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5th Review
(1st submittal of this document)
PLMP20230007
Sept 2024

May 3, 2024

MultiCare Health System
c/o Turner & Townsend
737 Fawcett Avenue
Tacoma, Washington 98415

Attention: David Stokes

Subject: Geotechnical Engineering Services
MultiCare – Good Samaritan Stormwater Improvements Project
Puyallup, Washington
File No. 2868-039-00

Introduction and Project Understanding

We are pleased to present this report providing the results of our geotechnical engineering services to support the MultiCare Health System (MultiCare) – Good Samaritan Hospital Stormwater Improvements Project. The project site is located at the MultiCare Good Samaritan Hospital campus in Puyallup, Washington. We understand that this project is part of a broader campus redevelopment plan that will include new buildings and parking garages; however, this report is specific to the design of proposed stormwater infrastructure improvements associated with the overall redevelopment.

Our understanding of proposed stormwater improvements is based on discussions with the project team, including Turner & Townsend and the project civil engineer (AHBL, Inc. [AHBL]), and review of the following provided documents:

- An undated Masterplan Proposed Utility Map prepared by AHBL. This map shows proposed utility infrastructure, including stormwater detention areas (two vaults and one pond); and
- Various geotechnical documents prepared for previous development on the MultiCare Good Samaritan campus.

The Proposed Utility Map indicates that stormwater management will consist of two detention vaults located in existing paved parking/driveway areas in the western and eastern portions of the hospital campus, and a detention pond in a generally undeveloped area in the northeast corner of the campus. Approximate locations of each area with stormwater improvements as they relate to the overall hospital campus are shown in the Vicinity Map, Figure 1.

NOTE: Figures referenced in Appendix A were not included. (See Page 4, 9, 10, and 11). Submit referenced figures at time of Civil Application.
[Geotech Letter; Page 1 of 21]

Stormwater facilities will be designed in general accordance with the 2019 Washington State Department of Ecology (Ecology) Stormwater Management Manual for Western Washington (2019 SWMMWW) with review from the City of Puyallup. The 2019 SWMMWW generally requires that explorations be completed within proposed infiltration areas and that groundwater monitoring wells be installed to measure groundwater levels. The 2019 SWMMWW states that infiltration testing should be completed between December 1 and April 1 and that groundwater should be monitored through a wet season (defined as October 1 through April 30 in the 2019 SWMMWW).

Scope Of Services

The purpose of our geotechnical engineering services is to explore subsurface conditions at the site and review other relevant subsurface information as a basis for determining feasibility and providing recommendations for stormwater infiltration design at the site. Our specific scope of services is summarized in our proposal dated March 5, 2024, which can be provided upon request. Our services are provided in accordance with our signed work order agreement executed on March 21, 2024.

Site Conditions

SURFACE CONDITIONS

For the purposes of this report, we reference three general focus areas within the MultiCare – Good Samaritan Hospital campus that are proposed to be developed with stormwater facilities: (1) an area in the western portion of the hospital campus that is currently a parking lot that will be developed with a below-grade vault (western parking lot), (2) an existing parking lot in the eastern portion of the hospital campus that will be developed with a below-grade vault (eastern parking lot), and (3) an existing gravel lot in the northeastern portion of the hospital campus that will be developed with a stormwater pond (northeastern gravel lot). The approximate location of each area is shown in the Site Plan, Figures 2a and 2b.

In general, the focus areas are bounded by forested land, existing hospital buildings and facilities, parking areas, and streets that traverse through the hospital campus. Both the western and eastern parking lots consist of existing parking and driveway areas that are generally surfaced with asphalt concrete pavement. Occasional vegetated planters are located in each paved parking lot area. The northeastern gravel lot is generally surfaced with gravel, although there are some areas of pavement. The gravel lot is accessible from the hospital campus area to the east via a stairway. An asphalt-paved driveway connects the gravel lot to 7th Street Southeast (7th Street SE becomes 13th Avenue SE near the driveway) to the north.

Based on review of readily available aerial imagery and our observations while on site, surface elevations vary between the focus areas; ground surface elevation is about Elevation (EL) 92 to 82 feet in the western parking lot, which typically slopes down to the north; EL 153 to 138 feet in the eastern parking lot, which typically slopes down to the north and east; and EL 110 to 105 feet in the northeastern gravel lot, which is relatively level to gently sloping down to the north. Elevations herein are referenced to the North American Vertical Datum of 1988 (NAVD 88).

LITERATURE REVIEW

Geologic Setting

Our understanding of the site geology is based on review of the "Geologic Map of the Tacoma 1:100,000-scale Quadrangle, Washington" (Schuster, et al. 2015). The geologic map indicates the site is underlain by recessional glacial deposits including: "Recessional outwash" (Qgo). Recessional glaciolacustrine deposits (Qgl), a sub-unit of the Qgo group, are the primary unit mapped at the site and are described as fine sand, silt and clay that were deposited in low energy environments such as ice-dammed lakes. The recessional outwash unit can also include soils consisting of sand and gravel. Recessional deposits were deposited by glacial meltwater during glacial recession and were not glacially consolidated after deposition. Typically, these units are in a loose to medium dense condition.

Recessional outwash is underlain at some depth by glacial till, which typically consists of very dense sand with variable silt and gravel content. Glacial till was overridden by glacial ice and is a glacially consolidated soil.

Natural Resources Conservation Service (NRCS) Description

According to the NRCS Web Soil Survey (accessed April 30, 2024) the project site is generally underlain by two soil types: Kapowsin gravelly ashy loam, 15 to 30 percent slopes (Map Unit 19D) and Kitsap silt loam, 15 to 30 percent slopes (Map Unit 20D). Information pertaining to each mapped soil type is presented in Table 1 below.

TABLE 1. NRCS MAPPED SOIL TYPES

SOIL TYPE	MAPPED LOCATION	PARENT MATERIAL	HYDROLOGIC SOIL GROUP	COMMENTS
Kapowsin gravelly ashy loam	Western parking lot and northeastern gravel lot	Glacial drift over dense glaciomarine deposits	B	Described as moderately well drained with a very low capacity of the most limiting layer to transmit water.
Kitsap silt loam	Eastern parking lot	Glaciolacustrine deposits	C/D	Described as moderately well drained with a moderately low to moderately high capacity of the most limiting layer to transmit water.

Subsurface Conditions

SUBSURFACE EXPLORATIONS AND LABORATORY TESTING

We observed subsurface conditions in the focus areas by excavating two test pits (PIT-1 and TP-2) at the northeastern gravel lot and advancing two borings converted to monitoring wells; MW-1 at the western parking lot and MW-2 at the eastern parking lot. Approximate locations of the explorations are shown in Figures 2a and 2b.

Test pit excavations were completed to depths between about 8¾ and 10¼ feet below the ground surface (bgs), which corresponded to elevations between about EL 101.25 feet to EL 99.75 feet. A pilot infiltration test (PIT) was completed in PIT-1 at a depth of about 8 feet bgs (EL 102 feet).

Boring MW-1 extended to a depth of about 20½ feet bgs (EL 69.5 feet) and boring MW-2 extended to a depth of about 25 feet bgs (EL 115 feet). Both borings were completed as monitoring wells after drilling and outfitted with pressure transducers to record groundwater levels at regular intervals.

Details regarding the subsurface exploration program, including summary logs of the explorations and PIT methodology, are provided in Appendix A. A key to our exploration logs is presented as Figure A-1 and the exploration logs are presented as Figure A-2 through Figure A-5.

Selected samples collected from the explorations were tested in our laboratory to confirm field classifications and to evaluate pertinent engineering properties. Our laboratory testing program included grain-size analyses, percent fines determinations and moisture content determinations. Details and results of our laboratory testing program are provided in Appendix A.

Referenced figures not included in Appendix A.

SOIL CONDITIONS

At the ground surface in our explorations, we observed approximately 6 inches of surficial material consisting of gravel surfacing (test pits in northeastern gravel parking lot) or pavement section (borings in the western and eastern parking lots). In general, the pavement section consisted of about 3 to 4½ inches of asphalt concrete over about 8 inches of crushed rock base course. Below the surficial material, we observed what we interpret to be three general soil units in our explorations: fill material, recessional outwash, and glacial till.

Fill Material

Below the surficial material, fill typically consisted of loose to dense gravel with silt and sand, silty sand with variable gravel content, and medium stiff silt with variable sand content. Occasional debris such as rebar was observed within the fill in our explorations. Fill was observed extending to depths between about 3 and 8 feet bgs.

Recessional Outwash

Underlying the fill material, we observed what we interpret to be recessional outwash. Recessional outwash was generally fine-grained and consisted of medium stiff to stiff silt with variable sand and gravel content, although occasional zones of medium dense silty sand were observed within the unit. Recessional outwash was observed extending to depths between about 5 and 15½ feet bgs.

Glacial Till

Below the recessional outwash, we observed medium dense to very dense sand and gravel with variable silt content and hard sandy silt that we interpreted to be glacial till. The glacial till typically graded to a very dense condition with depth. Occasional cobbles and boulders and slight to moderate cementation were also noted within the unit. All of the explorations were terminated within glacial till at depths between about 8¾ to 25 feet bgs.

Groundwater Conditions

We did not observe what we interpret to be the regional groundwater table in our explorations. However, we did observe what we interpret to be perched groundwater in MW-2, PIT-1, and TP-2 at depths of approximately 15 feet, 6½ feet, and 3 feet, respectively. Groundwater was not observed in boring MW-1. The observed groundwater appeared to be perched on top of the relatively low permeability recessional outwash soils in MW-2 and TP-2, and on dense glacial till in PIT-1.

Borings MW-1 and MW-2 were completed as monitoring wells after drilling. We installed pressure transducers in both wells to measure groundwater levels at regular intervals. We returned to the site on April 22, 2024 (17 days after well installation) to collect transducer data from the wells. Figure 3 presents measured groundwater elevations in monitoring well MW-2 from the time of installation to April 22, 2024; MW-1 appeared to have remained dry during the monitored interval and is not included in the figure at this time. The data collected to date indicates groundwater levels at MW-2 generally declined, a total of about 1.68 feet, during the monitored interval. We plan to continue monitoring groundwater levels at the site, as necessary, through the wet season to gather additional information.

We anticipate that isolated areas of perched groundwater could be encountered at higher elevations than groundwater elevations measured in the wells and is most likely to occur at the contact between soils with relatively different permeability, such as the contact between sand and silt.

Stormwater Infiltration Assessment

GENERAL

It is our understanding that stormwater management facilities will be designed in general accordance with the Ecology 2019 SWMMWW. According to the 2019 SWMMWW, design infiltration rates in glacially consolidated soils, such as glacial till, should be determined via in-situ infiltration testing such as a PIT.

We completed a small-scale PIT, designated PIT-1, at the approximate location of the proposed detention pond in the northeastern gravel lot area. The PIT methodology is described in detail in Appendix A. We also completed grain size analyses on samples obtained from the borings to compare soil characteristics to samples obtained from the PIT. Discussion about the PIT observations and results and general conclusions for overall on-site infiltration feasibility are provided below.

PIT RESULTS AND STORMWATER INFILTRATION FEASIBILITY

During completion of the PIT at PIT-1 (northeastern gravel lot), we observed an in-situ measured infiltration rate of about 0.04 inches per hour. Although the fines content of glacial till varied between tested samples (see Table 2 below), it is our opinion, and based on our studies, that cementation and dense to very dense conditions that prohibit infiltration are similar across the site.

In our opinion, the recessional outwash at the site would have a similar or slower measured infiltration rate than the measured rate of the glacial till, primarily due to its relatively high silt content. Additionally, glacial till was observed below the recessional outwash in all of our explorations and, therefore, we expect that the glacial till should be considered a limiting layer and control overall stormwater infiltration design.

Results of grain size analyses (specifically the fines content) of samples obtained from our explorations are presented in Table 2 below.

TABLE 2. GRAIN SIZE ANALYSES RESULTS

EXPLORATION AND LOCATION	SAMPLE DEPTH (FEET)	SOIL UNIT/TYPE	FINES CONTENT (%)
MW-1	10.3	Glacial Till / SM	15
MW-2	2.5	Fill / ML	54[1]
MW-2	7.5	Recessional Outwash / ML	66
PIT-1	2	Fill / ML	53[1]
PIT-1	8	Glacial Till / SM	27
TP-2	8	Glacial Till / SM	18

[1]Laboratory test consisted of percent fines content determination.

In addition to the results presented and discussed above, groundwater seepage was noted to be perched on top of the fine-grained recessional outwash and on top of the dense glacial till. Perched conditions are an indication of relatively impermeable or slow infiltration characteristics.

Based on our PIT studies, our laboratory test results, observations during our explorations, and our experience in the project area, it is our opinion that stormwater infiltration should be considered generally infeasible at this project site.

Limitations

We have prepared this report for the use by MultiCare and their authorized agents for the Good Samaritan Stormwater Improvements project. MultiCare may distribute copies of this report to other authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. The conclusions, recommendations and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

Any electronic form, facsimile, or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc (GeoEngineers). and will serve as the official document of record.

Please refer to Appendix B titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

We trust this letter serves your current needs. Please call if you have any questions or require additional information.

Sincerely,
GeoEngineers, Inc

DENNIS JOHN THOMPSON
STATE OF WASHINGTON
38397
REGISTERED
PROFESSIONAL ENGINEER

5/3/2024

Clinton J. Lindgren, PE
Project Geotechnical Engineer

Dennis J. Thompson, PE
Associate Geotechnical Engineer

CJL:DJT:jes

Attachment:
Figure 1. Vicinity Map
Figure 2a. Site Plan
Figure 2b. Site Plan
Figure 3. MW-2 Groundwater Hydrograph and Precipitation Data
Appendix A. Surface Explorations and Laboratory Testing
Appendix B. Report Limitations and Guidelines for Use

Appendix A
Subsurface Explorations and Laboratory Testing

Appendix A
Subsurface Explorations and Laboratory Testing

SUBSURFACE EXPLORATIONS

Drilled borings and Monitoring Wells

Subsurface conditions were explored by advancing two hollow-stem auger borings (MW-1 and MW-2) on April 5, 2024. Subsurface exploratory services were provided by Holocene Drilling, Inc. under subcontract to GeoEngineers, Inc. (GeoEngineers) The borings were advanced to depths between approximately 20½ and 25 feet below ground surface (bgs). A 2-inch-diameter groundwater monitoring well was constructed within the borehole at both boring locations after drilling was complete. The well was screened from approximately 10 to 20 feet bgs in MW-1 and 7 to 17 feet bgs in MW-2. Pressure transducer data loggers were programmed and installed within both wells to record water levels hourly. Future measurements of groundwater levels can be/will be provided, as applicable and necessary, as additional data is collected from the transducers.

The approximate locations of the borings were determined using a tablet equipped with global positioning system (GPS) software and/or pacing off from existing site features. The exploration locations are included in the Site Plan, Figures 2a and 2b. The locations and elevations of the borings should be considered approximate.

Our field representative collected samples, classified the soils, maintained a detailed log of the explorations and observed groundwater conditions. Soil samples were obtained with a standard split spoon sampler driven a total of 18 inches, or other practical distance, and in general accordance with ASTM International (ASTM) D 1586. Field blow counts generated for the last 12 inches of driven sample, or other distance indicated, are presented in the log. The soils were classified visually in general accordance with the system described in Figure A-1, which includes a key to the exploration logs. Summary logs of the borings are included as Figures A-2 and A-3.

Referenced figures not included.

The densities noted on the boring exploration log are based on the blow counts produced in the standard penetration test (SPT) and our experience and judgment. The log is based on our interpretation of the field and laboratory data and indicates the depth at which we interpret subsurface materials or their characteristics to change, although these changes might actually be gradual.

Observations of groundwater conditions were made during drilling and are presented on the boring logs. Groundwater conditions observed during drilling represent a short-term condition and may or may not be representative of the long-term groundwater conditions at the site. Groundwater conditions observed during drilling should be considered approximate.

Test Pits and Pilot Infiltration Test (PIT)

Two test pits were excavated on March 28, 2024 at the approximate locations shown in the Site Plan, Figure 2b. The test pits were excavated to depths between about 8¾ and 10¼ feet bgs using an excavator provided and operated by Kelly's Excavating, Inc. under subcontract to GeoEngineers. After each test pit was completed, the excavations were backfilled using the generated material and compacted using the bucket of the excavator. Prior to backfilling, a pilot infiltration test (PIT) was completed at about 8 feet bgs at PIT-1. PIT procedure and methodology is described in the section below. After completing the PIT, the excavation was extended as practical to observe soil conditions below the test elevation.

During the exploration program, our field representative obtained soil samples, classified the soils encountered, and maintained a detailed log of each exploration. The relative densities noted on the test pit logs are based on the difficulty of excavation and our experience and judgment. The soils were classified visually in general accordance with the system described in Figure A-1, which includes a key to the exploration logs. Summary logs of the test pits are included as Figures A-4 and A-5.

Referenced figures not included.

The locations of the test pits were determined using an electronic tablet equipped with GPS software. The locations of the test pits should be considered approximate.

PIT METHODOLOGY

We completed the PIT generally following GeoEngineers' standard methodology for PITs, which is a synthesis of best practices and, in our opinion, meets the intended procedures for small-scale PITs set forth in the Washington State Department of Ecology 2019 Stormwater Management Manual for Western Washington (2019 SWMMWW). PIT-1 was completed at about 8 feet bgs or Elevation 102 feet (North American Vertical Datum of 1988 [NAVD88]), which is roughly the proposed bottom of detention pond shown on the provided Proposed Utility Map. The approximate basal area of the PIT excavation was about 14 square feet (2 feet by 7 feet). Upon reaching the target depth, a piezoelectric pressure transducer was lowered to near the floor of the test pit to record water level readings during the PIT. A separate piezoelectric pressure transducer was placed near the test pit to record barometric pressure during the PIT. The piezoelectric pressure transducers were programmed to record water level/barometric pressure readings at 15 second intervals. Water was pumped into the PIT-1 excavation from a water truck to an initial depth of about 17½ inches.

GeoEngineers' PIT procedure consists of a 6-hour (minimum) saturation period where the water depth in the PIT is raised and lowered, generally over intervals of 6 inches or less, in a series of falling-head stages. Water level measurements collected by the pressure transducer during each falling-head stage are used to calculate the measured infiltration rate for each stage. Manual water level measurements are also recorded in the event that the transducer malfunctions during the test. The falling-head stage methodology is intended to fully saturate the soils below the base of the PIT while allowing for a direct measurement of the infiltration rate to help determine when saturated or near-saturated conditions have been achieved. This is usually manifested by a progressive decline in the apparent infiltration rate until the rate approximately stabilizes. The stabilized rate corresponds to the saturated infiltration rate or the measured (initial) infiltration rate of the soil.

During the 6-hour saturation period of PIT-1, only one falling-head stage was able to be completed and the water level lowered approximately 0.22 inches, indicating practically zero infiltration. Based on this observation, the saturation period was considered to be complete, and the infiltration test was terminated.

LABORATORY TESTING

Selected soil samples obtained from the explorations were transported to GeoEngineers' laboratory for testing to evaluate pertinent geotechnical engineering characteristics of the site soils and to confirm our field classifications.

Our testing program consisted of the following:

- Four grain-size distribution analyses (sieve analyses [SA])
- Two percent fines determinations (%F)
- Nine moisture content determinations (MC)

Tests were performed in general accordance with test methods of ASTM International (ASTM) or other applicable procedures. The following sections provide a general description of the tests performed.

Sieve Analysis (SA)

Sieve analyses were performed in general accordance with ASTM Test Method D 6913. This test method covers the quantitative determination of the distribution of particle sizes in soils. Typically, the distribution of particle sizes larger than 75 micrometers (μm) is determined by sieving. Figure A-6 presents the results of our sieve analyses.

Referenced figure not included.

Percent Fines (%F)

Percent fines content represents the percentage by weight of the sample passing (finer than) the U.S. No. 200 sieve. Samples were “washed” through the U.S. No. 200 sieve to estimate the relative percentages of coarse- and fine-grained particles in the soil in general accordance with ASTM D 1140. Test results are presented on the exploration logs at the respective sample depths.

Moisture Content (MC)

Moisture content was determined in general accordance with ASTM Test Method D 2216. The test results are used to aid in soil classification and correlation with other pertinent engineering soil properties. The test results are presented on the exploration logs, as indicated for the sample tested.

Appendix B
Report Limitations and Guidelines for Use

Appendix B
Report Limitations and Guidelines For Use[1]

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

READ THESE PROVISIONS CLOSELY

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers, Inc. (GeoEngineers) includes the following explanatory "limitations" provisions in its reports. Please confer with GeoEngineers if you need to know more how these "Report Limitations and Guidelines for Use" apply to your project or site.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for MultiCare Health System (MultiCare) for the Project(s) specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with the agreement between MultiCare and GeoEngineers dated March 5, 2024 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

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

This report has been prepared for the proposed MultiCare – Good Samaritan Stormwater Improvements Project in Puyallup, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to 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.

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

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 changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

ENVIRONMENTAL CONCERNS ARE NOT COVERED

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

INFORMATION PROVIDED BY OTHERS

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

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 man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

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 the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

GEOTECHNICAL ENGINEERING REPORT RECOMMENDATIONS ARE NOT FINAL

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A GEOTECHNICAL ENGINEERING OR GEOLOGIC REPORT COULD BE SUBJECT TO MISINTERPRETATION

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and 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. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable but separating logs from the report can create a risk of misinterpretation.

GIVE CONTRACTORS A COMPLETE REPORT AND GUIDANCE

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- Advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- Encourages contractors to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer.

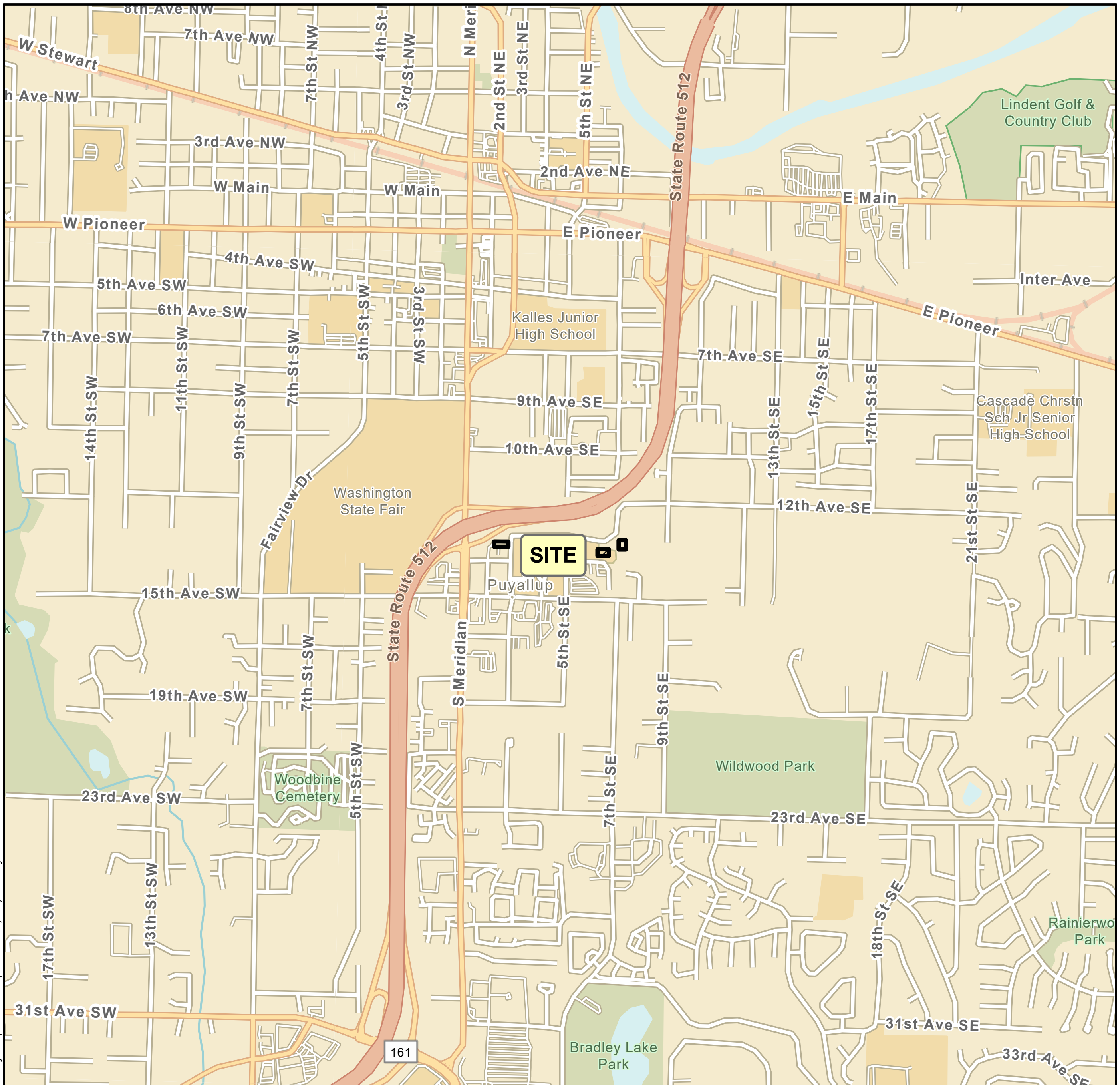
CONTRACTORS ARE RESPONSIBLE FOR SITE SAFETY ON THEIR OWN CONSTRUCTION PROJECTS

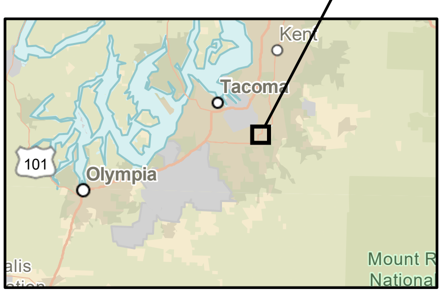
Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.





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Feet

Source(s):
- ESRI

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

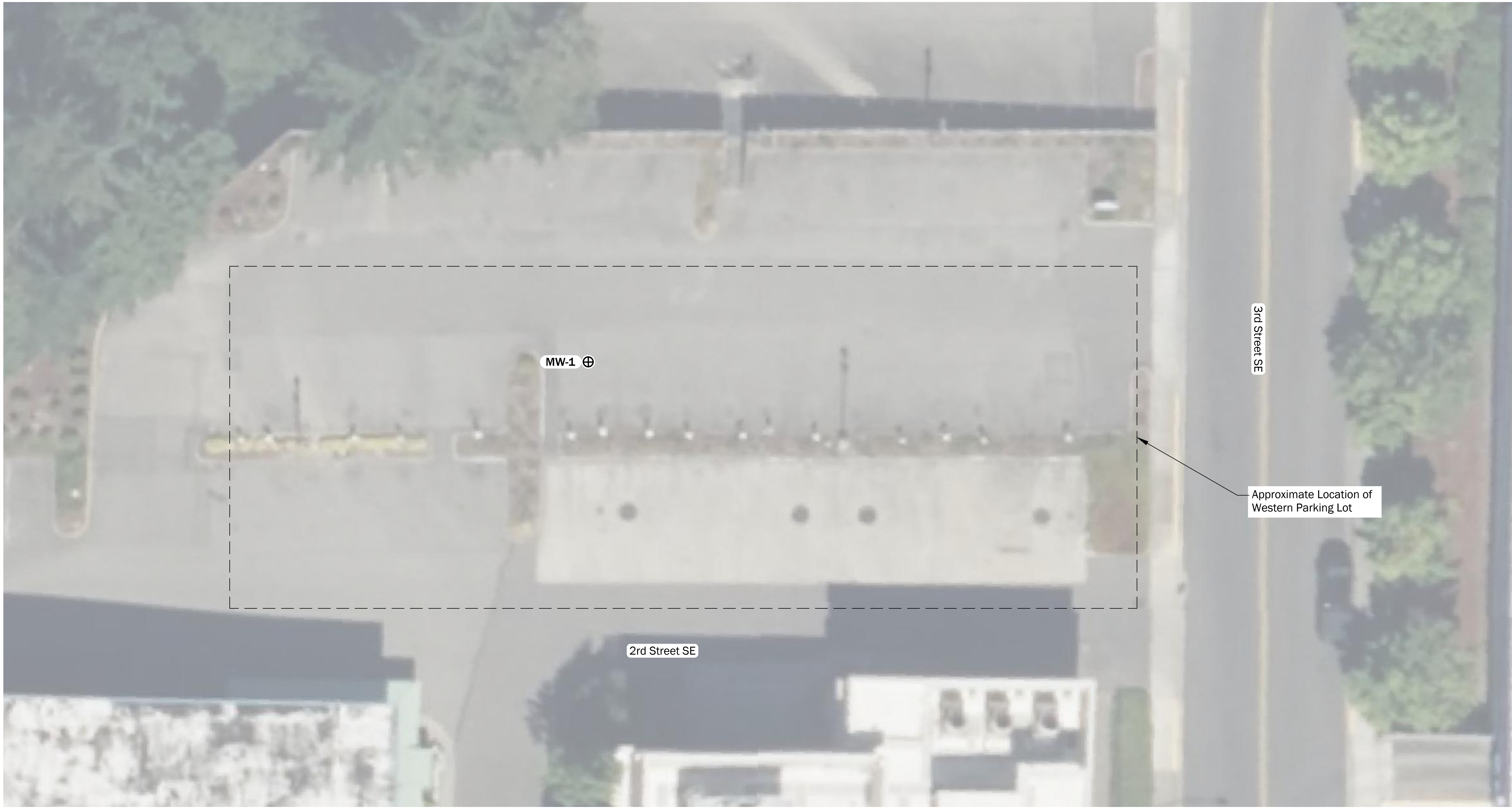
Vicinity Map

Good Samaritan Stormwater Improvements
Puyallup, Washington

GEOENGINEERS

Figure 1

P:\2\2868039\GIS\2868039_Project\2868039_Project.aprx\286803900_F01_Vicinity Map Date Exported: 04/23/24 by JFellows



Legend

MW-1 ● Monitoring Well by GeoEngineers, 2024

Source(s):

- Aerial from Microsoft Bing

Coordinate System: WA State Plane, South Zone, NAD83, US Foot

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

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Feet

Site Plan

Good Samaritan Stormwater Improvements
Puyallup, Washington

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Figure 2a

P:\2\2868039\CAD\00\Geotech Report\286803900_F02_Site Plan.dwg 2a Date Exported:4/23/2024 3:23 PM - by Jackson N. Fellows

Legend

- MW-1 ● Monitoring Well by GeoEngineers, 2024
- PIT-1 ◆ Pilot Infiltration Test by GeoEngineers, 2024
- TP-1 ⊞ Test Pit by GeoEngineers, 2024

Source(s):
- Aerial from Microsoft Bing

Coordinate System: WA State Plane, South Zone, NAD83, US Foot

N

0 40
Feet

Site Plan

Good Samaritan Stormwater Improvements
Puyallup, Washington

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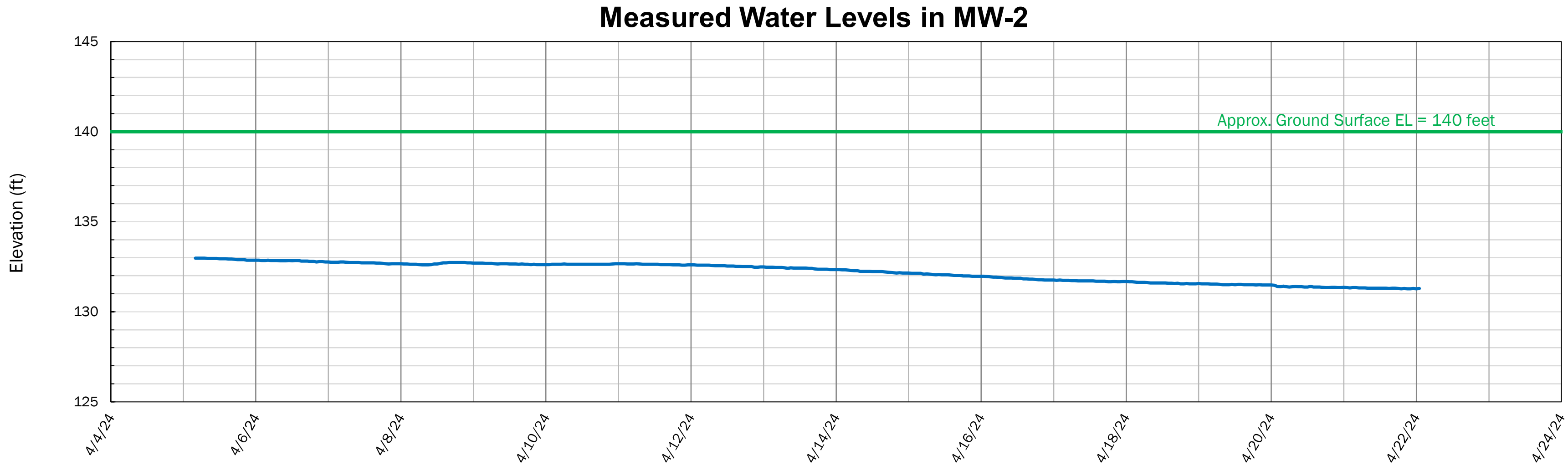
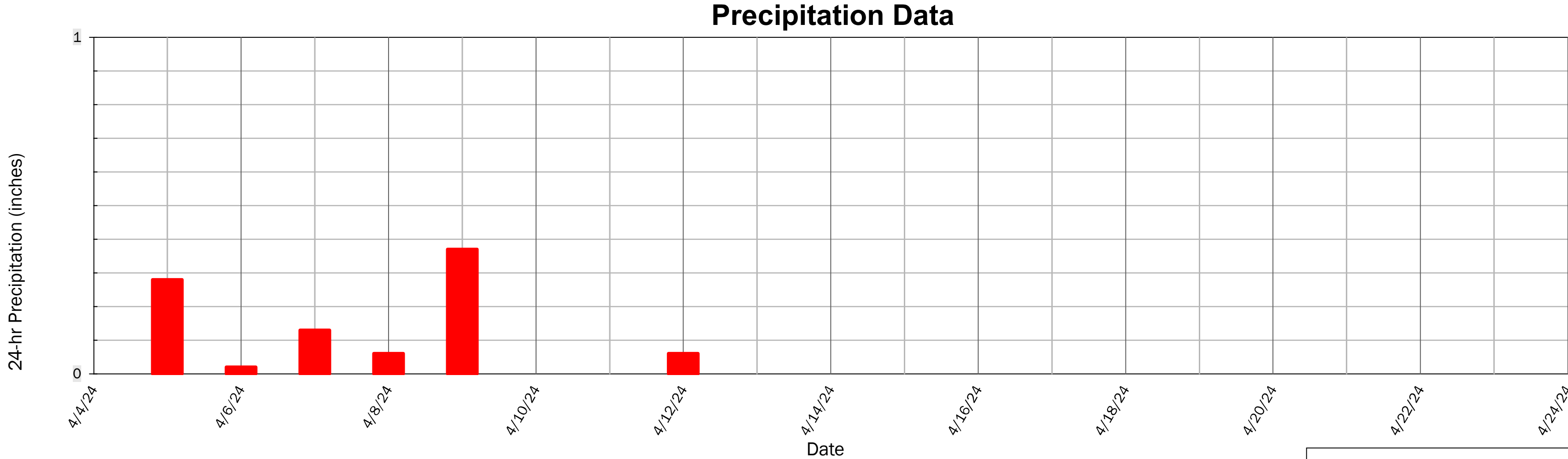
Figure 2b

P:\2\2868039\CAD\00\Geotech Report\286803900_F02_Site Plan.dwg 2b Date Exported:4/23/2024 3:22 PM - by Jackson N. Fellows





Notes:

1. 24-hour precipitation data obtained from weather station PUYALLUP 2.1 ESE in Puyallup, Washington.
2. Elevations are referenced to the North American Vertical Datum of 1988 (NAVD88) and should be considered approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

MW-2 Groundwater Hydrograph and Precipitation Data

Good Samaritan Stormwater Improvements
Puyallup, Washington

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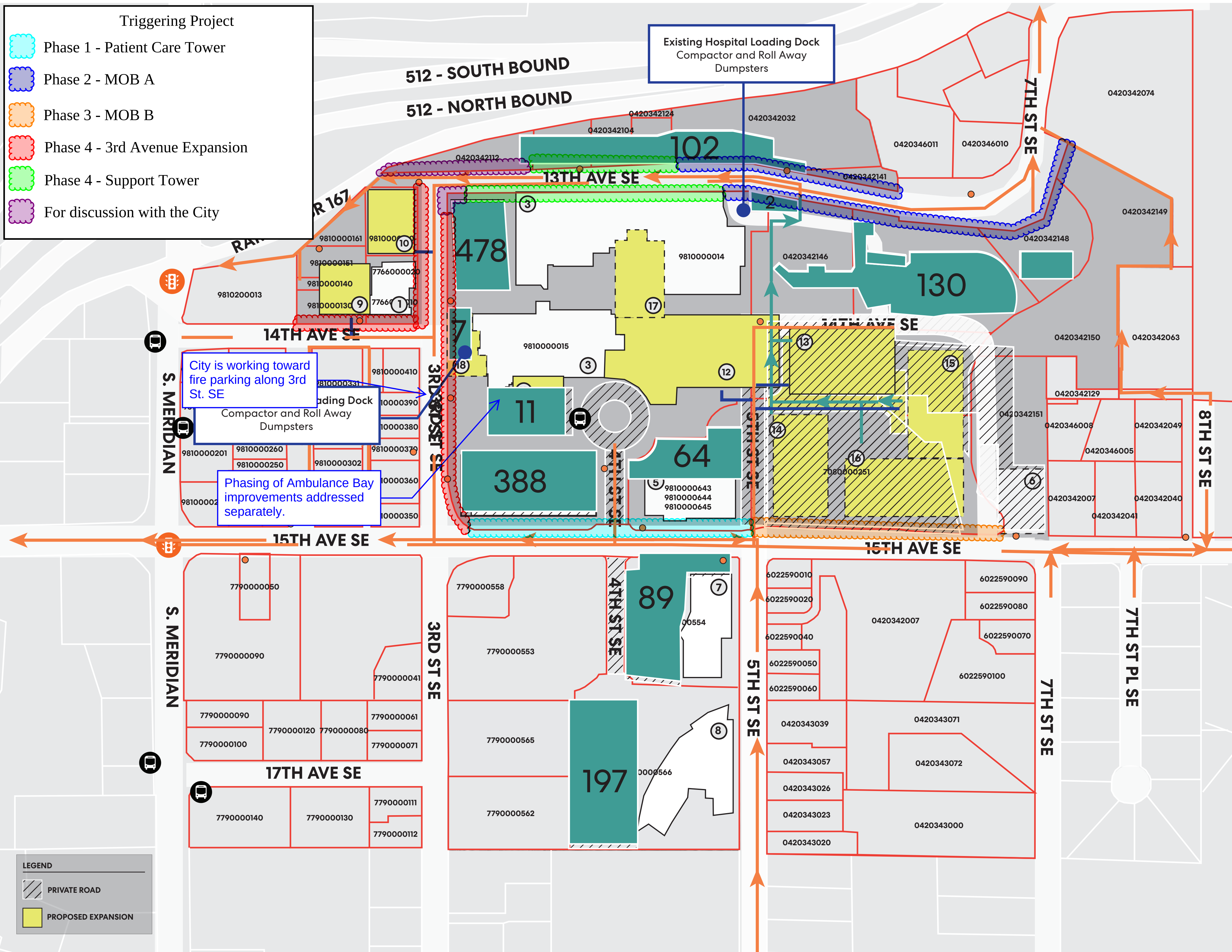
Figure 3

2868-039-00 Date Exported 04/23/2024


Triggering Project
Phase 1 - Patient Care Tower
Phase 2 - MOB A
Phase 3 - MOB B
Phase 4 - 3rd Avenue Expansion
Phase 4 - Support Tower
For discussion with the City
Existing Hospital Loading Dock Compactor and Roll Away Dumpsters
City is working toward fire parking along 3rd St. SE
Phasing of Ambulance Bay improvements addressed separately.
512 - SOUTH BOUND
512 - NORTH BOUND
13TH AVE SE
14TH AVE SE
15TH AVE SE
17TH AVE SE
S. MERIDIAN
3RD ST SE
4TH ST SE
5TH ST SE
7TH ST SE
7TH ST PL SE
8TH ST SE
478
388
11
64
130
102
89
197
LEGEND
PRIVATE ROAD
PROPOSED EXPANSION