or control transporation impacts are proposed. Although the proposal will reduce parking in that specific location, there is alternative parking available at the Capitol Campus.

15. Public Services [help]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No, the project is not anticipated to increase a need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

The project will be built per all safety codes and includes fire sprinkler systems within the building.

16. Utilities [help]

a. Circle utilities currently available at the site:
electricity, natural gas, **water,** refuse service, **telephone,** **sanitary sewer,** septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Sewer, water, stormwater, electrical, and communications are proposed for this project. Sewer and water is provided by the city. Electrical is provided by PSE. Telephone/communications is provided by Century Link.

General construction activities consist of trenching for service lines and structure installations.

C. Signature [HELP]

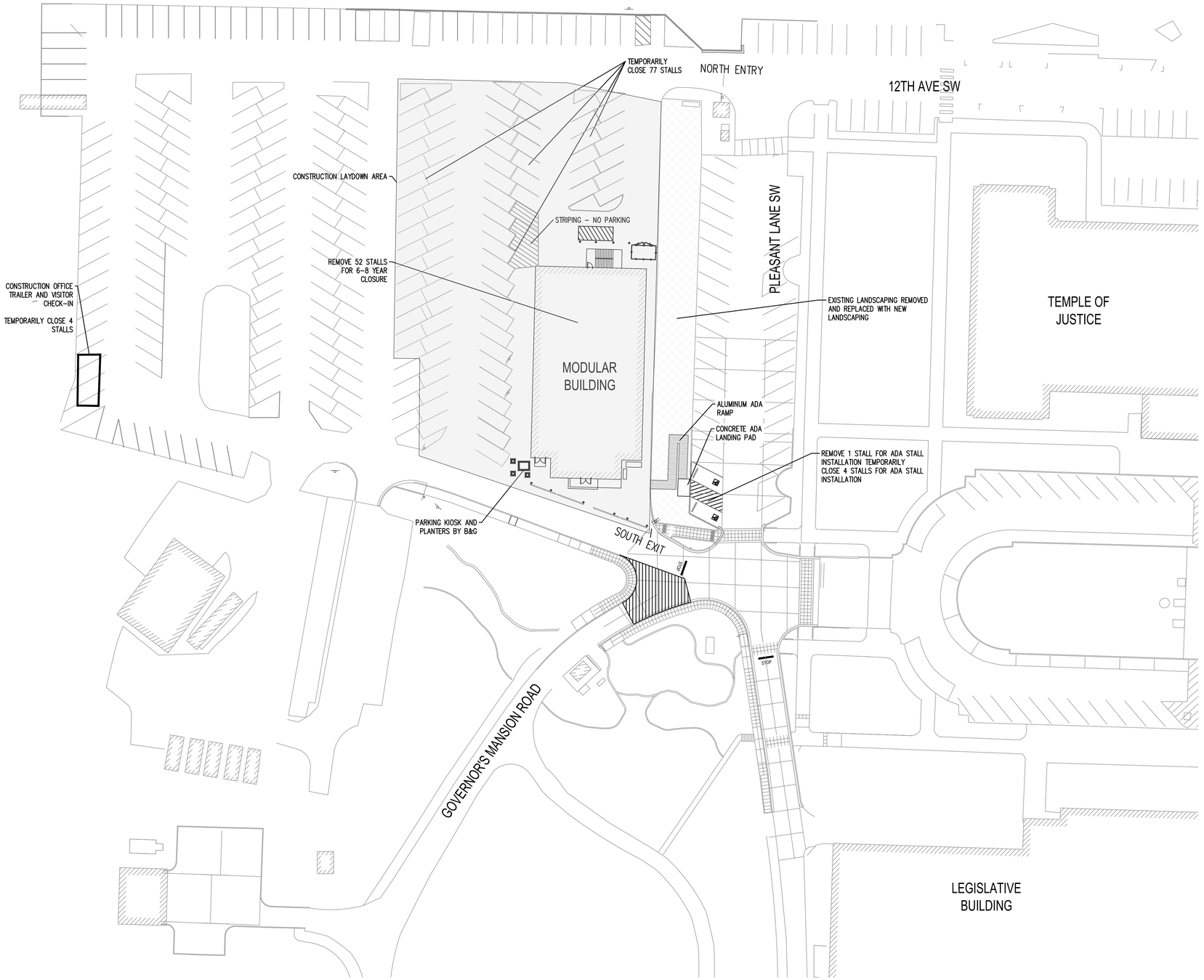
The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

Name of signee Jared VerHey

Position and Agency/Organization Project Manager – SCJ Alliance

Date Submitted: June 2022



N

0 30 60

SCALE IN FEET

PROPERTY ADDRESS:

1225 CAPITOL WAY SOUTH
OLYMPIA, WASHINGTON 98504

GENERAL SITE INFORMATION:

ZONING: CAP
TOTAL ACRES: 21.53 Acre
PARCEL NUMBER: 09850005000
LEGAL DESCRIPTION: SYLVESTER DC PT CAPITAL CAMPUS BORDERED ON N BY S LN PATERS ONS CAP

PROJECT DESCRIPTION:

NEW CONSTRUCTION OF A TWO STORY (16) MODULAR UNITS OFFICE BUILDING WITH A SITE BUILT WOOD FRAMED VERTICAL CIRCULATION TOWER WITH ELEVATOR STAIRWAY

PARKING COUNT:

REMOVAL FOR 6–8 YEAR CLOSURE:	52 STALLS
TEMPORARY CLOSURE FOR CONSTRUCTION LAYDOWN AREA AND CONSTRUCTION OFFICE:	81 STALLS
SHORT DURATION TEMPORARY CLOSURE FOR UTILITY AND ADA CONSTRUCTION:	4 STALLS

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR (800)–424–5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

msgs architects
p 360 943 6774 f 360 352 7005
www.msgsarch.com
510 capitol way south
olympia, washington 98501

LCM MODULAR BUILDING

CAPITOL CAMPUS

1225 CAPITOL WAY SOUTH, OLYMPIA, WASHINGTON 98504-0622
STATE PROJECT No. 2022-158 G (2-1)

EXHIBIT JUNE 2022

Revision Closing Date

Sheet Title

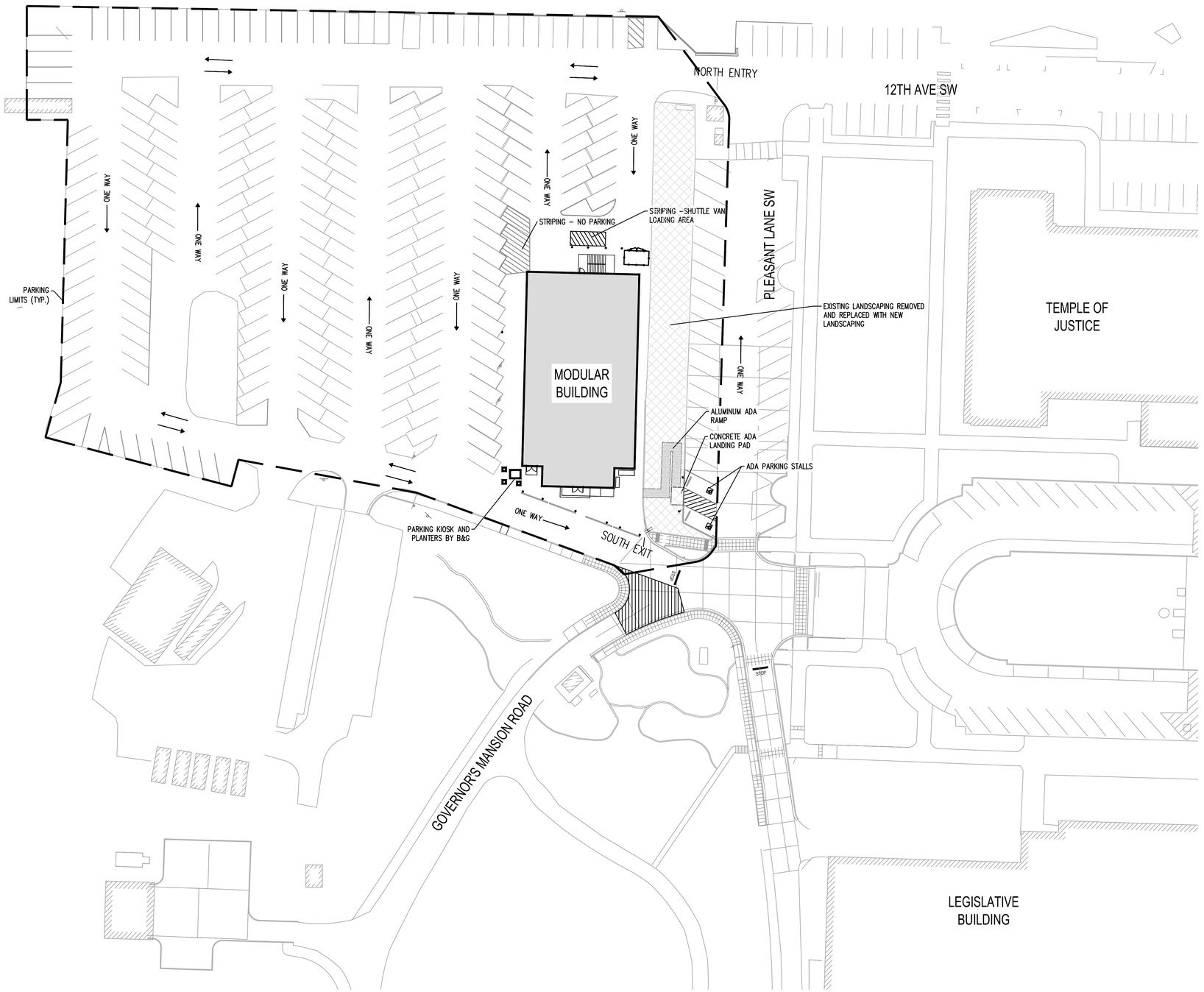
SITE AND PARKING PLAN

Sheet No.

A-EXBT

MSGS Project No.

21-138



0 30 60

SCALE IN FEET

PROPERTY ADDRESS:

1225 CAPITOL WAY SOUTH
OLYMPIA, WASHINGTON 98504

GENERAL SITE INFORMATION:

ZONING:	CAP
TOTAL ACRES:	21.53 Acre
PARCEL NUMBER:	09850005000
LEGAL DESCRIPTION:	SYLVESTER DC PT CAPITAL CAMPUS BORDERED ON N BY S LN PATERS ONS CAP

PROJECT DESCRIPTION:

NEW CONSTRUCTION OF A TWO STORY (16) MODULAR UNITS OFFICE BUILDING WITH A SITE BUILT WOOD FRAMED VERTICAL CIRCULATION TOWER WITH ELEVATOR STAIRWAY

PARKING COUNT:

RESTORED PARKING STALLS:	253
RESTORED ADA STALLS:	4 (2 VAN STALLS)
TOTAL:	257

*WITHIN PARKING LIMITS IDENTIFIED ON THE PLAN

CALL BEFORE YOU DIG

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STATE PROJECT No. 2022-158 G (2-1)

EXHIBIT JUNE 2022

Revision △ Closing Date

Sheet Title

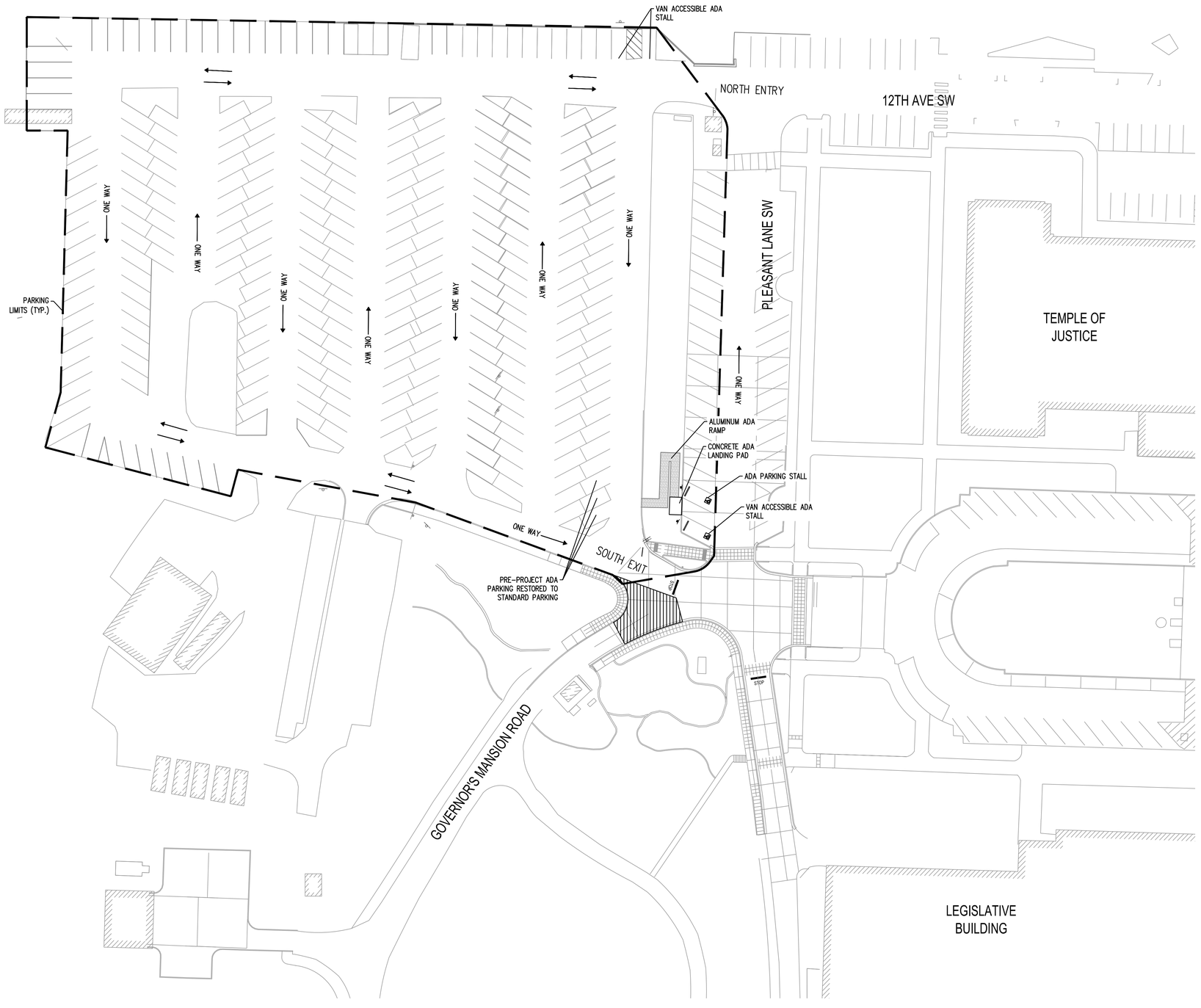
SITE PLAN

Sheet No.

B-EXBT

MSGS Project No.

21-138



N

0 30 60

SCALE IN FEET

PROPERTY ADDRESS:

1225 CAPITOL WAY SOUTH
OLYMPIA, WASHINGTON 98504

GENERAL SITE INFORMATION:

ZONING: CAP
TOTAL ACRES: 21.53 Acre
PARCEL NUMBER: 09850005000
LEGAL DESCRIPTION: SYLVESTER DC PT CAPITAL CAMPUS
BORDERED ON N BY S LN PATERS ONS CAP

PARKING COUNT RESTORED AFTER MODULAR REMOVAL:

RESTORED PARKING STALLS:	305
RESTORED ADA STALLS:	4 (3 VAN STALLS)
TOTAL:	309

*WITHIN PARKING LIMITS IDENTIFIED ON THE PLAN

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR (800)-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

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CAPITOL CAMPUS
1225 CAPITOL WAY SOUTH, OLYMPIA, WASHINGTON 98504-0622
STATE PROJECT No. 2022-158 G (2-1)

EXHIBIT JUNE 2022

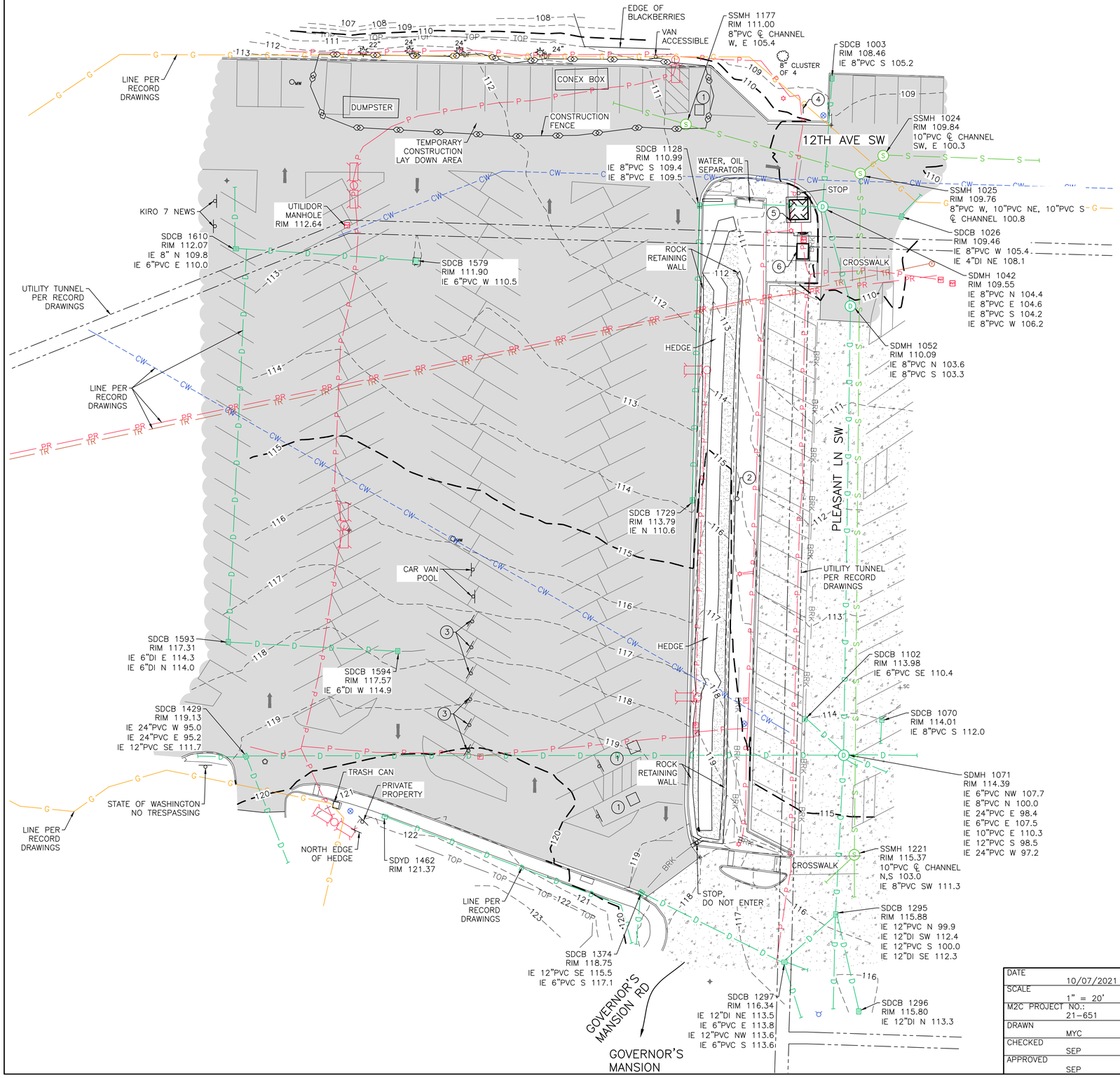
Revision	Closing Date

Sheet Title

POST -MODULAR SITE PLAN

Sheet No.
C-EXBT

MSGS Project No.
21-138



DATUM

HORIZONTAL – WASHINGTON STATE PLANE COORDINATES, SOUTH ZONE, NAD 83/91 BASED ON TIES TO THURSTON COUNTY MONUMENTS "SOLDIERS"

VERTICAL – NAVD 88 BASED ON TIES TO THURSTON COUNTY MONUMENT "SOLDIERS" ELEV=118.09.

UTILITY NOTE

UTILITIES SHOWN HEREON ARE FROM FIELD MAPPING VISIBLE SURFACE APPURTENANCES, UTILITY AS-BUILT DRAWINGS AND MAPPING UTILITY PAINT MARKS FROM A UTILITY LOCATING SERVICE. BURIED UTILITIES ARE ONLY SHOWN AS APPROXIMATE AND SHOULD BE VERIFIED BEFORE CONSTRUCTION.

SURVEY NOTES

1. INSTRUMENT USED: SOKKIA IX, 3" TOTAL STATION AND TOPCON VR GPS.
2. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS OF WAC 332-130-090, 332-130-145.
3. SURVEY COMPLETED 09/23/2021
4. ALL MONUMENTS SHOWN AS FOUND VISITED 09/2021.
5. PURPOSE OF TOPOGRAPHICAL MAPPING IS FOR FUTURE DEVELOPMENT OF SITE.
6. CONTOURS WERE ESTABLISHED FROM FIELD MAPPING, 1' CONTOURS SHOWN.
7. SCJ ALLIANCE TO COMPLETE A TOPOGRAPHIC SURVEY OF THE EAST HALF OF THE PARKING LOT AT CAPITOL CAMPUS.

(X) SURFACE FEATURE NOTE

1. HANDICAP PARKING
2. 1.5' OUTSIDE DIAMETER METAL PIPE STUB, EXPOSED 1.3' ABOVE GROUND, BENDS 90° AT TOP
3. RESERVED CAR POOL SIGN
4. EMPLOYEE RESERVED PARKING MANSION LOT SIGN
5. ENERGY HUB BOX ATTACHED TO BUILDING
6. UTILIDOR

HATCHING

GRAVEL

ASPHALT

CONCRETE

LINE TYPES

CHAIN LINK FENCE
BUILDING LINE
BUILDING OVERHANG
STORM LINE
SANITARY SEWER LINE
BURIED POWER
MAJOR CONTOUR
MINOR CONTOUR
GROUND TOP
GROUND BREAK

LINES PER RECORD DRAWINGS:
UTILITY TUNNEL LINE
BURIED POWER
BURIED TELEPHONE
BURIED NATURAL GAS
BURIED CHILLED WATER

LEGEND

LUMINAIRE WITH SHORT ARM
LUMINAIRE
POWER JUNCTION BOX
POWER VAULT/ MANHOLE
SS MANHOLE
STORM CATCH BASIN
STORM MANHOLE
STORM YARD DRAIN
TELEPHONE VAULT/MANHOLE
IRRIGATION CONTROL VALVE
WATER FIRE HYDRANT
DECIDUOUS TREE
DOUGLAS-FIR TREE
WHEEL STOP
STREET SIGN (AS DESCRIBED)
MONITORING WELL
ALUMINUM CAP
BRASS CAP
PK NAIL
SCRIBE
REBAR AND CONTROL CAP

DATE	10/07/2021
SCALE	1" = 20'
M2C PROJECT NO.:	21-651
DRAWN	MYC
CHECKED	SEP
APPROVED	SEP

SETH L. PRIGGE
STATE OF WASHINGTON
21013244
REGISTERED
PROFESSIONAL LAND SURVEYOR

MTN 2 COAST LLC
PROFESSIONAL LAND SURVEYORS
2320 MOTTMAN RD SW, STE 106
TUMWATER, WA 98512
360.688.1949

PROJECT NAME:
CAPITOL CAMPUS
PARKING LOT
TOPOGRAPHIC SURVEY

CLIENT NAME:
SCJ ALLIANCE

SHEET NAME:
SV-1

SHEET NO.
1 OF 1

INSIGHT GEOLOGIC, INC.

December 17, 2021

MSGS Architects
510 Capitol Way South
Olympia, Washington 98501
Attn: Bill Sloan

Report
Geotechnical and Stormwater Infiltration Evaluation
Proposed Temporary Modular Office Building
12th Avenue SW
Olympia, Washington
Project No. 387-010-01

INTRODUCTION

Insight Geologic, Inc. is pleased to provide our report regarding our evaluation of subsurface conditions as they relate to geotechnical properties and stormwater infiltration at the location of the proposed temporary modular offices. The proposed project is within the parking lot located west of the Washington Supreme Court Building and south of 12th Avenue SW in Olympia, Washington. The location of the site is shown relative to surrounding physical features in the Vicinity Map, Figure 1 and Site Plan, Figure 2. The proposed project is to consist modular 2-story office building that will be located on the site for approximately 7 years. The property is currently a parking lot.

SCOPE OF SERVICES

The purpose of our services was to evaluate subsurface conditions as they pertain to stormwater infiltration and geotechnical parameters. We proposed to conduct our stormwater services in general accordance with the guidelines outlined in the City of Olympia's 2016 Drainage Design and Erosion Control Manual (2016 Manual). Our specific scope of services included the following tasks:

1. Provided for the location of subsurface utilities on the site. We conducted this task by notifying the "One Call" utility locate system and reviewed provided utility maps from the client.
2. Conducted a site reconnaissance to evaluate and mark the proposed boring locations.
3. Drilled two borings in the location of the proposed office buildings. The borings were completed at a depth of 31.5 feet bgs.
4. Collected representative soil samples from the borings for laboratory analysis.
5. Performed laboratory testing on representative soil samples collected from the borings. We performed testing for grain-size distribution to assist with geotechnical recommendations and stormwater infiltration rates.

6. Calculated a design infiltration rate for the proposed stormwater infiltration in general accordance with the 2016 Stormwater Manual.
7. Prepared a letter report summarizing our findings and presenting our recommendations for the project including bearing capacities of the soil, active and passive earth pressures, design infiltration rate for stormwater, as well as recommendations for grading and construction.

FINDINGS

Surface Conditions

The project site is situated at an elevation of approximately 120 feet above mean sea level (MSL) and is located on the northwest corner of the Capitol Campus. The site is bounded by the Temple of Justice to the east, the Governor's Residence to the south, the remainder of the parking lot, and Capitol Lake to the north and west. The site is currently a parking lot used by government employees and the site is predominantly level. The proposed office building will be located in the southeast corner of the parking lot.

Geology

Based on our review of available published geologic maps, Vashon age glacial recessional outwash deposits underlie the project site and surrounding area. The outwash material is described as fine to medium sand with few fines. These sediments were deposited in and around the margins of glacial lakes by meltwater streams during the waning stages of the most recent glacial epoch in the Puget Sound lowlands; the Fraser Stade of the Vashon glaciation. The outwash is typically found in a loose to moderately dense condition and is not glacially consolidated.

Subsurface Explorations

We explored subsurface conditions at the site on November 19, 2021, by advancing two borings in the locations as shown on the Site Plan, Figure 2. The borings were advanced by Holocene Drilling using a track-mounted hollow stem auger drill rig. A geologist from Insight Geologic monitored the explorations and maintained a log of the conditions encountered. The borings were completed at a depth of 31.5 feet bgs. The soils were visually classified in general accordance with the system described in ASTM D2487-06. A copy of the explorations is contained in Attachment A.

Soil Conditions

Soil conditions encountered at the site were relatively consistent between the two borings. Underlying approximately three inches of asphalt, we encountered silt with fine sand and discontinuous lenses of silty fine sand (ML, SM) in a stiff to hard and medium dense to very dense and moist condition to the base of the borings. In general, soils increased in density with depth and reached a stiff or dense condition between 5 to 15 feet bgs.

Groundwater Conditions

Groundwater was not encountered in either of the borings completed on-site to a depth of 31.5 feet bgs. No evidence of high groundwater such as mottled soil was encountered in the borings. The elevation of nearby Capitol Lake to the north and west of the site is approximately 8 feet above mean sea level or about 112 feet below existing site grade.

Laboratory Testing

We selected six soil samples for gradation analyses in general accordance with ASTM D422 to define soil class, assist with geotechnical recommendations and obtain parameters for stormwater infiltration calculations. Our laboratory test results are provided in Attachment B.

STORMWATER INFILTRATION

We completed a stormwater infiltration rate evaluation in general accordance with the 2016 City of Olympia Drainage Design and Erosion Control Manual (2016 Manual). The 2016 Manual uses a detailed method that utilizes the relationship between the D_{10}, D_{60}, and D_{90} results of the ASTM grain-size distribution analyses, along with site-specific correction factors to estimate long-term design infiltration rates.

Based on our gradation analyses, we estimate that the initial long-term design infiltration rate (F_{design}) for the proposed stormwater infiltration pond and pervious pavement is approximately 0.1 inches per hour, after applying the appropriate correction factors. Our calculations assume that the stormwater infiltration will occur at a depth of approximately 5 feet bgs. We further assumed that the underlying silt units are relatively impermeable. This preliminary infiltration rate takes into account the shallow silt horizon encountered at the site, but does not take into account perched groundwater that may develop during the winter season.

This rate, coupled with the impermiable soils on the site, indicate that stormwater infiltration is not practical at the site. We recommend collection and conveyance to the existing stormwater system located on the capitol campus. The results of our stormwater infiltration evaluation are presented in Table 1.

Table 1. Design Infiltration Rates – Detailed Method

Exploration	Unit	Depth Range (feet)	D_{10} Value	D_{60} Value	D_{90} Value	Long Term Design Infiltration Rate (Inches per hour)
B-2	ML	5.0 – 6.5	0.0	0.0	0.26	0.1
	ML	10.0 – 11.5	0.0	0.0	0.31	
	ML	15.0 – 16.5	0.0	0.0	0.14	
	ML	20.0 – 21.5	0.0	0.0	0.65	
	ML	25.0 – 26.5	0.0	0.0	0.35	
	ML	30.0 – 31.5	0.0	0.0	0.0	

SEISMIC DESIGN CONSIDERATIONS

General

We understand that seismic design will likely be performed using the 2018 IBC standards. The following parameters may be used in computing seismic base shear forces:

Table 2. 2018 IBC Seismic Design Parameters

Spectral Response Accel. at Short Periods (SS) = 1.408
Spectral Response Accel. at 1 Second Periods (S1) = 0.523
Site Class = D
Site Coefficient (FA) = 1.0
Site Coefficient (FV) = 1.777

Ground Rupture

Because of the location of the site with respect to the nearest known active crustal faults, and the presence of a relatively thick layer of stiff glacial silts, it is our opinion that the risk of ground rupture at the site due to surface faulting is low.

Soil Liquefaction

Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in the development of excess pore water pressures in saturated soils, and a subsequent loss of stiffness in the soil occurs. Liquefaction also causes a temporary reduction of soil shear strength and bearing capacity, which can cause settlement of the ground surface above the liquefied soil layers. In general, soils that are most susceptible to liquefaction include saturated, loose to medium dense, clean to silty sands and non-plastic silts within 50 feet of the ground surface.

Based on our review of the *Liquefaction Susceptibility Map of Thurston County (Palmer, 2004)*, the project site is identified to have a low potential risk for soil liquefaction. Based on our experience with detailed seismic studies in the Olympia area, including areas that are mapped within the same soil deposits as the project site, we concur with the reviewed map. It is our opinion that there is a low risk for soil liquefaction at the site. Additional investigation and evaluation would be needed to further define this risk.

Seismic Compression

Seismic compression is defined as the accrual of contractive volumetric strains in unsaturated soils during strong shaking from earthquakes (Stewart et al., 2004). Loose to medium dense clean sands and non-plastic silts are particularly prone to seismic compression settlement. Seismic compression settlement is most prevalent on slopes, but it can also occur on flat ground. It is our opinion that the site has a low risk for seismic compression settlement.

Seismic Settlement Discussion

Based on the materials encountered in our explorations, it is our preliminary opinion that seismic settlements (liquefaction-induced plus seismic compression) could potentially total a few inches at the site as the result of an IBC design level earthquake. We are available upon request to perform deep subsurface explorations and detailed seismic settlement estimates during the design phase.

Lateral Spreading

Lateral spreading involves the lateral displacement of surficial blocks of non-liquefied soil when an underlying soil layer liquefies. Lateral spreading generally develops in areas where sloping ground or large grade changes are present. Based on our understanding of the subsurface conditions along the minimal slope, it is our opinion that there could be a low risk for the development of lateral spreading as a result of an IBC design level earthquake.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the results of our review, subsurface explorations and engineering analyses, it is our opinion that the proposed development is feasible from a geotechnical standpoint. We recommend that the proposed structures be supported on shallow concrete foundations that are designed using an allowable soil bearing capacity of 1,500 pounds per square foot (psf). If higher loads are anticipated, compacted stone columns, small diameter pilings, or a robust structural fill section may be used to increase the bearing strength of the soils beneath the building.

The soils encountered in our explorations are typically in a stiff condition near ground surface. To limit the potential for structure settlement, we recommend that shallow foundations and slabs-on-grade be established on a minimum 1-foot thick layer of structural fill. Depending on final grading plans and the time of year earthwork is performed; it could be practical to reuse the on-site soils granular soils as structural fill under the foundations/slabs.

Stormwater infiltration at the site is not feasible. Soils located near the surface can effectively be considered impermeable with an estimated infiltration rate of 0.1 inch per hour. We recommend that stormwater be collected and routed to the existing stormwater system located on the capital campus.

Earthwork

General

We anticipate that site development earthwork will include clearing and stripping of existing asphalt, preparing subgrades, excavating for utility trenches, and placing and compacting structural fill. We expect that the majority of site grading can be accomplished with conventional earthmoving equipment in proper working order.

Our explorations did not encounter appreciable amounts of debris or unsuitable soils associated with past site development. Still, it is possible that concrete slabs, abandoned utility lines or other development features from the existing onsite development could be encountered during construction. The contractor should be prepared to deal with these conditions during site grading activities.

Clearing and Stripping

Clearing and stripping should consist of removing surface and subsurface deleterious materials including asphalt, sod/topsoil, trees, brush, debris and other unsuitable loose/soft or organic materials. Stripping and clearing should extend at least 5 feet beyond all structures and areas to receive structural fill.

We estimate that a stripping depth of about 3 inches will be required to remove the asphalt encountered in our explorations. Deeper stripping depths may be required if additional unsuitable soils are exposed during stripping operations.

Subgrade Preparation

After stripping and excavating to the proposed subgrade elevation, and before placing structural fill or foundation concrete, the exposed subgrade should be thoroughly compacted to a firm and unyielding condition. The exposed subgrade should then be proof-rolled using loaded, rubber-tired heavy equipment. We recommend that Insight Geologic be retained to observe the proof-rolling prior to placement of structural fill or foundation concrete. Areas of limited access that cannot be proof-rolled can be evaluated using a steel probe rod. If soft or otherwise unsuitable areas are revealed during proof-rolling or probing, that cannot be compacted to a stable and uniformly firm condition, we generally recommend that: 1) the subgrade soils be scarified (e.g., with a ripper or farmer's disc), aerated and recompacted; or 2) the unsuitable soils be over-excavated and replaced with structural fill.

Temporary Excavations and Groundwater Handling

Excavations deeper than 4 feet should be shored or laid back at a stable slope if workers are required to enter. Shoring and temporary slope inclinations must conform to the provisions of Title 296 Washington Administrative Code (WAC), Part N, "Excavation, Trenching and Shoring." Regardless of the soil type encountered in the excavation, shoring, trench boxes or sloped sidewalls were required under the Washington Industrial Safety and Health Act (WISHA). The contract documents should specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety and providing shoring, as required, to protect personnel and structures.

In general, temporary cut slopes should be inclined no steeper than about 1.5H:1V (horizontal: vertical). This guideline assumes that all surface loads are kept at a minimum distance of at least one-half the depth of the cut away from the top of the slope, and that significant seepage is not present on the slope face. Flatter cut slopes were necessary where significant seepage occurs or if large voids are created during excavation. Some sloughing and raveling of cut slopes should be expected. Temporary covering with heavy plastic sheeting should be used to protect slopes during periods of wet weather.

We anticipate that if perched groundwater is encountered during construction it can be handled adequately with sumps, pumps, and/or diversion ditches. Groundwater handling needs will generally be lower during the late summer and early fall months. We recommend that the contractor performing the work be made responsible for controlling and collecting groundwater encountered during construction.

Permanent Slopes

We do not anticipate that permanent slopes will be utilized for the proposed project. Where permanent slopes are necessary, we recommend the slopes be constructed at a maximum inclination of 2H:1V.

Where 2H:1V permanent slopes are not feasible, protective facings and/or retaining structures should be considered.

To achieve uniform compaction, we recommend that fill slopes be overbuilt and subsequently cut back to expose well-compacted fill. Fill placement on slopes should be benched into the slope face and include keyways. The configuration of the bench and keyway depends on the equipment being used. Bench excavations should be level and extend into the slope face. We recommend that a vertical cut of about 3 feet be maintained for benched excavations. Keyways should be about 1-1/2 times the width of the equipment used for grading or compaction.

Erosion Control

We anticipate that erosion control measures such as silt fences, straw bales and sand bags will generally be adequate during development. Temporary erosion control should be provided during construction activities and until permanent erosion control measures are functional. Surface water runoff should be properly contained and channeled using drainage ditches, berms, swales, and tightlines, and should not discharge onto sloped areas. Any disturbed sloped areas should be protected with a temporary covering until new vegetation can take effect. Jute or coconut fiber matting, excelsior matting or clear plastic sheeting is suitable for this purpose. Graded or disturbed slopes should be tracked in-place with the equipment running perpendicular to the slope contours so that the track marks provide a texture to help resist erosion. Ultimately, erosion control measures should be in accordance with local regulations and should be clearly described on project plans.

Wet Weather Earthwork

The near surface soils contain significant fines. When the moisture content of the soil is more than a few percent above the optimum moisture content, the soil will become unstable and it may become difficult or impossible to meet the required compaction criteria. Disturbance of near surface soils should be expected if earthwork is completed during periods of wet weather.
The wet weather season in this area generally begins in October and continues through May. However, periods of wet weather may occur during any month of the year. If wet weather earthwork is unavoidable, we recommend that:

- The ground surface is sloped so that surface water is collected and directed away from the work area to an approved collection/dispersion point.
- Earthwork activities not take place during periods of heavy precipitation.
- Slopes with exposed soil be covered with plastic sheeting or otherwise protected from erosion.
- Measures are taken to prevent on-site soil and soil stockpiles from becoming wet or unstable. Sealing the surficial soil by rolling with a smooth-drum roller prior to periods of precipitation should reduce the extent that the soil becomes wet or unstable.
- Construction traffic is restricted to specific areas of the site, preferably areas that are surfaced with materials not susceptible to wet weather disturbance.
- A minimum 1-foot thick layer of 4- to 6-inch quarry spalls is used in high traffic areas of the site to protect the subgrade soil from disturbance.

- Contingencies are included in the project schedule and budget to allow for the above elements.

Structural Fill Materials

General

Material used for structural fill should be free of debris, organic material and rock fragments larger than 3 inches. The workability of material for use as structural fill will depend on the gradation and moisture content of the soil. As the amount of fines increases, soil becomes increasingly more sensitive to small changes in moisture content and adequate compaction becomes more difficult or impossible to achieve.

On-Site Soil

We anticipate that the majority of the on-site soils encountered during construction will consist of the silt located at or near the surface of the site. It is our opinion that the silts encountered during excavation and grading should be wasted and/or hauled off-site as it will be difficult to use it as structural fill. Reuse of the silt soils would require significant moisture conditioning and compaction efforts and is unlikely to be able to be sufficiently compacted during most of the year.

Select Granular Fill

Select granular fill should consist of imported, well-graded sand and gravel or crushed rock with a maximum particle size of 3 inches and less than 5 percent passing a U.S. Standard No. 200 sieve based on the minus ¾-inch fraction. Organic matter, debris or other deleterious material should not be present. In our experience, "gravel borrow" as described in Section 9-03.14(1) of the 2020 WSDOT Standard Specifications is typically a suitable source for select granular fill during periods of wet weather, provided that the percent passing a U.S. Standard No. 200 sieve is less than 5 percent based on the minus ¾-inch fraction.

Structural Fill Placement and Compaction

General

Structural fill should be placed on an approved subgrade that consists of uniformly firm and unyielding inorganic native soils or compacted structural fill. Structural fill should be compacted at a moisture content near optimum. The optimum moisture content varies with the soil gradation and should be evaluated during construction.

Structural fill should be placed in uniform, horizontal lifts and uniformly densified with vibratory compaction equipment. The maximum lift thickness will vary depending on the material and compaction equipment used, but should generally not exceed the loose thicknesses provided on Table 3. Structural fill materials should be compacted in accordance with the compaction criteria provided in Table 4.

Table 3. Recommended Uncompacted Lift Thickness

Compaction Equipment	Recommended Uncompacted Fill Thickness (inches)	
	Granular Materials Maximum Particle Size ≤ 1 1/2 inch	Granular Materials Maximum Particle Size > 1 1/2 inch
Hand Tools (Plate Compactors and Jumping Jacks)	4 – 8	Not Recommended
Rubber-tire Equipment	10 – 12	6 – 8
Light Roller	10 – 12	8 – 10
Heavy Roller	12 – 18	12 – 16
Hoe Pack Equipment	18 – 24	12 – 16

Note: The above table is intended to serve as a guideline and should not be included in the project specifications.

Table 4. Recommended Compaction Criteria in Structural Fill Zones

Fill Type	Percent Maximum Dry Density Determined by ASTM Test Method D 1557 at ±3% of Optimum Moisture		
	0 to 2 Feet Below Subgrade	> 2 Feet Below Subgrade	Pipe Zone
Imported or On-site Granular, Maximum Particle Size < 1-1/4-inch	95	95	-----
Imported or On-site Granular, Maximum Particle Size >1-1/4-inch	N/A (Proof-roll)	N/A (Proof-roll)	-----
Trench Backfill[1]	95	92	90

Note: [1]Trench backfill above the pipe zone in nonstructural areas should be compacted to at least 85 percent.

Shallow Foundation Support

General

We recommend that proposed structure be founded on continuous wall or isolated column footings, bearing on a minimum 1-foot thick over-excavation and replacement with compacted structural fill. The structural fill zone should extend to a horizontal distance equal to the over-excavation depth on each side of the footing. The actual over-excavation depth will vary, depending on the conditions encountered.

We recommend that an experienced geotechnical owner-representative observe the foundation surfaces before over-excavation, and before placing structural fill in over-excavations. This representative should confirm that adequate bearing surfaces have been prepared and that the soil conditions are as anticipated. Unsuitable foundation bearing soils should be recompacted or removed and replaced with compacted structural fill, as recommended by the geotechnical engineer.

Bearing Capacity and Footing Dimensions

We recommend an allowable soil bearing pressure of 1,500 psf for shallow foundations that are supported as recommended. This allowable bearing pressure applies to long-term dead and live loads

exclusive of the weight of the footing and any overlying backfill. The allowable soil bearing pressure can be increased by one-third when considering total loads, including transient loads such as those induced by wind and seismic forces.

We recommend a minimum width of 18 inches for continuous wall footings and 2 feet for isolated column footings. For settlement considerations, we have assumed a maximum width of 4 feet for continuous wall footings and 6 feet for isolated column footings.

Perimeter footings should be embedded at least 12 inches below the lowest adjacent grade where the ground is flat. Interior footings should be embedded a minimum of 6 inches below the nearest adjacent grade.

Settlement

We estimate that total settlement of footings that are designed and constructed as recommended should be less than 1 inch. We estimate that differential settlements should be ½ inch or less between comparably loaded isolated footings or along 50 feet of continuous footing. We anticipate that the settlement will occur essentially as loads are applied during construction.

Lateral Load Resistance

Lateral loads on shallow foundation elements may be resisted by passive resistance on the sides of footings and by friction on the base of footings. Passive resistance may be estimated using an equivalent fluid density of 200 pounds per cubic foot (pcf), assuming that the footings are backfilled with structural fill. Frictional resistance may be estimated using 0.2 for the coefficient of base friction.

The lateral resistance values provided above incorporate a factor of safety of 1.5. The passive earth pressure and friction components can be combined, provided that the passive component does not exceed two-thirds of the total. The top foot of soil should be neglected when calculating passive resistance, unless the foundation perimeter area is covered by a slab-on-grade or pavement.

Slabs-On-Grade

Slabs-on-grade should be established on a minimum 1-foot thick section of structural fill extending to an approved bearing surface. A modulus of vertical subgrade reaction (subgrade modulus) can be used to design slabs-on-grade. The subgrade modulus varies based on the dimensions of the slab and the magnitude of applied loads on the slab surface; slabs with larger dimensions and loads are influenced by soils to a greater depth. We recommend a modulus value of 200 pounds per cubic inch (pci) for design of on-grade floor slabs with floor loads up to 500 psf. We are available to provide alternate subgrade modulus recommendations during design, based on specific loading information.

We recommend that slabs-on-grade in interior spaces be underlain by a minimum 4-inch thick capillary break layer to reduce the potential for moisture migration into the slab. The capillary break material should consist of a well-graded sand and gravel or crushed rock containing less than 5 percent fines based on the fraction passing the ¾-inch sieve. The 4-inch thick capillary break layer can be included when calculating the minimum 1-foot thick structural fill section beneath the slab.

If dry slabs are required (e.g., where adhesives are used to anchor carpet or tile to the slab), a waterproofing liner should be placed below the slab to act as a vapor barrier.

Subsurface Drainage

It is our opinion that foundation footing drains and underslab drains are likely necessary for the proposed structure. The site soils consisting of silt are generally poorly draining. Footing drains should be routed to existing on-site or planned storm drainage. Drains for surface water, such as downspout and area drains, should not be connected to the footing drain system.

Conventional Retaining Walls

General

The following sections provide general guidelines for retaining wall design on this site. We should be contacted during the design phase to review retaining wall plans and provide supplemental recommendations, if needed.

Drainage

Positive drainage is imperative behind any retaining structure. This can be accomplished by using a zone of free-draining material behind the wall with perforated pipes to collect water seepage. The drainage material should consist of coarse sand and gravel containing less than 5 percent fines based on the fraction of material passing the 3/4-inch sieve. The wall drainage zone should extend horizontally at least 12 inches from the back of the wall. If a stacked block wall is constructed, we recommend that a barrier such as a non-woven geotextile filter fabric be placed against the back of the wall to prevent loss of the drainage material through the wall joints.

A perforated smooth-walled rigid PVC pipe, having a minimum diameter of 4 inches, should be placed at the bottom of the drainage zone along the entire length of the wall. Drainpipes should discharge to a tightline leading to an appropriate collection and disposal system. An adequate number of cleanouts should be incorporated into the design of the drains in order to provide access for regular maintenance. Roof downspouts, perimeter drains or other types of drainage systems should not be connected to retaining wall drain systems.

Design Parameters

We recommend an active lateral earth pressure of 29 pcf for a level backfill condition. This assumes that the top of the wall is not structurally restrained and is free to rotate. For restrained walls that are fixed against rotation (at-rest condition), an equivalent fluid density of 45 pcf can be used for the level backfill condition. For seismic conditions, we recommend a uniform lateral pressure of 14H psf (where H is the height of the wall) be added to the lateral pressures. This seismic pressure assumes a peak ground acceleration of 0.32 g. Note that if the retaining system is designed as a braced system but is expected to yield a small amount during a seismic event, the active earth pressure condition may be assumed and combined with the seismic surcharge.

The recommended earth pressure values do not include the effects of surcharges from surface loads or structures. If vehicles will be operated within one-half the height of the wall, a traffic surcharge should be added to the wall pressure. The traffic surcharge can be approximated by the equivalent

weight of an additional 2 feet of backfill behind the wall. Other surcharge loads, such as construction equipment, staging areas and stockpiled fill, should be considered on a case-by-case basis.

DOCUMENT REVIEW AND CONSTRUCTION OBSERVATION

We recommend that we be retained to review the portions of the plans and specifications that pertain to earthwork construction and stormwater infiltration. We recommend that monitoring, testing and consultation be performed during construction to confirm that the conditions encountered are consistent with our explorations and our stated design assumptions. Insight Geologic would be pleased to provide these services upon request.

REFERENCES

International Code Council, “International Building Code”, 2018.

Seismic Compression of As-compacted Fill Soils with Variable Levels of Fines Content and Fines Plasticity, Department of Civil and Environmental Engineering, University of California, Los Angeles, July 2004.

Washington State Department of Transportation (WSDOT), Standard Specifications for Road, Bridge and Municipal Construction Manual, 2020.

LIMITATIONS

We have prepared this geotechnical evaluation services report for the exclusive use by MSGS Architects and their authorized agents for the proposed Temporary Modular Office Building to be located within the parking lot located west of the Washington Supreme Court Building and south of 12th Avenue SW in Olympia, Washington.

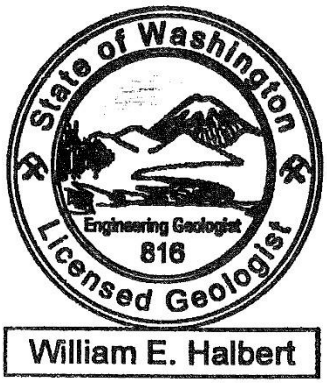
Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, expressed or implied, should be understood.

Please refer to Attachment C titled “Report Limitations and Guidelines for Use” for additional information pertaining to use of this report.

We appreciate the opportunity to be of service to you on this project. Please contact us if you have questions or require additional information.

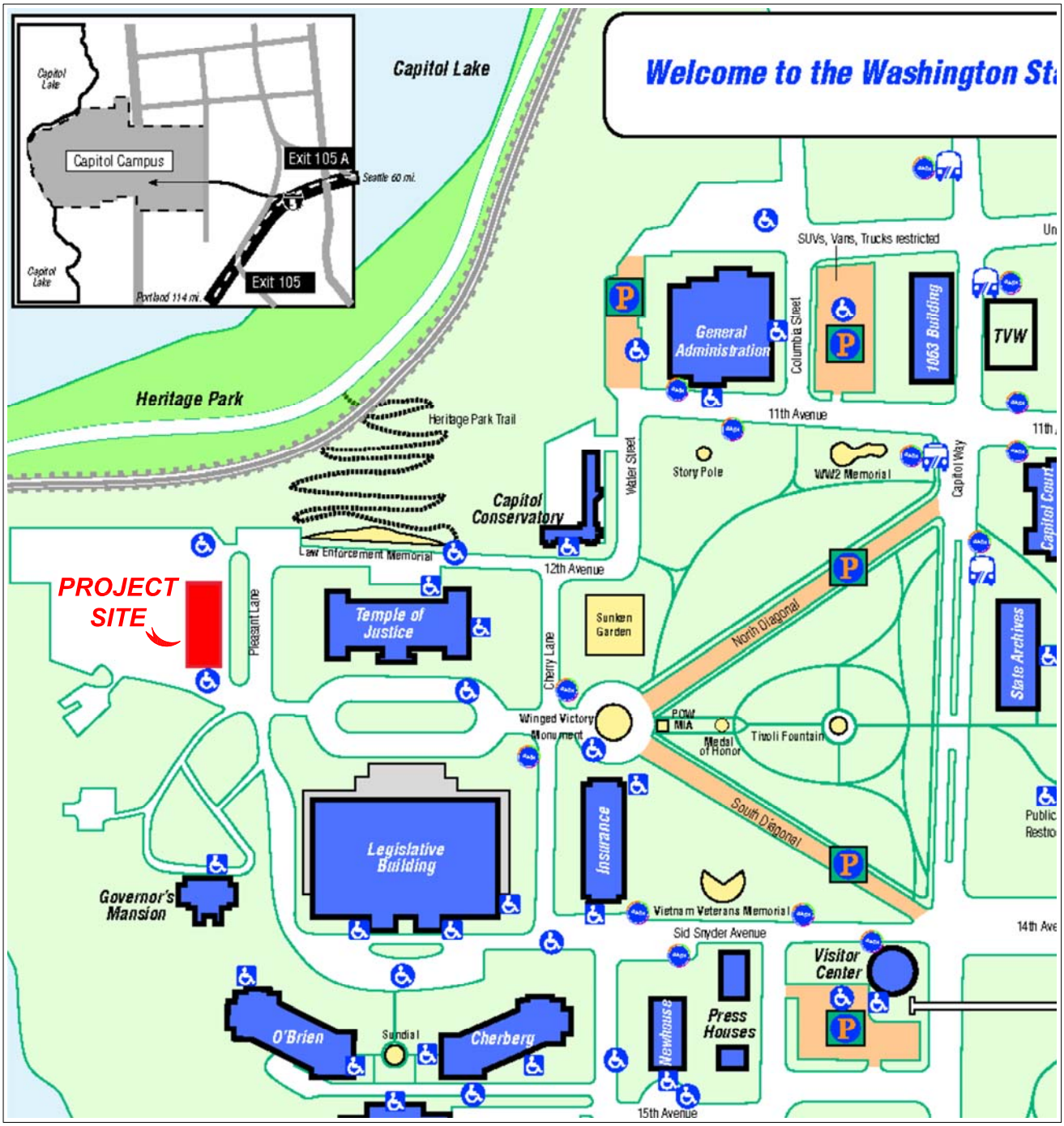
Respectfully Submitted,
INSIGHT GEOLOGIC, INC.

William E. Halbert, L.E.G., L.HG.
Principal



Attachments

FIGURES



Source: digitalarchives.wa.gov

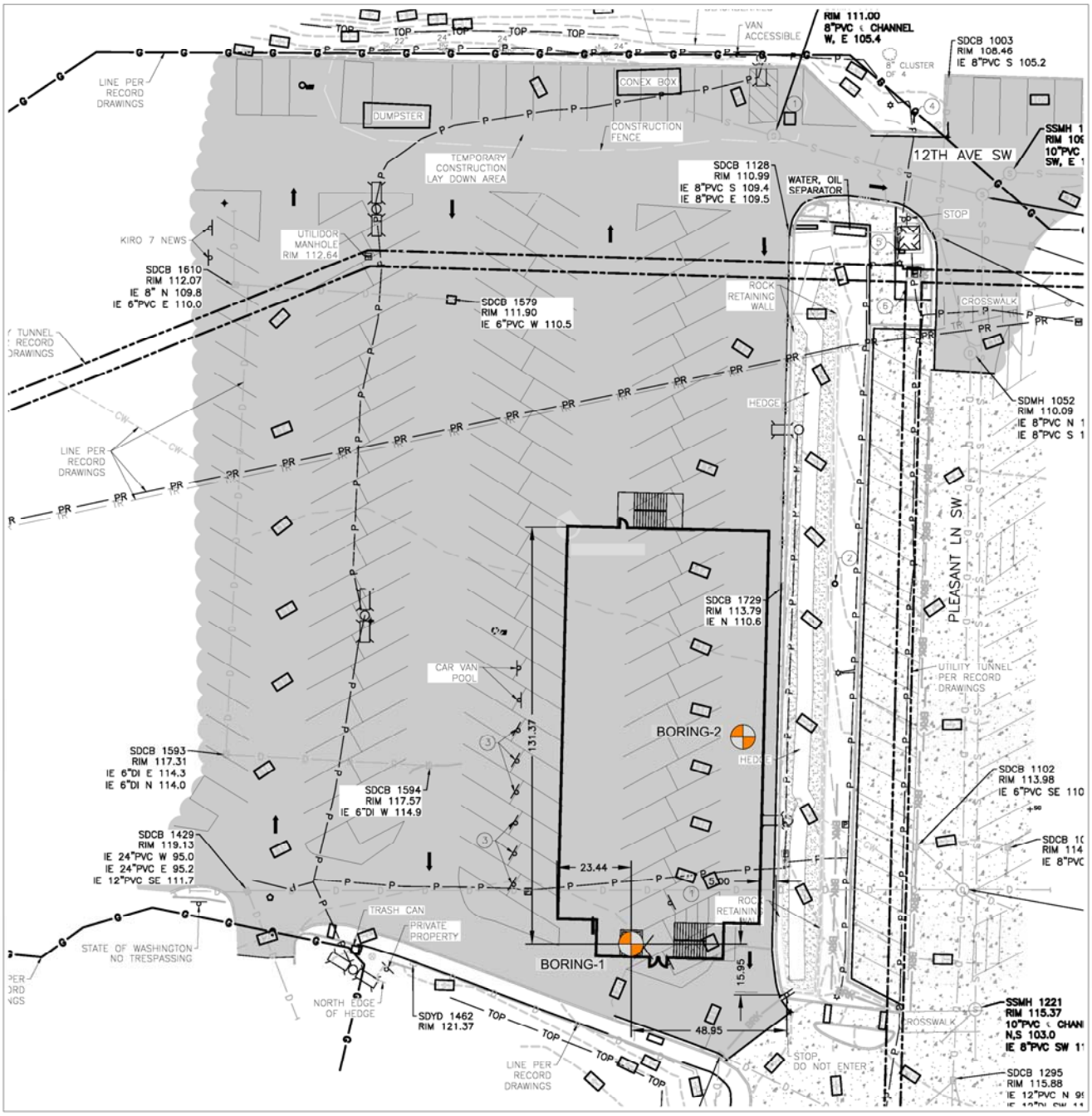
SCALE: 1" = 300'

PROPOSED TEMPORARY MODULAR OFFICE BUILDING

OLYMPIA, WASHINGTON

INSIGHT GEOLOGIC, INC.

Figure 1
Vicinity Map



Source: Professional Land Surveyors (c) Image 2021

LEGEND:

B-1 APPROXIMATE BORING LOCATION

SCALE: 1"= 50'

PROPOSED TEMPORARY MODULAR OFFICE BUILDING

OLYMPIA, WASHINGTON

INSIGHT GEOLOGIC, INC.

Figure 2
Site Plan

ATTACHMENT A
EXPLORATION LOGS

PROJECT: **MSGS Capital Office Building**
PROJECT NO.: **387-010-01**
LOCATION: **Olympia, Washington**

B-1

DATE: **November 19, 2021**
TOTAL DEPTH: **31.5**

DEPTH (FT)	SAMPLE NUMBER/ INTERVAL	INCHES DRIVEN/ RECOVERED	SPT "N" VALUE	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	REMARKS AND OTHER TESTS
0						: 3 inches asphalt	
				ML		**ML:** Light Brown, Silt with fine sand, stiff, moist	
5	1	18/0	21			No recovery	
				SP		**SP:** Dark Brown, Fine to coarse sand with fine to coarse gravel, meduin dense, moist	
10	2	18/18	21				
				ML		**ML:** Light Brown, Silt with fine sand, stiff, moist	
15	3	18/18	12				
20	4	18/18	40			Hard 6 inch lens of fine sand, dense	
25	5	18/18	21			Stiff 6 inch lens of fine to coarse sand with fine gravel, dense	
				SP		**SP:** Light Brown, Fine sand, very dense, moist	
30	6	18/18	47				Boring completed at 31.5 feet. No groundwater encontered.
35							
40							
45							
50							

INSIGHT GEOLOGIC, INC.

Drilling Contractor: **Holocene Drilling** Driller: **Eric**
Drill Equipment: **Diedrich Track Mount** Drill Method: **Hollow Stem Auger**
Logged By: **Neal Graham**

Figure A-2

PROJECT: **MSGS Capital Office Building**
PROJECT NO.: **387-010-01**
LOCATION: **Olympia, Washington**

B-2

DATE: **November 19, 2021**
TOTAL DEPTH: **31.5**

DEPTH (FT)	SAMPLE NUMBER/ INTERVAL	INCHES DRIVEN/ RECOVERED	SPT "N" VALUE	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	REMARKS AND OTHER TESTS
0						**:** 3 inches asphalt	
						ML: Light Brown, Silt with fine sand, stiff, moist	
5	1	18/18	12				
10	2	18/18	15			6 inch fine sand lens, dense, moist	
15	3	18/18	30	ML		8 inch fine sand lens, dense, moist	
20	4	18/18	32			very stiff	
25	5	18/18	16				
30	6	18/18	20			Silt, very stiff, moist	Boring completed at 31.5 feet. No groundwater encontered.
35							
40							
45							
50							

INSIGHT GEOLOGIC, INC.

Drilling Contractor: **Holocene Drilling** Driller: **Eric**
Drill Equipment: **Diedrich Track Mount** Drill Method: **Hollow Stem Auger**
Logged By: **Neal Graham**

Figure A-3

ATTACHMENT B
LABORATORY ANALYSES RESULTS

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 5.0' - 6.5'
Depth: 5 - 6.5 Feet

Moisture Content (%) 28.0%

Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	98.4
No. 4 (4.75-mm)	96.9
No. 10 (2.00-mm)	95.1
No. 20 (.850-mm)	93.9
No. 40 (.425-mm)	92.0
No. 60 (.250-mm)	89.6
No. 100 (.150-mm)	87.2
No. 200 (.075-mm)	83.6

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	3.1
Coarse Sand	1.8
Medium Sand	3.0
Fine Sand	8.5
Fines	83.6
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.26
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt with Sand**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 10.0' - 11.5'
Depth: 10 - 11.5 Feet

Moisture Content (%) 25.7%

Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	100.0
No. 4 (4.75-mm)	98.0
No. 10 (2.00-mm)	95.9
No. 20 (.850-mm)	93.9
No. 40 (.425-mm)	91.6
No. 60 (.250-mm)	88.2
No. 100 (.150-mm)	84.2
No. 200 (.075-mm)	78.1

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	2.0
Coarse Sand	2.2
Medium Sand	4.3
Fine Sand	13.4
Fines	78.1
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.31
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt with Sand**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 15.0' - 16.5'
Depth: 15 - 16.5 Feet

Moisture Content (%) 18.3%

Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	100.0
No. 4 (4.75-mm)	99.6
No. 10 (2.00-mm)	99.3
No. 20 (.850-mm)	99.0
No. 40 (.425-mm)	98.5
No. 60 (.250-mm)	97.6
No. 100 (.150-mm)	96.0
No. 200 (.075-mm)	77.6

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	0.4
Coarse Sand	0.3
Medium Sand	0.9
Fine Sand	20.9
Fines	77.6
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.14
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt with Sand**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 20.0' - 21.5'
Depth: 20 - 21.5 Feet

Moisture Content (%) 28.1%

Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	99.3
No. 4 (4.75-mm)	98.0
No. 10 (2.00-mm)	96.4
No. 20 (.850-mm)	95.3
No. 40 (.425-mm)	94.3
No. 60 (.250-mm)	93.2
No. 100 (.150-mm)	92.1
No. 200 (.075-mm)	89.3

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	2.0
Coarse Sand	1.6
Medium Sand	2.1
Fine Sand	5.1
Fines	89.3
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.65
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 25.0' - 26.5'
Depth: 25 - 26.5 Feet

Moisture Content (%) 29.1%

Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	98.8
No. 4 (4.75-mm)	98.2
No. 10 (2.00-mm)	97.6
No. 20 (.850-mm)	96.7
No. 40 (.425-mm)	95.6
No. 60 (.250-mm)	93.3
No. 100 (.150-mm)	90.5
No. 200 (.075-mm)	88.2

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	1.8
Coarse Sand	0.6
Medium Sand	2.0
Fine Sand	7.4
Fines	88.2
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.35
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.

Gradation Analysis Summary Data

Job Name: MSGS Capital Office Building
Job Number: 387-010-01
Date Tested: 11/22/21
Tested By: Dalton Prichard

Sample Location: B-2
Sample Name: B-2 30.0' - 31.5'
Depth: 30 - 31.5 Feet

Moisture Content (%) 30.0%

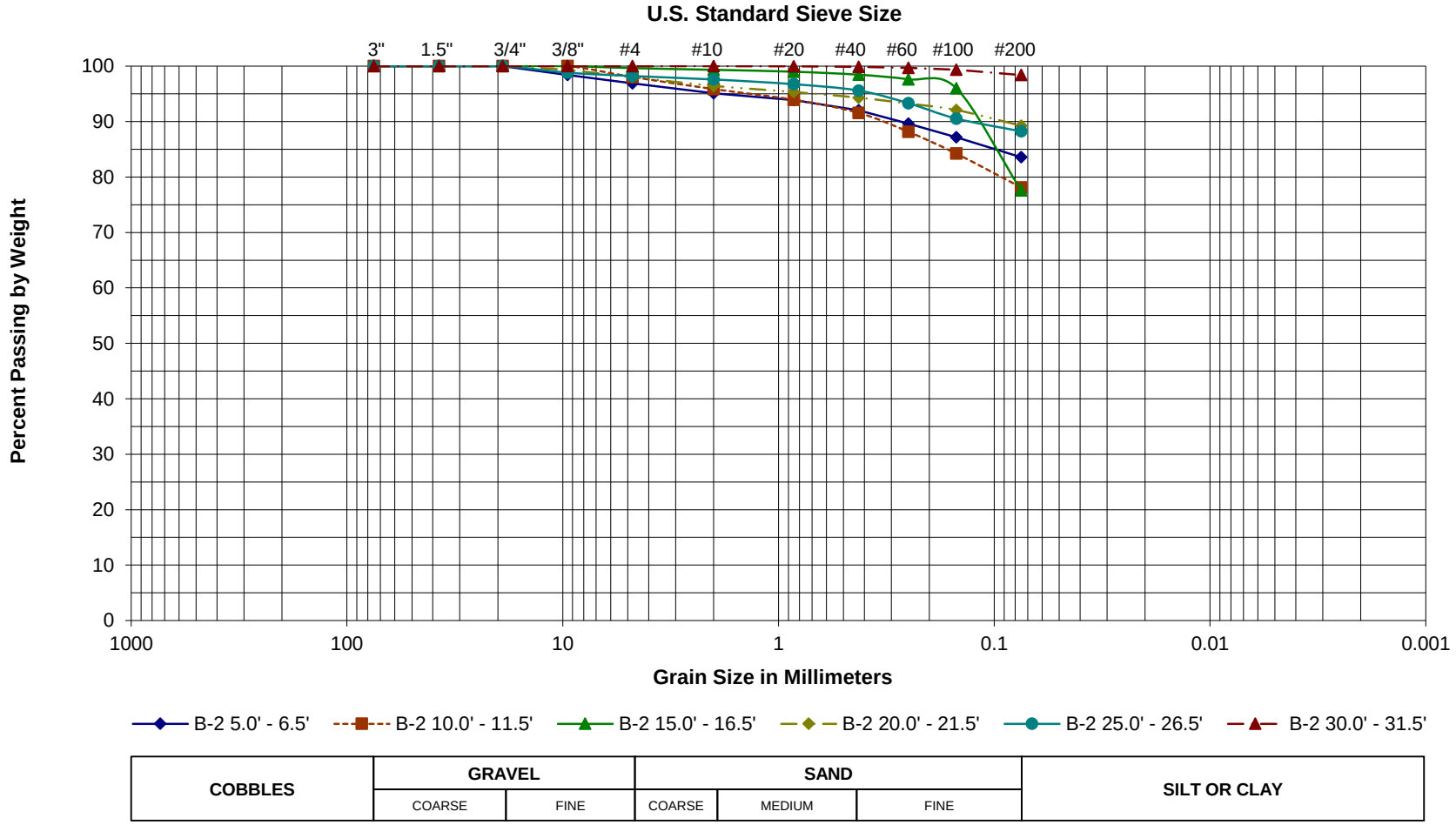
Sieve Size	Percent Passing
3.0 in. (75.0)	100.0
1.5 in. (37.5)	100.0
3/4 in. (19.0)	100.0
3/8 in. (9.5-mm)	100.0
No. 4 (4.75-mm)	100.0
No. 10 (2.00-mm)	100.0
No. 20 (.850-mm)	100.0
No. 40 (.425-mm)	99.9
No. 60 (.250-mm)	99.7
No. 100 (.150-mm)	99.3
No. 200 (.075-mm)	98.4

Size Fraction	Percent by Weight
Coarse Gravel	0.0
Fine Gravel	0.0
Coarse Sand	0.0
Medium Sand	0.1
Fine Sand	1.5
Fines	98.4
Total	**100.0**

LL	- -
PL	- -
PI	- -
D_{10}	0.00
D_{30}	0.00
D_{60}	0.00
D_{90}	0.00
Cc	- -
Cu	- -

ASTM Classification
Group Name: **Silt**
Symbol: **ML**

INSIGHT GEOLOGIC, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

MSGS CAPITAL OFFICE BUILDING

OLYMPIA, WASHINGTON

INSIGHT GEOLOGIC, INC.

Graph 1
Gradation Analysis Results

ATTACHMENT C
REPORT LIMITATIONS AND GUIDELINES FOR USE

ATTACHMENT C

REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This attachment provides information to help you manage your risks with respect to the use of this report.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use by MSGS Architects (Client) and their authorized agents. This report may be made available to regulatory agencies for review. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

Insight Geologic Inc. structures our services to meet the specific needs of our clients. For example, a geotechnical or geologic study conducted for a civil engineer or architect may not fulfill the needs of a construction contractor or even another civil engineer or architect that are involved in the same project. Because each geotechnical or geologic study is unique, each geotechnical engineering or geologic report is unique, prepared solely for the specific client and project site. Our report is prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. This report should not be applied for any purpose or project except the one originally contemplated.

A GEOTECHNICAL ENGINEERING OR GEOLOGIC REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Insight Geologic, Inc. considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless Insight Geologic specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- the function of the proposed structure;
- elevation, configuration, location, orientation or weight of the proposed structure;
- composition of the design team; or
- project ownership.

If important changes are made after the date of this report, Insight Geologic should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

---

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org .

SUBSURFACE CONDITIONS CAN CHANGE

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or ground water fluctuations. Always contact Insight Geologic before applying a report to determine if it remains applicable.

MOST GEOTECHNICAL AND GEOLOGIC FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Insight Geologic reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

GEOTECHNICAL ENGINEERING REPORT RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from Insight Geologic's professional judgment and opinion. Insight Geologic's recommendations can be finalized only by observing actual subsurface conditions revealed during construction. Insight Geologic cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by Insight Geologic should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining Insight Geologic for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A GEOTECHNICAL ENGINEERING OR GEOLOGIC REPORT COULD BE SUBJECT TO MISINTERPRETATION

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having Insight Geologic confer with appropriate members of the design team after submitting the report. Also retain Insight Geologic to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having Insight Geologic participate in pre-bid and pre-construction conferences, and by providing construction observation.

DO NOT REDRAW THE EXPLORATION LOGS

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a

geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

GIVE CONTRACTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with Insight Geologic and/or to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might an owner be in a position to give contractors the best information available, while requiring them to at least share the financial responsibilities stemming from unanticipated conditions. Further, a contingency for unanticipated conditions should be included in your project budget and schedule.

CONTRACTORS ARE RESPONSIBLE FOR SITE SAFETY ON THEIR OWN CONSTRUCTION PROJECTS

Our geotechnical recommendations are not intended to direct the contractor’s procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering or geology) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. Insight Geologic includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with Insight Geologic if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

GEOTECHNICAL, GEOLOGIC AND ENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Memorandum

To:	Sidney Hunt Project Manager Washington State Dept. Enterprise Services
From:	Carolyn Moore, Archaeologist Kelly Yeates, ICF Project Manager
Date:	February 22, 2022
Re:	**WA State - Legislative Campus Modernization Archaeology Services** Modular Building Geotechnical Monitoring **(Revised)**

Project Description

The Washington State Department of Enterprise Services is proposing to build a two-story modular building in the parking lot southwest of the intersection of 12th Avenue SW and Pleasant Lane SW on the Washington State Campus in Olympia, Washington. GeoEngineers, Inc. contracted ICF to provide archaeological monitoring as part of their due diligence during the auguring of geotechnical exploratory probes.

Study Area

The study area is located in a paved parking lot, located on the Washington State Legislative campus, in Township 18 North, Range 2 West, Section 23. The project area is roughly 0.21 acre and has been flattened with a slight slope declining northward. There are water and gas utilities in the area, but none were interfered during the excavation process of the geotechnical borings.

The study area is situated on top of a glacially deposit landform. Between the 1890s and 1940s, the legislative campus was extensively graded, removing the upper layer of soil and filling lower elevation areas with fill material. This is expected to have altered the project area's stratigraphic profile and lowered the potential of encountering intact cultural materials near the surface and up to the unknown depth of previous disturbance.

Photo 1- Removal of original Capitol building foundation, 1923. On file at: https://www.sos.wa.gov/legacy/legbuilding/construction.aspx

Photo 2- Installation of new Capitol Building foundation, 1923. On file at: https://www.sos.wa.gov/legacy/legbuilding/construction.aspx

Photo 3- Grading of Campus, 1930. Photographer: Vibert Jeffers, in Susan Parish Photograph Collection (1889-1990).

Geotechnical Bore Monitoring

Two geotechnical boreholes were excavated using a truck-mounted drilling machine with a hollow-core auger on November 19, 2021. During geotechnical borehole monitoring by Insight Geologic, Inc., the ICF archaeologist carefully inspected borehole side-cast soils. The geotechnical field staff collected soil samples from the borings and the ICF archaeologist would inspect the soils collected for sampling. Soil color, composition and origin were recorded in coordination with the interpretation of the geotechnical operator. Each soil sample was collected by the geotechnical field staff after photographs were taken (see Field Photos below). Boring logs provided by Insight Geologic, Inc. are attached.

The bore excavations were monitored to the base of excavation, which was approximately 31.5 feet below ground surface (fbgs). No soil samples were collected to a depth of 5 fbgs from the borings. However, the sidecast material excavated between 0 and 5 fbgs was observed by an archaeological monitor to inspect for archaeological deposits and fill. Below 5 feet, 18" soil samples were collected in approximate 4.5-foot increments.

Review of soil samples from both geotechnical borings revealed a 2-foot-thick layer of silt and sand with gravel material at and just below the surface that abruptly transitions to light brown silts and sands containing decomposing rock from approximately 5 to 11.5 fbgs. This transitioned to oscillating strata of densely compacted brown clays and lightly compacted brown sands, before gradually transitioning to densely compacted light and dark brown clays at around 30 fbgs. These soil attributes are consistent with the glacial till and outwash observed throughout the Legislative Campus, as described in the Washington Department of Natural Resources online geologic information portal (https://geologyportal.dnr.wa.gov/2d-view#wigm?0,0,0,0). No buried terrestrial surfaces or archaeological deposits were identified.

Because of the relative homogeneity of the observed soils and absence of buried surfaces, it appears that the pre-development ground surface has been graded. This is consistent with the historically documented widespread landscape modifications that occurred across the Capitol Campus in the early twentieth century (Photos 1, 2, and 3). Aside from possible fill material to a depth of about 2 fbgs, fill deposits did not appear to be present in any buried strata.

Conclusions

Based on the observed stratigraphy, the possible fill material layer observed near the surface abruptly transitions to glacially deposited materials, with no pre-development ground surface extant at the interface between these two deposits. Both of these observed strata have low potential to contain archaeological materials. The potential of encountering materials is low enough that we do not recommend further archaeological monitoring in the Modular Building project area. If future work in the area yields Inadvertent Discoveries, the IDP provided should be followed.

Field Photos

Figure 1- Brown silt and sand found from 0-28 ft below the surface in boring B-1.

Figure 2- Transition from brown silt and sand to heavily compacted Gray sand found in the bottom 5 ft of boring B-1.

Figure 3- Soils observed throughout boring B-2.

Boring locations are approximate

12 TH AVENUE SE

PLEASANT LN SW

GOVERNOR'S MANSION RD.

TEMPLE OF JUSTICE

LOCATION OF PROPOSED TEMPORARY MODULAR BUILDING AT EXISTING SURFACE PARKING LOT

BORING-1

BORING-2

LINE PER RECORD DRAWINGS

DUMPSTER

CONEX BOX

CONSTRUCTION FENCE

TEMPORARY CONSTRUCTION LAY DOWN AREA

SDCB
RIM 1
IE 8"PVC S
IE 8"PVC E 109.5

STOP

KIRO 7 NEWS

UTILIDOR MANHOLE RIM 112.64

SDCB 1610
RIM 112.07
IE 8" N 109.8
IE 6"PVC E 110.0

SDCB 1579
RIM 111.90
IE 6"PVC W 110.5

ROCK RETAINING WALL

CROSSWALK

UTILITY TUNNEL PER RECORD DRAWINGS

HEDGE

SDMH 1
RIM 110
IE 8"PVC
IE 8"PVC

LINE PER RECORD DRAWINGS

CAR VAN POOL

131.37

SDCB 1593
RIM 117.31
IE 6"DI E 114.3
IE 6"DI N 114.0

SDCB 1594
RIM 117.57
IE 6"DI W 114.9

SDCB 1429
RIM 119.13
IE 24"PVC W 95.0
IE 24"PVC E 95.2
IE 12"PVC SE 111.7

TRASH CAN

PRIVATE PROPERTY

15.95

48.95

CROSSWALK

STOP, DO NOT ENTER

TUNNEL ECORD IGS

SDCB 1102
RIM 113.98
IE 6"PVC SE

SD
RIM
IE

IE 12"PVC N 99.9
IE 12"DI SW 112.4
IE 12"PVC S 100.0
IE 12"DI SE 112.3

M2C

0' 20' 40'

SCALE 1" = 20'

DATE	10/07/2021
SCALE	1" = 20'
M2C PROJECT NO.:	21-651
DRAWN	MYC
CHECKED	SEP
APPROVED	SEP

P:\M2C\Logo Design\M2C-LOGO.jpg

PROFESSIONAL LAND SURVEYORS
2320 MOTTMAN RD SW, STE 106
TUMWATER, WA 98512
360.688.1949

PROJECT NAME:
CAPITOL CAMPUS
PARKING LOT
TOPOGRAPHIC SURVEY

CLIENT NAME:
SCJ ALLIANCE

SHEET NAME:
SV-1

SHEET NO.
1 OF 1

Boring locations are approximate

12 TH AVENUE SE

PLEASANT LN SW

GOVERNOR'S MANSION RD.

TEMPLE OF JUSTICE

LOCATION OF PROPOSED TEMPORARY MODULAR BUILDING AT EXISTING SURFACE PARKING LOT

BORING-1

BORING-2

LINE PER RECORD DRAWINGS

DUMPSTER

CONEX BOX

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RIM 111.90
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RIM 113.98
IE 6"PVC SE

SD
RIM
IE

IE 12"PVC N 99.9
IE 12"DI SW 112.4
IE 12"PVC S 100.0
IE 12"DI SE 112.3

M2C

0' 20' 40'

SCALE 1" = 20'

DATE	10/07/2021
SCALE	1" = 20'
M2C PROJECT NO.:	21-651
DRAWN	MYC
CHECKED	SEP
APPROVED	SEP

P:\M2C\Logo Design\M2C-LOGO.jpg

PROFESSIONAL LAND SURVEYORS
2320 MOTTMAN RD SW, STE 106
TUMWATER, WA 98512
360.688.1949

PROJECT NAME:
CAPITOL CAMPUS
PARKING LOT
TOPOGRAPHIC SURVEY

CLIENT NAME:
SCJ ALLIANCE

SHEET NAME:
SV-1

SHEET NO.
1 OF 1

PROJECT: **MSGS Capital Office Building**
PROJECT NO.: **387-010-01**
LOCATION: **Olympia, Washington**

B-1

DATE: **November 19, 2021**
TOTAL DEPTH: **31.5**

DEPTH (FT)	SAMPLE NUMBER/ INTERVAL	INCHES DRIVEN/ RECOVERED	SPT "N" VALUE	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	REMARKS AND OTHER TESTS
0						: 3 inches asphalt	
				ML		**ML:** Light Brown, Silt with fine sand, stiff, moist	
5	1	18/0	21			No recovery	
				SP		**SP:** Dark Brown, Fine to coarse sand with fine to coarse gravel, meduin dense, moist	
10	2	18/18	21				
				ML		**ML:** Light Brown, Silt with fine sand, stiff, moist	
15	3	18/18	12				
20	4	18/18	40			Hard 6 inch lens of fine sand, dense	
25	5	18/18	21			Stiff 6 inch lens of fine to coarse sand with fine gravel, dense	
				SP		**SP:** Light Brown, Fine sand, very dense, moist	
30	6	18/18	47				Boring completed at 31.5 feet. No groundwater encontered.
35							
40							
45							
50							

INSIGHT GEOLOGIC, INC.

Drilling Contractor: **Holocene Drilling** Driller: **Eric**
Drill Equipment: **Diedrich Track Mount** Drill Method: **Hollow Stem Auger**
Logged By: **Neal Graham**

Figure A-2

PROJECT: **MSGS Capital Office Building**
PROJECT NO.: **387-010-01**
LOCATION: **Olympia, Washington**

B-2

DATE: **November 19, 2021**
TOTAL DEPTH: **31.5**

DEPTH (FT)	SAMPLE NUMBER/ INTERVAL	INCHES DRIVEN/ RECOVERED	SPT "N" VALUE	U.S.C.S.	LITHOLOGY	SOIL DESCRIPTION	REMARKS AND OTHER TESTS
0						**:** 3 inches asphalt	
						ML: Light Brown, Silt with fine sand, stiff, moist	
5	1	18/18	12				
10	2	18/18	15			6 inch fine sand lens, dense, moist	
15	3	18/18	30	ML		8 inch fine sand lens, dense, moist	
20	4	18/18	32			very stiff	
25	5	18/18	16				
30	6	18/18	20			Silt, very stiff, moist	Boring completed at 31.5 feet. No groundwater encontered.
35							
40							
45							
50							

INSIGHT GEOLOGIC, INC.

Drilling Contractor: **Holocene Drilling** Driller: **Eric**
Drill Equipment: **Diedrich Track Mount** Drill Method: **Hollow Stem Auger**
Logged By: **Neal Graham**

Figure A-3

Pre-Design Report

Capitol Campus Modular Building

Department of Enterprise Services
1500 Jefferson Street
Olympia, WA 98504

November 2021

SCJ ALLIANCE
CONSULTING SERVICES

Project Information

Project:	Capitol Campus Modular Building Pre-Design Report
Prepared For:	Department of Enterprise Services

Project Representative

Prepared By:	SCJ Alliance 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465 scjalliance.com
Contact:	Jared VerHey, PE Amy Head, PE

Project Reference:	SCJ # 21-000664

N:\Projects\0745 Department of Enterprise Services\21-000664 LCM Modular Building\Phase 01 - Modular Pre-Design\Design\Report\PreDesign Report.doc

TABLE OF CONTENTS

Civil Engineering Pre-Design Report

Appendices

CIVIL PRE-DESIGN REPORT

The following report was prepared for the proposed temporary modular building that will be placed on the Capitol Campus to house Senate staff while the Newhouse Building is under construction (see Figure 1 below). The purpose of this study is to document the existing utilities within the vicinity of the proposed modular building location, determine whether existing utilities have the capacity to serve the modular building utility loads and improvements to existing utilities, if any, that may be required.

The following report will focus on the water, sanitary sewer and stormwater infrastructure. Electrical and communication infrastructure has also been analyzed as is included as Appendix 3 of this report.

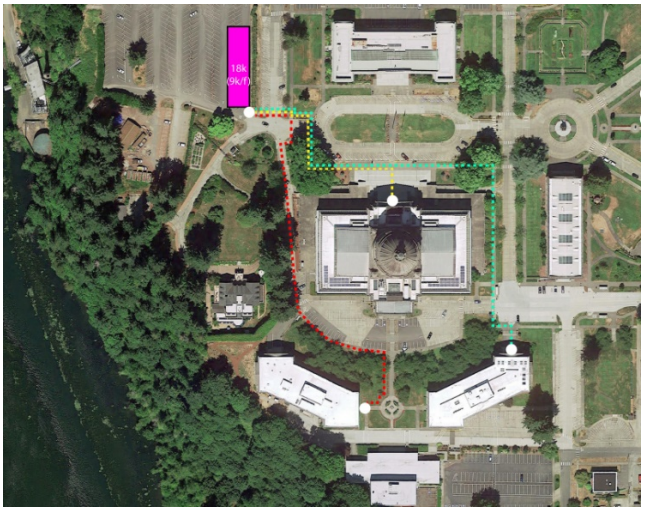


Figure 1: Proposed Modular Building Location

SECTION 1: EXISTING CONDITIONS ASSESSMENT

An overall assessment of Capitol Campus infrastructure was conducted in 2017 (Capitol Campus Utility Renewal Plan DES Project Number 2016-919 B (2), prepared by Reid Middleton). This section will reference some of the information from this report.

Site Location

The site is located in the West Capitol Campus on the parking area north of the Governor's Residence on the Capitol Campus in Olympia, WA (see above Figure 1). The site area is currently paved and striped for parking.

Soil and Topography

The site generally slopes from north to south and has approximately 7 feet of elevation change within the area of the proposed modular building. The United States Geologic Survey (USGS) Web Soil Survey characterizes the on-site soils as Skipopa Silt Loam and are in the Hydrologic Soil Group D. Groundwater

is not expected at depths less than 6 feet. Specific soil information and groundwater depths will be evaluated as part of a geotechnical evaluation of the site.

Water Infrastructure

The Department of Enterprise Services owns and maintains the water system of West Capitol Campus. The original water system was constructed in the 1930's. Additions, repairs, and replacements have occurred since the original installation. In the 1980's, much of the water main on the West Capitol Campus was replaced with ductile iron pipes which is anticipated to be in good condition for many years to come. The campus system connects to the City of Olympia water system.

The area of the proposed modular building has several existing water lines in the immediate vicinity. There is a 4-inch ductile iron water line to the east within a utility tunnel that runs north and south. Southeast of the proposed building area there is a 10-inch ductile iron water pipe that runs east and west. There is also a 4-inch ductile iron water line located north of the proposed building location that runs east and west. All of the existing water lines in the vicinity of the proposed building area are privately owned and maintained.

There is one fire hydrant in the immediate vicinity of the project site area. It is located southeast of the site. See Appendix 1 for the existing conditions map.

Flow test information was not available for the immediate site vicinity. Flow test information was obtained for the area north and south of the existing Newhouse Building. Overall, the campus water system is looped, and it is anticipated that available pressure and flows would be similar in the vicinity of the modular building.

There were three flow test locations including: on Sid Snyder Way between Columbia Street SW and Water Street SW; at the corner of 15th Ave. SW and Columbia Street SW; and at the corner of 15th Ave. SW and Water Street SW. Static pressure for these tests ranged from 40 to 51 psi. Flows that were tested varied as did the resulting residual pressure. There were found to be:

- Sid Snyder Way – Residual Pressure was 46 psi with a flow of 1,023 gpm
- 15th Ave. SW and Columbia Street SW - Residual Pressure was 42 psi with a flow of 976 gpm
- 15th Ave. SW and Water Street SW – Residual Pressure was 20 psi with a flow of 689 gpm

The Reid Middleton study indicated that fire flow availability is a concern in the West Capitol Campus area. Based on flow testing that was done in 2021, fire flow ranges between 1,200 and 1,900 gpm were found to be available to keep a minimum 20 psi of residual pressure.

See Appendix 3 for full flow test information.

Sewer Infrastructure

The Department of Enterprise Services owns and maintains the sewer system of West Capitol Campus. The campus sewer system discharges to the City of Olympia sanitary system. The sanitary sewer system in the West Capitol Campus started construction in the early 20th century. Additions, repairs, and

replacements have occurred since the original installation. There are still many repair projects that are needed. The bulk of the sewer system in the West Capitol Campus is a gravity system.

The area of the proposed modular building has two existing sewer lines in the immediate vicinity. There is a 6-inch PVC gravity sewer main north of proposed site area that flows west to east. In the vicinity of the site, this sewer line as a capacity of 341 gallons per minute. East of the proposed building area, there is an 8-10-inch (size varies traveling from south to north) PVC gravity sewer that flows south to north. Near the site, this sewer line has a capacity of about 430 gallons per minute or about 619,000 gallons per day. There is also a 1-inch force main west of the proposed modular building. It is dedicated for the future maintenance building.

See Appendix 1 for the existing conditions map.

Stormwater Infrastructure

The West Capitol Campus stormwater system started construction in the early 20th century and construction continued over many decades. The West Capitol Campus has no stormwater detention system. The state owns the stormwater systems in the Capitol Campus and operates them as a secondary permittee to the City of Olympia under the Western Washington Phase II Stormwater Permit. Existing drainage facilities on the West Capitol Campus consist of storm drainage and combined storm and sewer systems.

The area of the proposed modular building has several stormwater lines in the immediate vicinity. There is a 6-inch concrete pipe west of the proposed building area that starts out running east and west but then heads north. There are two pipes east of the building. The pipe closer to the building area is an 8-inch PVC pipe that flows north. There second is further east and is within Pleasant Lane SW. It is also an 8-inch PVC pipe. There is also a 24-inch CMP pipe south of the proposed building area that flows west.

Given the site topography and building placement, the anticipated point of connection is the 8-inch storm line that runs north and is within proximity to the planned building footprint. This pipe has a capacity of 5 cubic feet per second.

See Appendix 1 for the existing conditions map.

SECTION 2: PROJECT REQUIREMENTS

The proposed construction is of an approximately 18,000 square foot temporary modular 2-story office building.

Water Requirements

The building will require both domestic and fire services. It is assumed that the domestic service will be a 1 ½- inch line. The fire line is assumed to be a 4-inch line and will require a double check valve assembly, post indicator valve and fire department connection. As discussed with the City of Olympia at

the pre-submission conference, fire hydrants need to be added to provide adequate fire coverage for the building.

It is anticipated that the building will connect to the 10-inch water main that is southeast of the project site. This line will provide the domestic and fire water service. There is an existing fire hydrant northeast of the Governor's Residence. That fire hydrant is required to remain to provide fire protection for the existing building. A new fire hydrant is proposed to provide fire protection coverage for the proposed modular building.

It is anticipated that the existing water line will be able to provide adequate flow for the domestic service. Fire flow requirements for the building is currently estimated to be about 1,750 gallons per minute. The final requirement will be determined during design. The building will have a fire sprinkler system which will reduce the fire flow requirement. It is also not known the specific available pressure within the 10-inch water line. A minimum of 20 psi residual pressure must be maintained for the fire flow required. Based on the Reid Middleton study, the required fire flow may not be able to be delivered while maintaining the required residual pressure. If the existing water line cannot maintain this pressure for the required fire flow that is determined, it is anticipated that booster pump in the building would be used.

Sewer Infrastructure

The Department of Ecology Criteria for Sewage Works Design (Orange Book) does not have an estimate of sewer demand for an office building. Based on searching other publications, an estimated rate of 15 gpd per 100 square foot of office was determined to be a common estimate for general office use. Using this metric, it is estimated that the daily sewer demand for this 18,000 square foot office would be 2,700 gallons per day. This flow is about 0.4 percent of the pipe capacity (619,000 gpd). Therefore, the existing sewer pipe should have sufficient capacity to accommodate the anticipated sewer flow from the modular building.

It is anticipated that the sewer service line will be a 6-inch line of sufficient slope to accommodate expected flows.

Stormwater Requirements

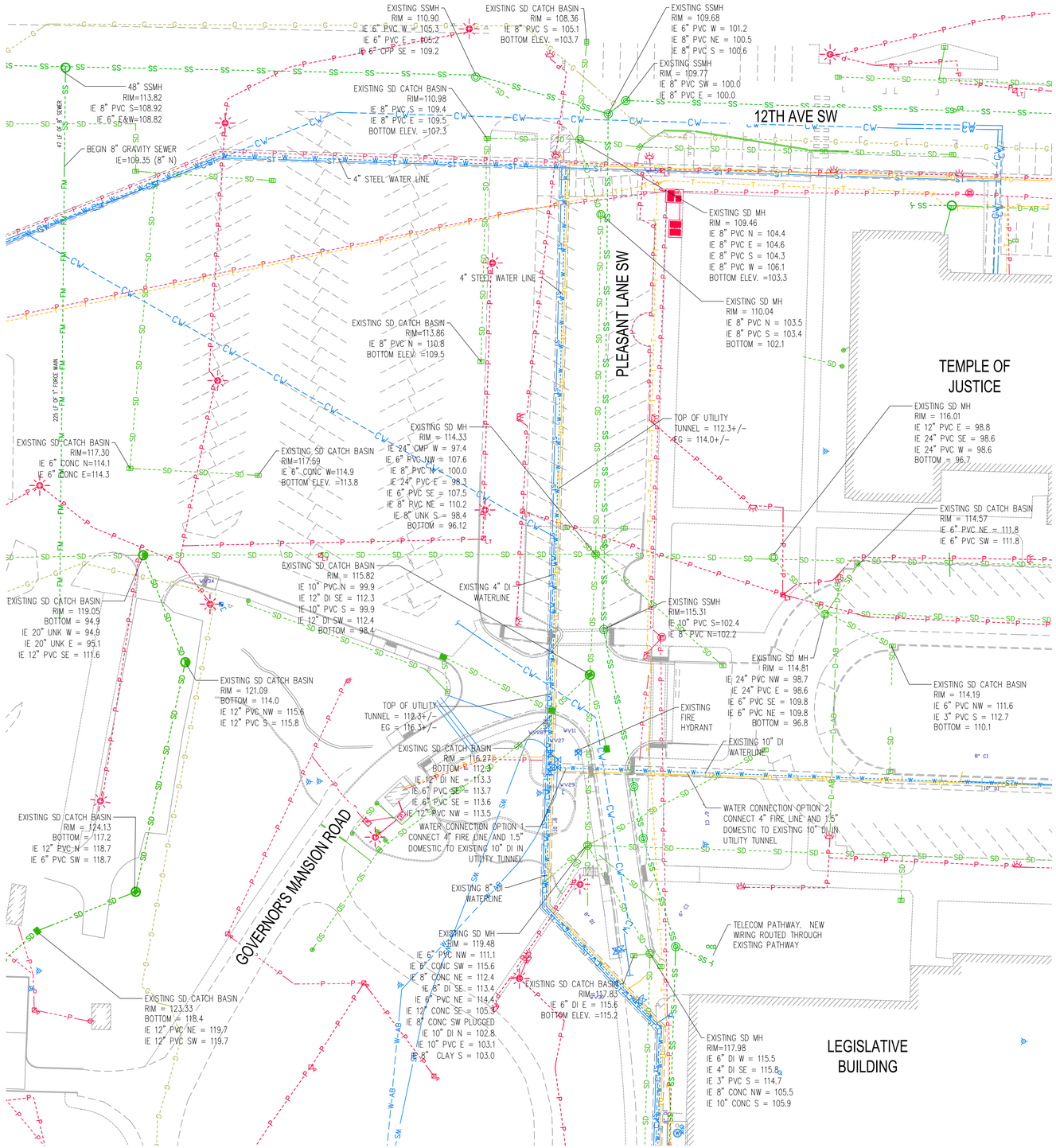
The modular building is being placed in an area that is already impervious and is within a flow control exempt area. Given that no new impervious surfaces are proposed and the project's location within a flow control exempt area, it is not anticipated that that new flow control or modifications to existing flow control facilities will be required. In addition, the building footprint will replace pollution generating surfaces (parking) with non-pollution generating surfaces (building roof) which will reduce pollutants. Given this, treatment facilities are also not anticipated to be required.

Stormwater management will likely consist of capturing roof drainage and directing it to the existing storm pipe on-site. The anticipated point of connection has a flow capacity of 1.35 cubic feet per second. This is the current pipe system that provides stormwater conveyance for the proposed modular building area. As impervious area will not be increased and this pipe system currently serves the project

area, it is anticipated that there is sufficient capacity for stormwater flows at the proposed point of connection.

All stormwater design and layout will be regulated by the City of Olympia and will need to follow their development guidelines and specifications.

APPENDIX 1:
EXISTING CONDITIONS MAP



N

0 30 60

SCALE IN FEET

LEGEND

EXISTING	PROPOSED
SS	SANITARY SEWER LINE
	SS MANHOLE
W	WATER LINE
	FIRE LINE
SD	STORM LINE
	ROOF DRAIN
P	POWER LINE
	TELECOM LINE

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR (800)-342-1585 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: EXISTING CONDITIONS

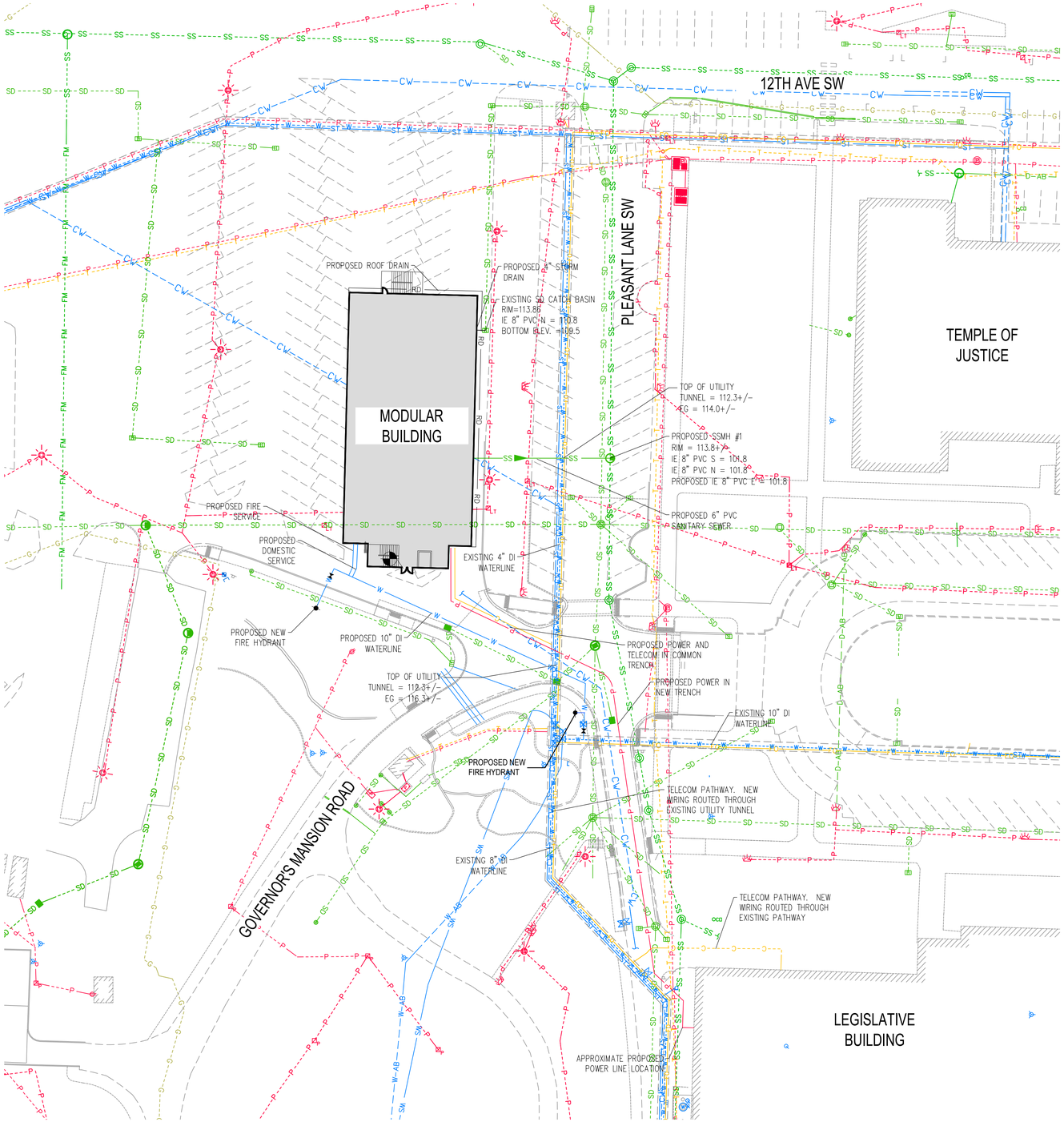
PROJECT NAME: LCM MODULAR BUILDING
CAPITAL CAMPUS MANSION LOT
OLYMPIA, WASHINGTON

SEAL:

DESIGNER:	
DRAWN BY:	
APPROVED BY:	
DATE:	NOVEMBER, 2021
JOB NO:	21-000664
DRAWING FILE NO:	21-000664 EC EXHIBIT
DRAWING NO:	1
SHEET NO:	1 OF 2

Nov 11, 2021 9:17:14am - User: jared.wethey
N:\PROJECTS\0746 DEPARTMENT OF ENTERPRISE SERVICES\21-000664 LCM MODULAR BUILDING\CADD\PREDESIGN PLAN\21-000664 EC EXHIBIT.DWG

APPENDIX 2:
PROPOSED CONDITIONS MAP



N

0 30 60

SCALE IN FEET

LEGEND

EXISTING	PROPOSED
	SANITARY SEWER LINE
	SS MANHOLE
	WATER LINE
	FIRE LINE
	STORM LINE
	ROOF DRAIN
	POWER LINE
	TELECOM LINE

CALL BEFORE YOU DIG

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BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: CONCEPTUAL UTILITY PLAN

PROJECT NAME: LCM MODULAR BUILDING
CAPITAL CAMPUS MANSION LOT
OLYMPIA, WASHINGTON

SEAL:

DESIGNER:

DRAWN BY:

APPROVED BY:

DATE: NOVEMBER, 2021

JOB NO: 21-000664

DRAWING FILE NO: 21-000664 SP-01

DRAWING NO: 1

SHEET NO: 2 OF 2

Nov 11, 2021 9:18:13am - User: jared.wehey
N:\PROJECTS\0745 DEPARTMENT OF ENTERPRISE SERVICES\21-000664 LCM MODULAR BUILDING\CADD\PREDESIGN PLAN\21-000664 SP-01.DWG

APPENDIX 3:
FLOW TEST INFORMATION


Washington State Auditor's Office
Vietnam Veterans Memorial
Test Location #3:
Sid Snyder Ave
Sid Snyder Ave SW
Sid Snyder Ave SW
Water St SW
Columbia St SW
Test Location #2:
15th Ave & Columbia St
Irving R. Newhouse Building
Test Location #1:
Water Street & 15th Ave
15th Ave SW
15th Ave SW
15th Ave SW
15th Ave SW
Water St SW

KNIGHT FIRE PROTECTION, INC.

9702 LATHROP INDUSTRIAL DRIVE SW
OLYMPIA, WA 98512-9188
(360) 786-8606
FAX 786-8722
service@knightfire.net
LICENSE NO. KNIGHFP044LK

"ON GUARD
24 HOURS A DAY"

KFP JOB# —

TECH SK MR

DATE & TIME 10/11/2021

HYDRANT FLOW TEST

FACILITY/JOB NAME NEWHOUSE BLDG REPLACEMENT PROJECT

ADDRESS _____ CITY _____

CONTACT _____ PHONE _____

ALL TESTING PERFORMED USING HOSE MONSTER MODEL II FLOW TEST DEVICES.

Hydrant used for static pressure reading: S/N: 549

Location: 15TH AVE SW & WATER ST SW

Static Pressure: 45 psi
Residual Pressure: 1 outlet flowing N/A psi
Residual Pressure: 2 outlets flowing 42 psi

Hydrant used for flow reading: S/N: 438

Location: 15TH AVE SW & COLUMBIA ST SW

Brand: MH **Manufacture Date:** 2018

Left outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM N/A
Two outlets flowing - pitot reading: 30 GPM 488

Right outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM N/A
Two outlets flowing - pitot reading: 30 GPM 488

Notes:

TOTAL FLOWING GPM 976

Water Supply Curve C

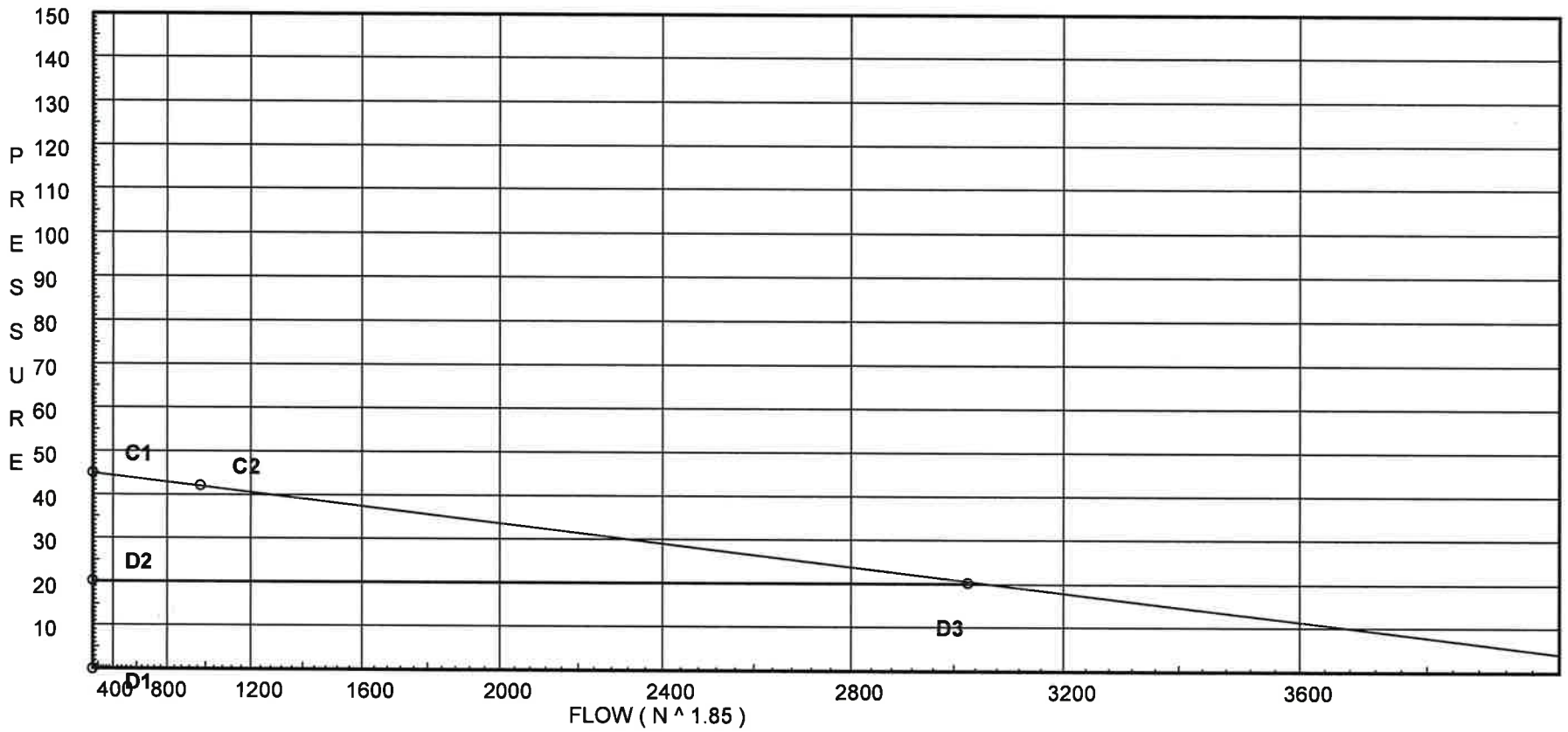
Knight Fire Protection Inc.
Newhouse Building Replacement Project - 15th Ave SW & Columbia ST SW

Date 10-14-21

City Water Supply:
- C1 - Static Pressure : 45
- C2 - Residual Pressure: 42
- C2 - Residual Flow : 976

Demand:

D1 - Elevation	: -0.433
D2 - System Flow	: 26.4
D2 - System Pressure	: 20.179
Hose (Demand)	: 3000
D3 - System Demand	: 3026.4
Safety Margin	: 0.479



KNIGHT FIRE PROTECTION, INC.

9702 LATHROP INDUSTRIAL DRIVE SW
OLYMPIA, WA 98512-9188
(360) 786-8606
FAX 786-8722
service@knightfire.net
LICENSE NO. KNIGHFP044LK

"ON GUARD
24 HOURS A DAY"

KFP JOB# —

TECH (SK) MR

DATE & TIME 10/11/2021

HYDRANT FLOW TEST

FACILITY/JOB NAME NEWHOUSE BLDG REPLACEMENT PROJECT

ADDRESS _____ **CITY** _____

CONTACT _____ **PHONE** _____

ALL TESTING PERFORMED USING HOSE MONSTER MODEL II FLOW TEST DEVICES.

Hydrant used for static pressure reading: S/N: ? (AVK 2010)

Location: 16TH AVE SW & WATER ST SW

Static Pressure: 40 psi
Residual Pressure: 1 outlet flowing N/A psi
Residual Pressure: 2 outlets flowing 20 psi

Hydrant used for flow reading: S/N: 549

Location: 15TH AVE SW & WATER ST SW

Brand: MH **Manufacture Date:** 2018

Left outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM N/A
Two outlets flowing - pitot reading: 16 GPM 356

Right outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM N/A
Two outlets flowing - pitot reading: 14 GPM 333

Notes:

TOTAL FLOWING GPM 689

Water Supply Curve C

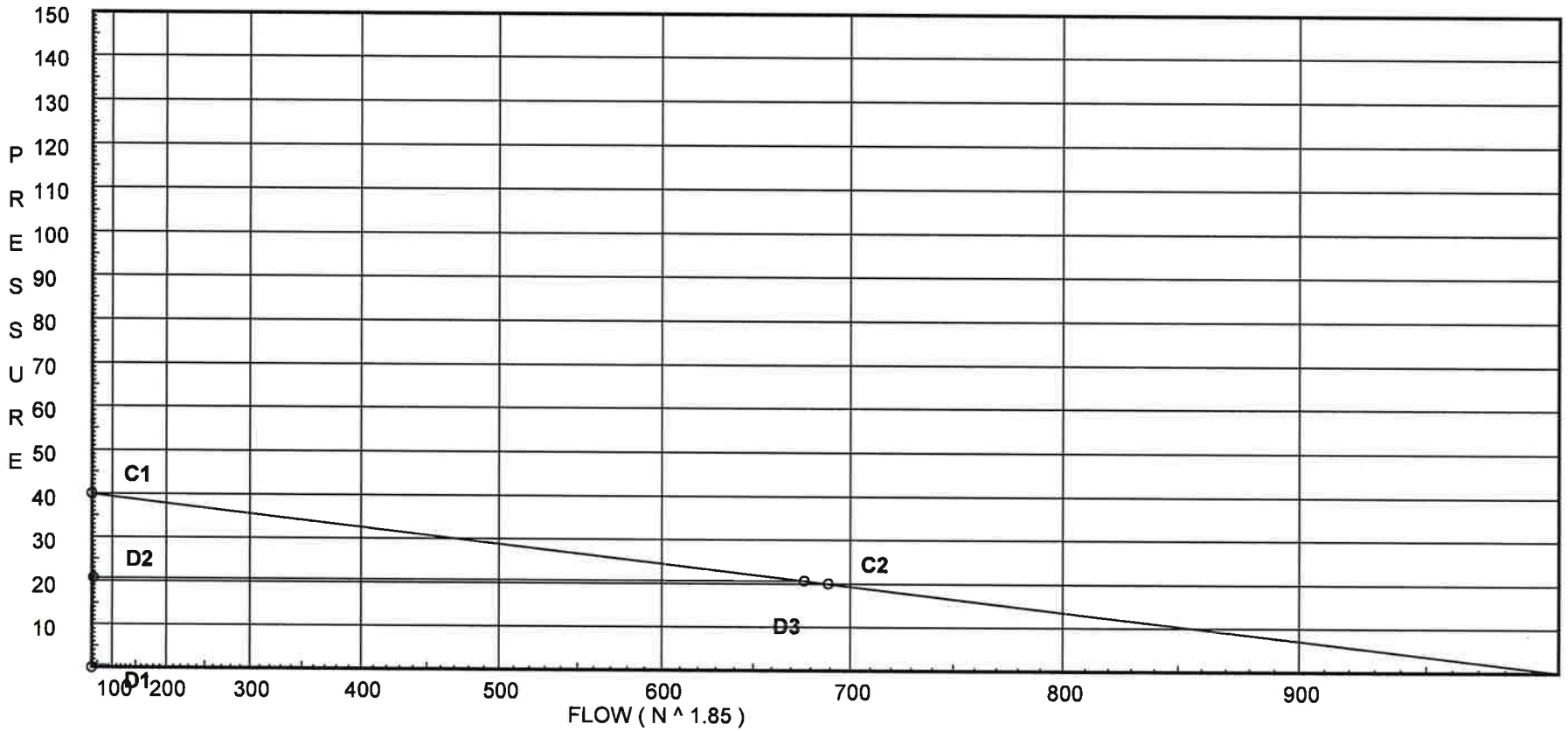
Knight Fire Protection Inc.
Newhouse Building Replacement Project - 15th Ave SW & Water ST SW

Date 10-14-21

City Water Supply:
- C1 - Static Pressure : 40
- C2 - Residual Pressure: 20
- C2 - Residual Flow : 689

Demand:

D1 - Elevation	: -0.433
D2 - System Flow	: 26.8
D2 - System Pressure	: 20.560
Hose (Demand)	: 650
D3 - System Demand	: 676.8
Safety Margin	: 0.090



"ON GUARD
24 HOURS A DAY"

KNIGHT FIRE PROTECTION, INC.

9702 LATHROP INDUSTRIAL DRIVE SW
OLYMPIA, WA 98512-9188
(360) 786-8606
FAX 786-8722
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LICENSE NO. KNIGHFP044LK

KFP JOB# —

TECH (SK) MR

DATE & TIME 10/11/2021

HYDRANT FLOW TEST

FACILITY/JOB NAME NEWHOUSE BLDG REPLACEMENT PROJECT

ADDRESS _____ **CITY** _____

CONTACT _____ **PHONE** _____

ALL TESTING PERFORMED USING HOSE MONSTER MODEL II FLOW TEST DEVICES.

Hydrant used for static pressure reading: S/N: ?

Location: BETWEEN LEG. BLDG & CHERBERG BLDG

Static Pressure: 51 psi
Residual Pressure: 1 outlet flowing N/A psi
Residual Pressure: 2 outlets flowing 46 psi

Hydrant used for flow reading: S/N: ?

Location: WATER ST SW & SID SNYDER AVE SW

Brand: MH **Manufacture Date:** 1987

Left outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM _____
Two outlets flowing - pitot reading: 32 GPM 504

Right outlet orifice diameter: 1 1/8" (1 3/4") 2 1/2"
One outlet flowing - pitot reading: N/A GPM _____
Two outlets flowing - pitot reading: 34 GPM 519

Notes:

TOTAL FLOWING GPM 1023

Water Supply Curve C

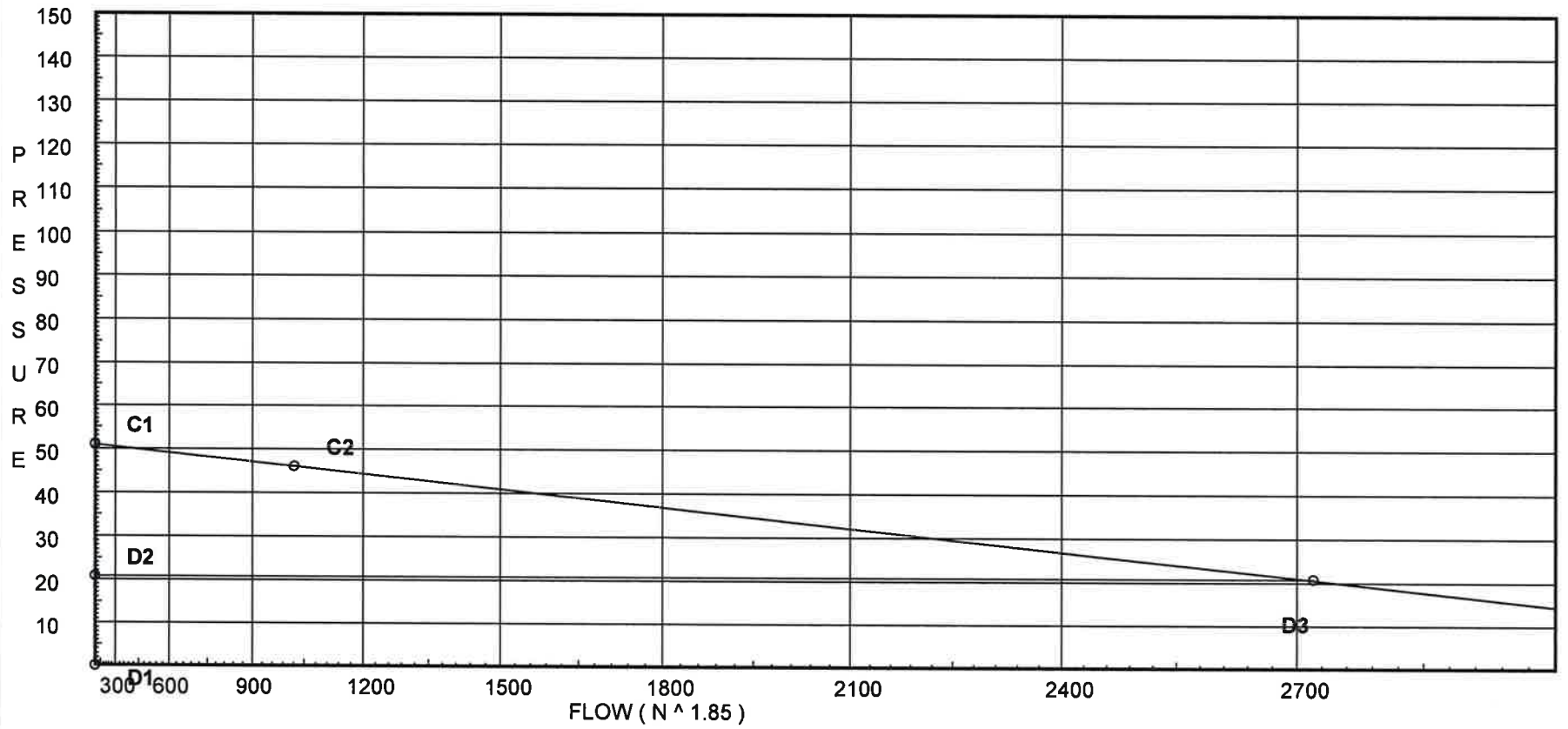
Knight Fire Protection Inc.
Newhouse Building Replacement Project - Water ST SW & Sid Snyder Ave SW

Page 1
Date 10-14-21

City Water Supply:
- C1 - Static Pressure : 51
- C2 - Residual Pressure: 46
- C2 - Residual Flow : 1023

Demand:

D1 - Elevation	: -0.433
D2 - System Flow	: 19.5
D2 - System Pressure	: 20.676
Hose (Demand)	: 2700
D3 - System Demand	: 2719.5
Safety Margin	: -0.190



APPENDIX 4:
ELECTRICAL AND COMMUNICATION PRE-DESIGN MEMOS

memo

TO	Jared VerHey, SCJ Alliance	**DATE**	November 12, 2021
FROM	Mark Merritt Hargis Engineers, Inc.	**REGARDING**	Capitol Campus LCM Modular – Utility Study

Executive Summary

Hargis Engineers was engaged for an engineering study to provide power utility services for a new LCM Modular office building and elevator in the parking lot adjacent to the Temple of Justice Building at the Capitol Campus. Existing electrical site plans and as-built plans were reviewed and site visits were made to review existing infrastructure including locations of existing vaults, handholes, pull boxes, and pathways from the Legislative Building. Hargis estimates that the LCM Modular Building may require a 600 Amp service at 480 Volts, 3-phase, based on a 16,000 sq.-ft modular building and an estimated 25 watts/sq-ft of power. Hargis reviewed two options to bring power to the building. The first option was to bring medium voltage power from a neaby location and the second option was to bring 480 Volt power from the Legislative Building. The recommended option is Option #2A to bring 480 Volt power from the Legislative Building, under Pleasant Lane SW, to the new Modular Building location.

Option #1: Existing Conditions – Medium Voltage Feed to LCM Modular

The existing vaults, medium voltage switches and transformers in the vicinity of the new LCM Modular Building location were investigated to identify if any spare termination points are available to extend medium voltage cabling to the building location. The transformer serving the existing electric vehicle charging stations in the LCM Modular Building parking lot, near Vault PN, is not a loop-feed style transformer, so no available termination points are available for use. The medium voltage switches within Vaults PO and POX have existing medium voltage cabling connected at each termination point, so no spare terminations are available to extend medium voltage cabling to the building location. Vault PM was investigated to identify if there is available space to install a new vault mounted medium voltage switch, but the vault is not large enough to accommodate the new equipment.

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1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

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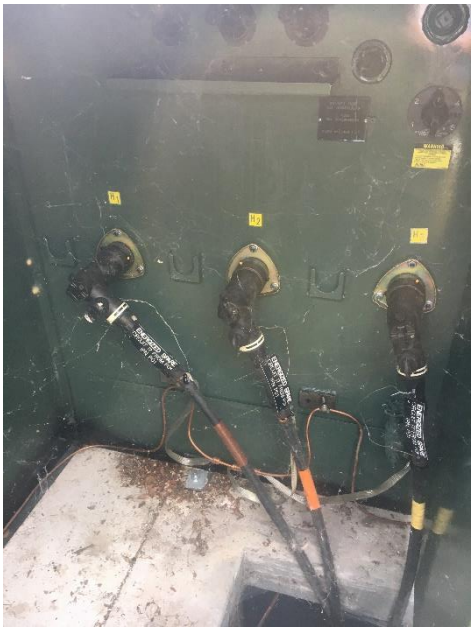


Figure 1 – Vault PN Mediuim Voltage Transformer

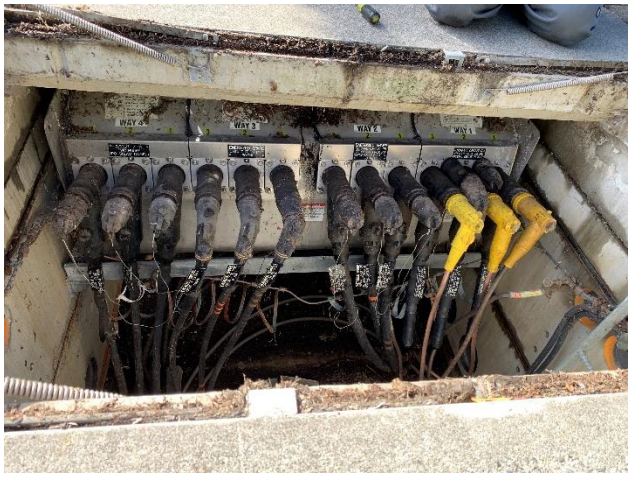


Figure 2 - Vault POX MV Switch

Option #2: Existing Conditions – 480 Volt Feeder from Legislative Building to LCM Modular
Existing monthly demand data dating back to January 2019 was provided by the Capitol Campus facilities group for the Legislative Building east and west electrical room main distribution switchboards (MDS). Analysis of the data showed that the peak usage of 410kW at the Legislative West MDS and 424kW at the Legislative East MDS were in the summer of 2019. Since the peak usage was before the building was partially vacated due to COVID-19, we believe the data provided is a good representation of the maximum existing MDS loads. The data showed that there is sufficient capacity to provide 600 Amps of power at 480 Volts from either electrical room MDS to the LCM Modular Building. No existing pathway from the electrical rooms to the exterior of the building was identified.

Figure 3 - West Electrical Room MPDH

Power Routing Options

Option #1: Medium Voltage Power Distribution

Investigating the vaults and equipment around the planned LCM Modular Building site showed that there are no spare termination points that would easily allow medium voltage power to be extended to the LCM Modular Building location. Adding additional equipment and/or vaults to extend medium voltage power to the LCM Modular Building from further is not economically feasible with the budget for this project.

Option #2A: 480V Underground Power Feeder from Legislative Building via Pleasant Lane SW

Both the east and west electrical room MDSs have available capacity to provide the estimated power required for the LCM Modular Building, however the west electrical room has a much more direct route. A new 600 Amp circuit breaker can be installed in the existing west electrical room MDS and (2) 4" conduits routed from the MDS, through the basement area, to a grated vault just outside the west wall of the building (see attached sketch SKE-1). Extending through the vault wall, the conduits would be direct buried under a small planter area and then under Pleasant Lane SW to the LCM Modular Building location.

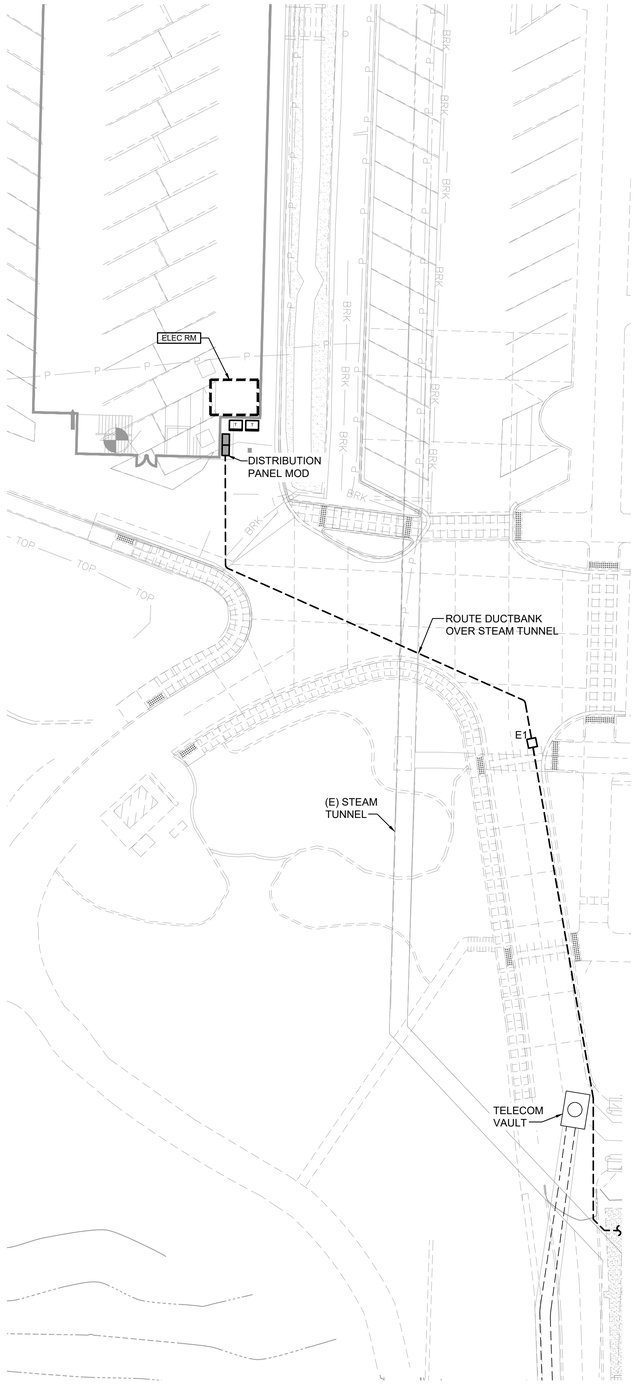
At the LCM Modular Building location a 600 Amp, 480 Volt, 3-phase distribution panel will be installed outside the building to distribute power to the elevator and to the modular building itself. It is also assumed that 480-208Y/120V transformers will be required outside the building to provide 208 Volt power to the building, but this will be dependent on the requirements of the modular building itself.

Option #2B: 480V Power Distribution from Legislative Building via Existing Steam Tunnel

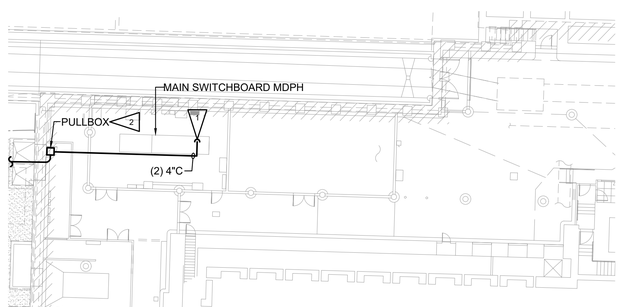
A second option to route power from the Legislative Building to the LCM Modular Building location is to utilize the existing steam tunnel running next to the Legislative Building under Pleasant Lane SW. This option was investigated on-site with the facilities group and it was found that routing conduits from the west electrical room into the steam tunnel entrance from the Legislative Building would be very difficult and/or require relocation of other existing utilities in the basement rooms. Within the existing steam tunnel there are some power conduits in specific areas, but the tunnel does not have existing cable trays dedicated for power conductors. At intersections within the tunnel the space is very congested with steam piping, telecommunications cable tray and power conduits. Adding additional power conduits that cross over the intersections would restrict or block access to existing tunnel sections. After reviewing the steam tunnel and discussing it with the facilities representative on-site it was decided that routing power through the steam tunnel is not a viable option.

Recommendation

Based on the findings from multiple site investigations the recommended means to bring power to the new LCM Modular Building is by routing 480 Volt power from the Legislative Building west electrical room in concrete encased conduits under Pleasant Lane SW. This routing will require saw cutting the existing road, trenching, concrete encasement of conduits, backfill and road restoration. The electrical cost opinion included with this study only includes the electrical portions of the routing. The saw cutting, trenching, backfill and restoration costs are accounted for in the civil cost opinion.



N 2 SKE-1 **MODULAR BUILDING - PARTIAL POWER SITE PLAN**
SCALE: 1" = 20'-0"



N 1 SKE-1 **LEGISLATIVE BUILDING - PARTIAL BASEMENT ELECTRICAL FLOOR PLAN**
SCALE: 1" = 20'-0"

SHEET NOTES:

1. FIELD VERIFY EXISTING CONDITIONS. ADJUST EQUIPMENT LOCATIONS AND ROUTING OF CONDUITS AND DUCT BANKS TO ACCOMMODATE EXISTING UTILITIES AND SITE CONDITIONS.
2. COORDINATE SHUTDOWNS WITH FACILITY PRIOR TO SHUTTING DOWN POWER. SEE SPECIFICATION SECTION 260500 GENERAL ELECTRICAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
3. REFER TO CIVIL, LANDSCAPE AND SURVEY DRAWINGS FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE A WATER-TIGHT SEAL FOR EACH UNDERGROUND RACEWAY ENTERING THE BUILDING OR EQUIPMENT AFTER CONDUCTORS HAVE BEEN INSTALLED. REFER TO RACEWAY SPECIFICATION SECTION 260533 FOR ADDITIONAL REQUIREMENTS.
5. REFER TO ONE-LINE DIAGRAM ON SHEET E9.01 FOR ADDITIONAL REQUIREMENTS.

FLAG NOTE:

1. PROVIDE CIRCUIT BREAKER IN SWITCHBOARD. PROVIDE CONDUIT AND CONDUCTORS FROM SWITCHBOARD TO PULLBOX.
2. PROVIDE PULLBOX. PROVIDE CONDUIT AND CONDUCTORS FROM PULLBOX TO MODULAR VAULT. PROVIDE CORE DRILLS THROUGH BUILDING VAULT WALL MINIMUM 36" BELOW GRADE.

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msgs architects
p 360 943 6774 f 360 352 7005
www.msgsarch.com
510 capitol way south
olympia, washington 98501

HARGIS
1201 third avenue, ste 600
seattle, wa 98101
206.448.3376
www. hargis.biz

LCM MODULAR BUILDING
CAPITOL CAMPUS
----, OLYMPIA, WASHINGTON 98501

PRELIMINARY
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DD NOV 2021

Revisions	Closing Date

Sheet Title
MODULAR BUILDING - ELECTRICAL PARTIAL SITE PLAN

Sheet No.
ESK-1

State Project No.
2022-158 G (2-1)

PLOT DATE/TIME: 11.12.2021 2:45 PM USER: TIM.ABBOTT
FILENAME AND PATH: M:\JOBS\21\21124\CAD\SKE-1 - Site Plan.dwg

memo

TO	Jared VerHey, SCJ Alliance	**DATE**	November 5, 2021
FROM	Ben Helms, Patrick Shannon Hargis Engineers, Inc.	**REGARDING**	Capitol Campus LCM Modular – Utility Study

Executive Summary

Hargis Engineers was engaged to provide an engineering study to provide telecommunications utility services for a new temporary modular office building in the parking lot adjacent to the Legislative Building at the Capitol Campus. Existing telecommunications as built plans were reviewed. During a site visit, Hargis was able to review existing infrastructure, including locations of existing vaults, handholes, pullboxes, and pathways from the LSC Comm Room to Manhole A. We were unable to access the existing manholes to verify existing pathways inside.

Existing Conditions

The LSC Comm Room in the Legislative Building has 24 ea. 4" conduits routed from the room, following the building countour to pullboxes located in the basement level parking area. The conduits are grouped in three groups: Group A has 6 ea. 4" conduits, Group B has 12 ea. 4" conduits, and Group C has 6 ea. 4" conduits. The conduits route from the pull boxes under the basement floor into a 24 conduit concrete encased duct bank towards the west to Manhole A.

Image 1 – Conduits from LSC Comm Room to Pull Box

Image 2 – Interior of Pull Box

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

Manhole A is located under the floor of the basement level garage. The duct bank continues underground to the west to Manhole B, located in the street at the top of the ramp.

Image 3 – Manhole B Location

There is no existing pathway infrastructure heading north from Manhole B towards the Hall of Justice or the desired modular building location in the Mansion Parking Lot.

Alternatives

Alternative 1 - Utilize Steam Tunnel

One option to install the telecommunications cabling from the Legislative Building to the Modular Building is to utilize the existing steam tunnel running next to the Legislative Building under Pleasant Lane. This option would require written permission from Maintenance Operations (MO). The tunnel runs north along Pleasant Lane to the northwest corner of the Temple of Justice. There is existing pathway from the LSC Comm Room through Manhole B to the steam tunnel that can be utilized. Once in the steam tunnel the existing cable tray can be utilized, routing the cabling to a point near the Modular Building location. At that point we would exit the steam tunnel and provide 2 ea. 4” conduits in a trench from the steam tunnel to a vault at the Modular Building location. A small vault would be provided outside the footprint of the new modular building with conduit stubbed into the telecommunications room. A twenty four (24) strand single-mode (SM) optical fiber cable (OFC) and twenty four (24) strand multi-mode (MM) OFC will be provided from the LSC Comm Room to the modular building telecommunications room and terminated on new rack mount fiber cabinets (RMFC). A 25 pair unshielded twisted pair (UTP) copper cable would also be provided for any analog phone needs. These would be terminated on 110 blocks with building entrance protection. This infrastructure would be able to support the needs of business operations, security, telephones, and fire alarms for the anticipated life of the building.

Alternative 2 - Trench from Manhole B to Modular Building Location

If the steam tunnel is not an option or if permission is not able to be obtained, another option is to provide a new utility trench. To provide service to the modular building we would coordinate with the civil engineer to design a trench originating at Manhole B routing to a new vault near the new modular building. The trenching would need to be performed as non-destruct trenching to avoid damaging existing buried infrastructure. We would provide 4" conduit with fabric innerduct, such as Maxcell or equivalent, from the manhole to the new vault and up into the modular building telecommunications room. A twenty four (24) strand single-mode (SM) optical fiber cable (OFC) and twenty four (24) strand multi-mode (MM) OFC will be provided from the LSC Comm Room to the modular building telecommunications room and terminated on new rack mount fiber cabinets (RMFC). A 25 pair unshielded twisted pair (UTP) copper cable would also be provided for any analog phone needs. These would be terminated on 110 blocks with building entrance protection. This infrastructure would be able to support the needs of business operations, security, telephones, and fire alarms for the anticipated life of the building.

Recommendation

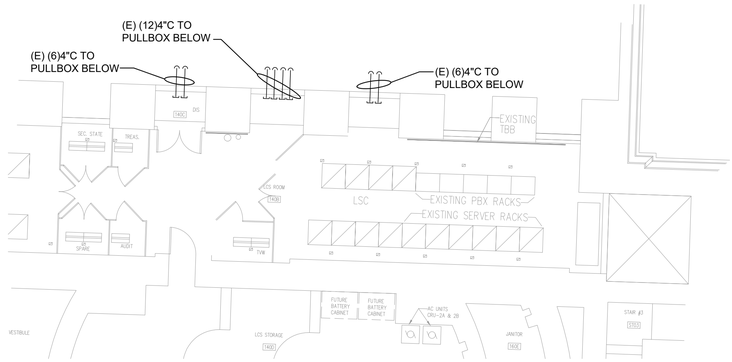
The recommendation resulting from this study is to utilize the existing cable tray in the steam tunnel, assuming that permission is granted by Maintenance Operations per the Capital Campus Building Standards. Routing the cabling in the steam tunnel greatly reduces the amount of conduit used, reducing total cost. It also maintains the current cabling routing on the campus, consolidating the cabling and maintaining consistent cabling pathways.

SHEET NOTES:

1. FIELD VERIFY EXISTING CONDITIONS. ADJUST EQUIPMENT LOCATIONS AND ROUTING OF CONDUITS AND DUCT BANKS TO ACCOMMODATE EXISTING UTILITIES AND SITE CONDITIONS.
2. COORDINATE ALL TELECOMMUNICATIONS WORK WITH LEGTECH.
3. COORDINATE WORK WITH CIVIL DRAWINGS FOR TRENCHING, BACKFILL, PATCHING, AND PAVING OF SITE.

FLAG NOTE:

1 PROVIDE CORE DRILLS THROUGH EXISTING VAULT WALL MINIMUM 36" BELOW GRADE. TRENCHING, BACKFILL, AND COVER BY CIVIL.



N 2 E1.02 **PARTIAL TELECOM FIRST FLOOR BUILDING PLAN - LSC COMM ROOM**
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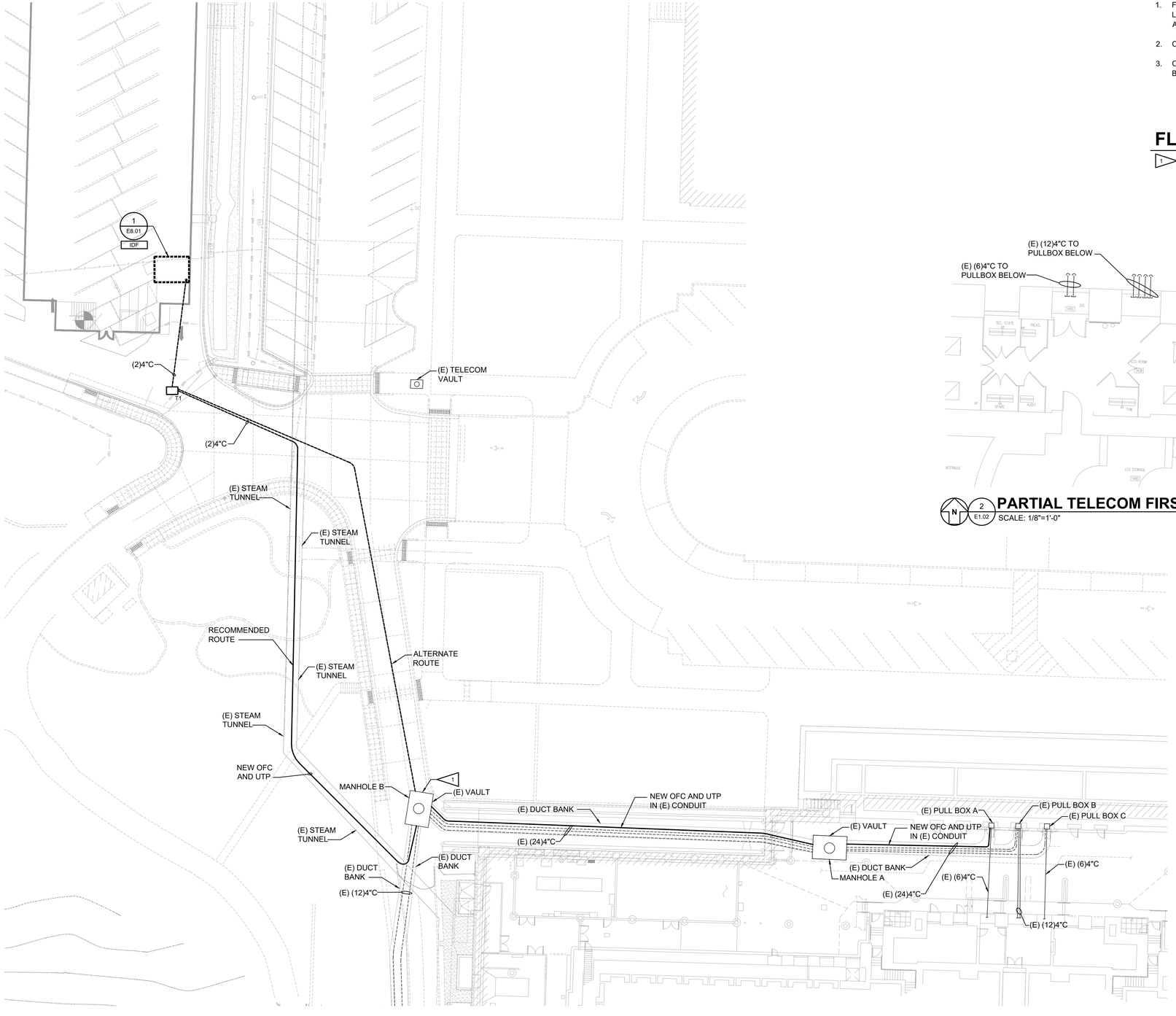

N 1 E1.02 **MODULAR BUILDING - TELECOM PARTIAL SITE PLAN**
SCALE: 1" = 20'-0"

msgs architects
p. 360 943 6774 f. 360 352 7005
www.msgsarch.com
510 capitol way south
olympia, washington 98501

HARGIS
1201 third avenue, ste 600
seattle, wa 98101
206.448.3376
www. hargis.biz

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SD OCT 2021

Revisions	Closing Date

Sheet Title

TELECOM SITE PLAN

Sheet No.
E1.02

MSGS Project No.
21-138

PLOT DATE/TIME: 11.4.2021 2:10 PM USER: TIN.VO
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APPENDIX 5:
COST ESTIMATE

DEPARTMENT OF ENTERPRISE SERVICES
CAPITAL CAMPUS MODULAR STUDY
COST SUMMARY
Revised 11/15/2021

RECOMMENDED OPTION	
Civil Costs (SCJ Alliance)	$376,815
Electrical Costs (Hargis)	$169,394
Telecommunications Costs (Hargis)	$63,983
SUBTOTAL	$610,192
Contingency (15%)	$91,529
General Contractor OH&P (20%)	$122,038
TOTAL	$823,759

ALTERNATIVE 1	
Civil Costs (SCJ Alliance)	$376,815
Electrical Costs (Hargis)	$169,394
Telecommunications Costs (Hargis)	$84,020
SUBTOTAL	$630,229
Contingency (15%)	$94,534
General Contractor OH&P (20%)	$126,046
TOTAL	$850,809

SCJ ALLIANCE
CONSULTING SERVICES

DEPARTMENT OF ENTERPRISE SERVICES
CAPITAL CAMPUS MODULAR STUDY
CIVIL COST ESTIMATE - PRE-DESIGN
Revised 11/15/2021

ITEM NO.	ITEM	UNIT	UNIT PRICE	QTY.	SUBTOTAL
	SITE PREP / EROSION CONTROL				
1	MOBILIZATION (8% OF CONSTRUCTION COSTS)	LS	$28,000	1	$28,000
2	TEMPORARY EROSION AND SEDIMENTATION CONTROL	LS	$8,000	1	$8,000
3	CLEARING AND GRUBBING AND SITE PREPARATION	LS	$5,000	1	$5,000
					$41,000
	SITE DEMOLITION				
4	REMOVE ASPHALT/CONCRETE PAVEMENT	SY	$30	2,850	$85,500
5	REMOVE EXISTING CURB	LF	$5	50	$250
6	REMOVE EXISTING SIDEWALK	SY	$20	20	$400
7	REMOVE ROCKERY WALL	LS	$2,000	1	$2,000
					$88,150
	SITE IMPROVEMENTS				
8	HMA CL 1/2 IN. PG 64-22 (4" COMPACTED)	TON	$150	130	$19,500
9	CRUSHED SURFACING BASE COURSE (4" COMPACTED)	TON	$37	115	$4,255
10	CONCRETE PAVEMENT (6" DEPTH)	CY	$300	85	$25,500
11	CRUSHED SURFACING BASE COURSE (4" COMPACTED)	TON	$37	105	$3,885
12	CURB	LF	$30	150	$4,500
13	ROCKERY WALL	LS	$10,000	1	$10,000
14	BLOCK LANDSCAPE WALL	LS	$1,500	1	$1,500
14	CONCRETE SIDEWALK W/ BASE COURSE	SY	$35	20	$700
15	ADA SIDEWALK RAMP	EA	$1,500	1	$1,500
16	CROSSWALK	LS	$5,000	1	$5,000
17	PAVEMENT STRIPING AND SIGNAGE	LS	$15,000	1	$15,000
					$91,340
	STORM DRAINAGE				
18	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	LF	$55	10	$550
19	6" PVC ROOF DRAIN PIPE	LF	$30	270	$8,100
20	DOWNSPOUT CONNECTION	EA	$500	6	$3,000
21	CLEANOUT	EA	$700	10	$7,000
22	FOOTING DRAIN	LF	$25	400	$10,000
					$28,650
	SANITARY SEWER				
23	CONNECT TO EXISTING SANITARY SEWER SYSTEM	EA	$1,500	1	$1,500
24	6" PVC SANITARY PIPE	LF	$65	75	$4,875
25	SANITARY SEWER MANHOLE	EA	$3,500	1	$3,500
					$9,875
	WATER				
26	REDUCED PRESSURE BACKFLOW ASSEMBLY	EA	$6,000	1	$6,000
27	DOUBLE CHECK DETECTOR VALVE (INCL VAULT)	EA	$20,000	1	$20,000
28	PIV	EA	$2,500	1	$2,500
29	FDC	EA	$3,000	1	$3,000
30	FIRE HYDRANT ASSEMBLY	EA	$6,000	2	$12,000
31	10" DI WATERLINE	LF	$115	180	$20,700
32	VALVES/TEES/BENDS	EA	$750	4	$3,000
33	4" DI WATERLINE	LF	$70	20	$1,400
34	1.5" HDPE WATERLINE	LF	$50	20	$1,000
35	UTILITY TUNNEL CONNECTION	LS	$7,000	1	$7,000
					$76,600
	OTHER ITEMS				
36	POWER AND COMMUNICATION TRENCHING	LF	$20	310	$6,200
37	LANDSCAPE RESTORATION	LS	$5,000	1	$5,000
38	CLEANUP	LS	$5,000	1	$5,000
39	PROJECT CONSTRUCTION SURVEY	LS	$20,000	1	$20,000
40	TEMPORARY TRAFFIC CONTROL	LS	$15,000	1	$5,000
					$41,200

SUBTOTAL	**$376,815**
CONTINGENCY (15%)	**$56,522**
GRAND TOTAL	**$433,337**

Notes:
1 Taxes not incuded.
2 Asphalt used a 2.05 multipier (2.05 Ton/CY).
3 Crushed surfacing base coarse and ballast used a 1.85 multiplier (1.85 Ton/CY).
4 Cost Estimate does not include permit fees and impact fees.
5 No subgrade replacement assumed in asphalt and concrete paved areas.
6 Costs do not include new landscape and irrigation. Restoration cost are included.
7 Does not include trash enclosure and bike parking facilities and structures.
8 Site lighting costs are not included.
9 Geotechnical and materials testing is not included.

electrical **cost opinion**

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

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Capitol Campus LCM Modular - Utility Study
Department of Enterprise Services

BASIS OF OPINION Pre-Design **PREPARED BY** Timothy Abbott **DATE** November 12, 2021

JOB NUMBER 21124 **CHECKED BY** Mark Merritt **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 26									
SECTION 260500 GENERAL ELECTRICAL PROVISIONS									
General Provisions (Submittals, Mobilization, Permits)	1	SF			6,000.00	6,000	6,000	900.00	6,900
General Provisions (Cx, Training, O&M, PL & Closeout)	1	SF			2,400.00	2,400	2,400	360.00	2,760
SECTION 260510 BASIC ELECTRICAL MATERIALS AND METHODS									
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,400.00	2,400	3,600.00	3,600	6,000	900.00	6,900
SECTION 260519 WIRES AND CABLES - COPPER, 3P, N , G									
(2) sets 4#350KCMIL, 1#1G	400	LF	49.58	19,834	34.68	13,872	33,706	5,055.84	38,761
(2) sets 3#3/0, 1#2G	15	LF	27.68	415	6.79	102	517	77.57	595
3#3/0, 1#6G	15	LF	25.49	382	6.47	97	479	71.90	551

electrical **cost opinion**

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seattle, washington 98101
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BASIS OF OPINION Pre-Design **PREPARED BY** Timothy Abbott **DATE** November 12, 2021

JOB NUMBER 21124 **CHECKED BY** Mark Merritt **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 260533 RACEWAY SYSTEMS									
(2) 4"C - Schedule 80 PVC	340	LF	29.64	10,078	31.08	10,567	20,645	3,096.72	23,742
(2) 4"C - EMT	60	LF	58.80	3,528	69.60	4,176	7,704	1,155.60	8,860
30"x30"x8" Pullbox	1	EA	128.40	128	234.00	234	362	54.36	417
Core Drills	2	EA			1,200.00	2,400	2,400	360.00	2,760
(2) 2-1/2"C - EMT	15	LF	38.16	572	39.96	599	1,172	175.77	1,348
2-1/2"C - EMT	15	LF	19.08	286	19.98	300	586	87.89	674
3030-LA Vault 2'x2'x2'	1	EA	1,560.00	1,560	1,080.00	1,080	2,640	396.00	3,036
SECTION 262200 TRANSFORMERS									
112.5kVA Transformer	1	EA	9,000.00	9,000	2,100.00	2,100	11,100	1,665.00	12,765
225kVA Transformer	1	EA	18,000.00	18,000	2,100.00	2,100	20,100	3,015.00	23,115
Housekeeping Pad	2	EA	600.00	1,200	1,800.00	3,600	4,800	720.00	5,520
SECTION 262413 SWITCHBOARDS									
MDP - 600A Switchboard - NEMA 3R	1	EA	14,400.00	14,400	3,720.00	3,720	18,120	2,718.00	20,838
Concrete Pad	1	EA	600.00	600	1,800.00	1,800	2,400	360.00	2,760
SECTION 262816 DISCONNECT SWITCHES/ENCLOSED CIRCUIT BREAKERS									
600A Circuit Breaker	1	EA	5,370.00	5,370	798.00	798	6,168	925.20	7,093
Subtotal Electrical (Division 26)							147,299	22,095	169,394

telecommunications **cost opinion**

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Capitol Campus LCM Modular - Utility Study - Recommended Option - Steam Tunnel
State of WA Capitol Campus

BASIS OF OPINION	Pre-Design	**PREPARED BY**	Ben Helms	**DATE**	November 5, 2021
JOB NUMBER	21124	**CHECKED BY**	Patrick Shannon	**OVERHEAD & PROFIT**	20%

telecommunications summary		subtotal	OH&P	total
site telecommunications				
Telecommunications (Division 27)		53,319	10,664	63,983
	Subtotal - Site Telecommunications	**$53,319**	10,664	**$63,983**
TOTAL		**$53,319**	**$10,664**	**$63,983**

EXCLUSIONS

1 - Design contingency
2 - Sales tax
3 - Escalation
4 - Electrical & Telecom Utility Services est.
5 - General Contractor Overhead & Profit
6 - Phased construction

electrical **cost opinion**

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Capitol Campus LCM Modular - Utility Study - Recommended Option - Steam Tunnel

State of WA Capitol Campus

BASIS OF OPINION Pre-Design **PREPARED BY** Ben Helms **DATE** November 5, 2021

JOB NUMBER 21124 **CHECKED BY** Patrick Shannon **OVERHEAD & PROFIT** 20%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	EA	5,000.00	5,000	.15		5,000	1,000	6,000
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	EA	3,000.00	3,000	.30		3,000	600	3,600
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
4" Schedule 80 PVC Conduit (Underground, Earthwork not included	150	LF	29.64	4,446	31.08	4,662	9,108	1,822	10,930
4" 3-Cell Maxcell Fabric Innerduct	1,400	LF	6.75	9,450.00	2.85	3,990	13,440	2,688	16,128
24 Strand OS2 Singlemode I/O Plenum OFC (Yellow)	600	LF	1.50	900.00	2.50	1,500.00	2,400	480	2,880
24 Strand OM3 Multimode I/O Plenum OFC (Aqua)	600	LF	3.00	1,800.00	2.50	1,500.00	3,300	660	3,960
2RU RMFC (6-panels), Part No. 5R2UH-S06	2	EA	279.13	558.26	47.50	95.00	653	131	784
Splice Module, duplex LC adapters (Aqua), 12-fiber OM3 LC/PC pigt	4	EA	286.27	1,145.09	399.00	1,596.00	2,741	548	3,289
Splice Module, duplex LC adapters (Blue), 12-fiber OS2 LC/UPC pigt	4	EA	289.44	1,157.76	399.00	1,596.00	2,754	551	3,305
25 Pair Twisted Pair Copper Cable	600	LF	2.50	1,500.00	2.50	1,500.00	3,000	600	3,600
110 Blocks and Termination	2	EA	20.00	40.00	23.75	47.50	88	18	105
Utility Vault (Medium)	1	EA	4,335.00	4,335.00	3,500.00	3,500.00	7,835	1,567	9,402
Subtotal Low-Voltage Systems (Divisions 27)							53,319	10,664	63,983

telecommunications **cost opinion**

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Capitol Campus LCM Modular - Utility Study - Alternative #2 - Trenching
State of WA Capitol Campus

BASIS OF OPINION	Pre-Design	**PREPARED BY**	Ben Helms	**DATE**	November 5, 2021
JOB NUMBER	21124	**CHECKED BY**	Patrick Shannon	**OVERHEAD & PROFIT**	20%

telecommunications summary	subtotal	OH&P	total
site telecommunications			
Telecommunications (Division 27)	70,017	14,003	84,020
Subtotal - Site Telecommunications	**$70,017**	14,003	**$84,020**
TOTAL	**$70,017**	**$14,003**	**$84,020**

EXCLUSIONS

1 - Design contingency
2 - Sales tax
3 - Escalation
4 - Electrical & Telecom Utility Services est.
5 - General Contractor Overhead & Profit
6 - Phased construction

electrical **cost opinion**

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Capitol Campus LCM Modular - Utility Study - Alternative #2 - Trenching

State of WA Capitol Campus

BASIS OF OPINION Pre-Design **PREPARED BY** Ben Helms **DATE** November 5, 2021

JOB NUMBER 21124 **CHECKED BY** Patrick Shannon **OVERHEAD & PROFIT** 20%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	EA	5,000.00	5,000	.15		5,000	1,000	6,000
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	EA	3,000.00	3,000	.30		3,000	600	3,600
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
4" Schedule 80 PVC Conduit (Underground, no Earthwork)	425	LF	29.64	12,597	31.08	13,209	25,806	5,161	30,967
4" 3-Cell Maxcell Fabric Innerduct	1,400	LF	6.75	9,450.00	2.85	3,990	13,440	2,688	16,128
24 Strand OS2 Singlemode I/O Plenum OFC (Yellow)	600	LF	1.50	900.00	2.50	1,500.00	2,400	480	2,880
24 Strand OM3 Multimode I/O Plenum OFC (Aqua)	600	LF	3.00	1,800.00	2.50	1,500.00	3,300	660	3,960
2RU RMFC (6-panels), Part No. 5R2UH-S06	2	EA	279.13	558.26	47.50	95.00	653	131	784
Splice Module, duplex LC adapters (Aqua), 12-fiber OM3 LC/PC pigt	4	EA	286.27	1,145.09	399.00	1,596.00	2,741	548	3,289
Splice Module, duplex LC adapters (Blue), 12-fiber OS2 LC/UPC pigt	4	EA	289.44	1,157.76	399.00	1,596.00	2,754	551	3,305
25 Pair Twisted Pair Copper Cable	600	LF	2.50	1,500.00	2.50	1,500.00	3,000	600	3,600
110 Blocks and Termination	2	EA	20.00	40.00	23.75	47.50	88	18	105
Utility Vault (Medium)	1	EA	4,335.00	4,335.00	3,500.00	3,500.00	7,835	1,567	9,402
Subtotal Low-Voltage Systems (Divisions 27)							70,017	14,003	84,020

APPENDIX 6:
PIPE CAPACITY CALCULATIONS

SCJ ALLIANCE
LCM MODULAR BUILDING
11/11/2021

PIPE CAPACITY CALCULATIONS

SEWER PIPE

6 INCH SEWER

$Q = (1.49/N)\ AR^{2/3}S^{1/2}$

			A=	0.196 SF
			R=	0.125
Q =	0.76	CFS	S=	0.018
	341	GPM	N=	0.013

8 INCH SEWER

$Q = (1.49/N)\ AR^{2/3}S^{1/2}$

			A=	0.349 SF
			R=	0.167
Q =	0.95	CFS	S=	0.006
	426	GPM	N=	0.013

STORMWATER PIPE

8 INCH STORM

$Q = (1.49/N)\ AR^{2/3}S^{1/2}$

			A=	0.349 SF
			R=	0.167
Q =	1.35	CFS	S=	0.013
			N=	0.013