associated earth sciences incorporated

December 28, 2023
Project No. 20210371E001

Herzl-Ner Tamid Conservative Congregation
3700 East Mercer Way
Mercer Island, Washington 98040

Attention: Audrey Covner

Subject: Subsurface Exploration and Geotechnical Engineering Evaluation
Preschool Renovations and Deck Addition
Herzl-Ner Tamid Conservative Congregation
3700 East Mercer Way
Mercer Island, Washington

Dear Ms. Covner:

Associated Earth Sciences, Inc. (AESI) is pleased to present this report containing the results of our subsurface exploration and geotechnical engineering evaluation for structural elements associated with the proposed preschool renovations and deck addition at the Herzl-Ner Tamid Conservative Congregation in Mercer Island, Washington. Our work has been completed in general accordance with our proposal, dated November 28, 2023, and in accordance with generally accepted geotechnical engineering practices. This report was prepared for the exclusive use of the Herzl-Ner Tamid Conservative Congregation, and their authorized agents, for specific application to this project. No other warranty, express or implied, is made.

SITE AND PROJECT DESCRIPTION

The project site is located at the existing Herzl-Ner Tamid Conservative Congregation synagogue campus in Mercer Island, Washington (Figure 1). The area of proposed improvements is located east of the existing synagogue and west of the existing multipurpose building (Figure 2). Based on our email correspondence with the design team and our review of the schematic structural plans prepared by PCS Structural Solutions, titled “Herzl Feasibility,” dated November 21, 2023, we understand that the project will include interior renovations for a preschool building and the addition of an above-grade deck extending from the east side of the existing synagogue building towards the existing multipurpose building along with a new set of stairs extending down from the proposed deck to the eastern courtyard.

The topography in the immediate project area is gently to moderately sloping downward to the east toward the multipurpose building courtyard. Maximum slope gradients in the project area generally range from about 15 to 20 percent with an overall vertical relief of about 14 feet.

SUBSURFACE EXPLORATION

Our field study for this project was completed in December 2023 and included advancing two exploration borings (EB-1 and EB-2) within/near the footprint of the proposed deck to define the general soil and shallow groundwater conditions below the site. The exploration locations are shown on the "Existing Site and Exploration Plan," Figure 2. The various types of sediments, as well as the depths where characteristics of the sediments changed, are indicated on the exploration logs presented in Appendix A. The depths indicated on the logs where conditions changed may represent gradational variations between sediment types in the field. The locations of our field explorations were determined by approximate measurements from known site features.

The conclusions and recommendations presented in this report are based, in part, on the exploration borings completed for this study. The number, locations, and depths of the explorations were completed within site and budgetary constraints. Because of the nature of exploratory work below ground, extrapolation of subsurface conditions between field explorations is necessary. It should be noted that differing subsurface conditions might sometimes be present due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of variations between the field explorations may not become fully evident until construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.

Exploration Borings

The exploration borings were completed by Geologic Drill Partners Inc., an independent driller working under subcontract to AESI, by advancing a 6-inch outside-diameter, hollow-stem auger with a track-mounted drill rig. During the drilling process, samples were generally obtained at 2½-foot to 5-foot-depth intervals. After drilling, each borehole was backfilled with bentonite chips and the surface was covered with onsite material.

Disturbed, but representative samples were obtained by using the Standard Penetration Test (SPT) procedure in accordance with *ASTM International* (ASTM) D-1586. This test and sampling method consists of driving a standard 2-inch, outside-diameter, split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance ("N") or blow count. If a total of 50 is recorded within one 6-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils; these values are plotted on the attached exploration boring logs.

The borings were continuously observed and logged by a geologist from our firm. The samples obtained from the split-barrel sampler were classified in the field and representative portions placed in watertight containers. The samples were then transported to our laboratory for further visual classification. The exploration logs presented in Appendix A are based on the N-values, field observations, and drilling action.

Subsurface Conditions

Subsurface conditions at the project site were inferred from the field explorations accomplished for this study, visual reconnaissance of the site, and review of applicable geologic literature. The following sections describe observed site stratigraphy, regional geology, and local groundwater.

The near-surface sediments encountered in our explorations generally consisted of a surficial layer of existing fill overlying native Vashon lodgement till. The following subsections present more detailed descriptions of the types of sediments encountered, organized from the youngest (shallowest) to the oldest (deepest) sediment types. The exploration logs contained in Appendix A provide additional subsurface information.

<u>Fill</u>

Both explorations completed for this study encountered existing fill soils (those not naturally deposited) directly below the ground surface. The fill generally consisted of medium dense, slightly moist to moist, brown to dark brown with minor orange oxidation staining, silty sand, with some gravel and variable organic content (scattered to abundant amounts) that generally decreased with depth. The existing fill extended to a depth of about 4 feet below the existing ground surface at both boring locations.

Existing fill is not considered suitable for foundation support and may require re-compaction or removal/replacement within proposed hardscape areas. Excavated existing fill material may be suitable for reuse in structural fill applications if such reuse is specifically allowed by project plans and specifications, if excessively organic and any other deleterious materials are removed, and if moisture content is adjusted to allow compaction to the specified level and to a firm and unyielding condition. The silty fill soils may prove difficult to reuse as structural fill in wet weather conditions due to the high percentage of fine-grained (silt-sized) sediments which make them highly moisture-sensitive and subject to disturbance when wet.

<u>Vashon Lodgement Till</u>

Directly underlying the existing fill at a depth of about 4 feet, both explorations encountered dense to very dense, slightly moist, brown to brownish gray, silty sand, with some gravel and a diamict texture. We interpret these sediments to be representative of Vashon lodgement till.

Vashon lodgement till was deposited directly from basal, debris-laden glacial ice during the Vashon Stade of the Fraser Glaciation, approximately 12,500 to 15,000 years ago. The high relative density characteristic of the Vashon lodgement till is due to its consolidation by the massive weight of the glacial ice from which it was deposited. The lodgement till extended beyond the maximum depth explored of 15 feet at EB-1 and 10.5 feet at EB-2.

Vashon lodgement till is suitable for building foundation support with proper preparation. Similar to the silty fill soils, lodgement till may prove difficult to reuse as structural fill in wet weather conditions due to the high percentage of fine-grained (silt-sized) sediments which make them highly moisture-sensitive and subject to disturbance when wet.

Regional Geologic Mapping

Based on our review of a regional geologic map of the project area (*Geologic Map of Mercer Island, Washington,* by Kathy G. Troost and Aaron P. Wisher, GeoMapNW, October 2006), the site is mapped as being underlain by Vashon-age lodgement till. Vashon lodgement till typically comprises a very dense, unsorted, mixture of silt, sand, and gravel with variable amounts of cobbles and boulders that have been consolidated by the weight of an advancing glacier. Locally, thicknesses can range from a few feet to several tens of feet. Our subsurface observations are in general agreement with the geologic map in that we encountered Vashon lodgment till directly underlying the existing fill at both explorations completed for this study.

Groundwater Conditions

No groundwater was encountered at the time of drilling within EB-1 or EB-2. During wetter periods of the year, zones of perched groundwater may be present within the existing fill and within sandy zones of the Vashon lodgement till. The occurrence and level of groundwater seepage encountered during construction will largely depend on the soil grain-size distribution, topography, seasonal precipitation, on- and off-site land usage, and other factors.

GEOLOGIC HAZARDS

The following discussion of potential geologic hazards at the site is based on the geologic, slope, and ground and surface water conditions, as observed and discussed herein.

Landslide Hazards

Based on our site observations and review of LIDAR-based topography, the existing ground surface within the vicinity of the proposed deck generally slopes down gently to moderately to the east at maximum inclinations of 15 to 20 percent. Our explorations indicate the site is underlain by a surficial layer of medium dense fill overlying dense to very dense Vashon lodgement till. It is our opinion that the risk of damage to the proposed development by landsliding is low due to the lack of steep slopes at the project site and vicinity and the presence of dense to very dense glacially consolidated sediments at shallow depths. No detailed slope stability analysis was completed as part of this study, and none is warranted, in our opinion.

Seismic Hazards

Section 19.16.010 of the Mercer Island City Code (MICC) defines Seismic hazard areas as "areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction or surface faulting." Areas with potential seismic hazards are depicted on the Mercer Island Critical Areas Map (April 2009). The subject site is not located in a mapped seismic hazard area.

It is our opinion that the risk of damage to the proposed improvements by liquefaction or seismically induced slope failure is low due to the presence of dense to very dense glacially consolidated sediments at shallow depths with a lack of adverse shallow groundwater conditions. Earthquake activity is clearly a widespread hazard throughout Western Washington, but the risk of associated shaking and ground rupture does not appear to be any higher at this site than elsewhere in Mercer Island. Consequently, the proposed site improvements are not constrained by any prevailing seismic hazards, in our opinion.

Seismic Site Class (2018 *International Building Code*)

It is our opinion that earthquake damage to the proposed improvements, when founded on suitable bearing strata in accordance with the recommendations contained herein, will be caused by the intensity and acceleration associated with the event. We understand that structural design of the new deck will follow the 2018 *International Building Code* standards and the American Society of Civil Engineers (ASCE) *7 - Minimum Design Loads for Buildings and Other Structures*, the current version of which is ASCE 7-16. Based on the subsurface conditions encountered in our explorations within the vicinity of the proposed deck, we recommend using Site Class "C" as defined in Table 20.3-1 of ASCE 7-16.

Erosion Hazards

Section 19.16.010 of the MICC defines Erosion Hazard Areas as "Those areas greater than 15 percent slope and subject to a severe risk of erosion due to wind, rain, water, slope and other natural agents including those soil types and/or areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a 'severe' or 'very severe' rill and inter-rill erosion hazard." Areas with potential erosion hazards are depicted on the Mercer Island GIS Portal.

While the observed near-surface sediments have a "moderate" erosion hazard rating and do not meet the definition of an Erosion Hazard Area according to the MICC, the project site is mapped as an erosion hazard area according to the Mercer Island GIS Portal. Additionally, the sediments underlying the site generally contain silt and sand that can be sensitive to erosion when exposed during construction. Temporary erosion and sedimentation control (TESC) during construction should be in accordance with the City of Mercer Island requirements. Our recommendations for mitigating erosion hazards during construction are provided below.

Erosion Hazard Mitigation

A properly developed, constructed, and maintained erosion control plan consistent with City of Mercer Island standards and best management erosion control practices may be required for this project. It will be necessary to make adjustments and provide additional measures to the TESC plan in order to improve its effectiveness. Ultimately, the success of the TESC plan depends on a proactive approach to project planning and contractor implementation and maintenance. We recommend the following best management practices (BMPs) to mitigate erosion hazards and potential for off-site sediment transport:

1. Construction activity should be scheduled or phased as much as possible to avoid earthwork activity during the wet season.
2. The winter performance of a site is dependent on a well-conceived plan for control of site erosion and stormwater runoff. The site plan should include ground-cover measures and staging areas. The contractor should be prepared to implement and maintain the required measures to reduce the amount of exposed ground.
3. TESC elements and perimeter flow control should be established prior to the start of grading.
4. During the wetter months of the year, or when significant storm events are predicted during the summer months, the work area should be stabilized so that if showers occur, it can receive the rainfall without excessive erosion or sediment transport. The required measures for an area to be "buttoned-up" will depend on the time of year and the duration that the area will be left unworked. During the winter months, areas that are to be left unworked for more than 2 days should be mulched or covered with plastic. During the summer months, stabilization will usually consist of seal-rolling the subgrade. Such measures will aid in the contractor's ability to get back into a work area after a storm event.
5. All disturbed areas should be revegetated as soon as possible. If it is outside of the growing season, the disturbed areas should be covered with mulch. Straw mulch provides a cost-effective cover measure and can be made wind-resistant with the application of a tackifier after it is placed.

6. Surface runoff and discharge should be controlled during and following development. Uncontrolled discharge may promote erosion and sediment transport.
7. Soils that are to be reused around the site should be stored in such a manner as to reduce erosion from the stockpile. Protective measures may include, but are not limited to, covering stockpiles with plastic sheeting, or the use of silt fences around pile perimeters.

It is our opinion that with the proper implementation of the TESC plans and by field-adjusting appropriate erosion mitigation (BMPs) throughout construction, the potential adverse impacts from erosion hazards on the project may be mitigated.

DESIGN RECOMMENDATIONS

Our exploration indicates that, from a geotechnical standpoint, the subject site is suitable for the proposed improvements. At the locations explored, the shallow dense to very dense lodgement till sediments will provide suitable foundation support for the proposed deck. We understand that small-diameter pipe piles are being considered for foundation support in lieu of conventional spread footings or cylindrical piers in order to prevent damage to the existing vegetation and tree roots in the vicinity of the proposed deck footprint. The following sections provide our recommendations for site preparation, temporary cut slopes, structural fill, foundation support, and slabs-on-grade.

Site Preparation

We anticipate that site preparation for this project will involve limited cut and fill earthwork activities. Site preparation in areas where new structural fill will be placed should include removal of all topsoil any other deleterious or organic materials. Once stripping has been completed, any disturbed material should be recompacted to a firm and unyielding condition. Any soft or yielding areas may require further removal or other measures to provide a more stable surface for fill placement.

Temporary Cut Slopes

In our opinion, stable construction slopes should be the responsibility of the contractor and should be determined during construction. For estimating purposes, however, we anticipate that temporary, unsupported cut slopes may be planned at 1.5H:1V (Horizontal:Vertical) in existing fill soils and 1H:1V in dense to very dense Vashon lodgement till. Shallow excavations at 4 feet deep or less can likely stand near vertical in dry weather conditions. As is typical with earthwork operations, some sloughing and raveling may occur, especially if groundwater seepage is present in the excavation cuts and cut slopes may have to be adjusted in the field. In addition, WISHA/OSHA regulations should be followed at all times.

Structural Fill

Structural fill is defined as non-organic soil, acceptable to the geotechnical engineer, placed in maximum 8-inch loose lifts, with each lift being compacted to at least 95 percent of the modified Proctor maximum dry density using ASTM D-1557 as the standard.

The existing fill and lodgement till sediments may be suitable for use as structural fill assuming proper moisture conditioning and compaction can be achieved. Soils in which the amount of fine-grained material (smaller than the No. 200 sieve) is greater than approximately 5 percent (measured on the minus No. 4 sieve size) should be considered moisture-sensitive. Most of the on-site soils are moisture-sensitive and may require moisture-conditioning before use as structural fill. Therefore, good construction practices and erosion control measures will be necessary to protect the fine-grained soils and prevent over-optimum moisture conditions from developing in the finer-grained soil areas.

If fill is placed during wet weather or if proper compaction cannot be obtained, a select import material consisting of a clean, free-draining gravel and/or sand should be used. Free-draining fill consists of non-organic soil, with the amount of fine-grained material (silt and clay) limited to 5 percent by weight when measured on the minus No. 4 sieve fraction, and at least 25 percent retained on the No. 4 sieve.

If compaction testing is required by the City of Mercer Island, a representative from our firm should observe the subgrades and be present during placement of structural fill to observe the work and perform a representative number of in-place density tests. In this way, the adequacy of the earthwork may be evaluated as filling progresses and any problem areas may be corrected at that time.

Foundations

We understand that foundation types for support of the proposed deck are still being considered. Suitable foundation bearing soils consisting of dense to very dense lodgement till were observed at relatively shallow depths (approximately 4 feet below existing grade) at both exploration locations completed for this study. The lodgement till sediments are suitable for the support of conventional spread footings and/or cylindrical piers. Alternatively small-diameter pipe pile foundations may be utilized to avoid damaging the existing vegetation and tree roots, if desired. We have included recommendations for conventional spread footings and/or cylindrical piers and small-diameter pipe piles in the sections below.

Spread Footings and Cylindrical Piers

Conventional spread footings and/or cylindrical piers may be used for foundation support when bearing on the dense to very dense native lodgement till soils or on new structural fill placed over these soils. We recommend that the deck footings be sized for a maximum allowable bearing pressure of 3,000 pounds per square foot (psf). An increase of one-third may be used for short-term wind or seismic loading. Under this bearing pressure, maximum total and differential settlements of the deck are estimated to be less than 1 inch and ½ inch, respectively. Most of this movement should occur during initial dead load applications. However, any disturbed material that is not removed from footing excavations prior to concrete placement could result in increased settlements. All footings should be at least 16 inches wide and should be buried a minimum of 18 inches into the surrounding soil for frost protection.

It should be noted that the area bounded by lines extending downward at 1H:1V from any footing must not intersect another footing or intersect a filled area that has not been compacted to at least 95 percent of ASTM D-1557. In addition, a 1.5H:1V line extending down and away from any footing must not daylight because sloughing or raveling may eventually undermine the footing. Thus, footings should not be placed near the edges of steps or cuts in the bearing soils.

We recommend that all footing areas be observed by AESI prior to placing concrete to verify that the exposed soils can support the design foundation bearing capacity and that construction conforms with the recommendations in this report. Re-compaction of foundation soils may be recommended if they are disturbed during excavation or if loose deposits are encountered in areas outside of our boring locations. Foundation bearing verification may also be required by the City.

The contractor must use care during site preparation and excavation operations so that the underlying soils are not softened. If disturbance occurs, the softened soils should be removed and foundations extended down to competent soil. If foundation excavation will occur during the wet season, consideration should be given to "armoring" the exposed subgrade with a thin layer of rock to provide a working surface during foundation construction. We recommend a 6-inch layer of crushed rock for this purpose.

Pipe Piles

As an alternative to spread footing or cylindrical pier support, the new deck may be supported on small-diameter pipe piles to avoid damage to existing vegetation and tree roots. Small-diameter pipe piles are lengths of steel pipe driven into the soil, usually by an air or hydraulically actuated jackhammer. The jackhammer may be hand-operated or mounted on a small excavator. The piles are typically driven in a series of small excavations. Once the piles have been driven into the soil, the forms are placed and the piles are cast with reinforced concrete to form the deck post footings. The loads from the footing are then transferred to the pipe piles through the upper loose fill soils to the underlying bearing soils. A qualified structural engineer, using the design guidelines presented herein, should complete the design of the foundation system to determine the number and spacing of piles required for each footing.

We understand that 3- and 4-inch-diameter pipe piles are being considered for this project. The piles should be galvanized steel pipe, driven with a suitable hydraulic hammer to the refusal criteria shown in Table 1 below. The following table provides required minimum hammer weights, refusal criteria, and allowable loads for various pile diameters. Based on our explorations, we anticipate that pile embedment depths may range from 5 to 10 feet. <u>It should be noted that actual driven lengths are unpredictable and may be substantially longer or shorter than the estimated range. The piles must extend through the existing fill soils and penetrate the underlying dense to very dense lodgement till sediments.</u>

Table 1
Pipe Pile Design Parameters

Pipe Diameter (inches)	Wall Thickness	Minimum Hammer Size (pounds)	Refusal Criteria[1] (seconds/inch)	Allowable Axial Compressive Load[2] (kips)
2	Schedule 80	140	60	6
3	Schedule 40	400	30	12
4	Schedule 40	850	16	20

(1) Refusal is defined as less than 1 inch of penetration in "X" seconds under constant driving.
(2) Allowable load for 3-inch or greater diameter piles to be verified by load tests (200 percent of allowable load) in accordance with *ASTM International* (ASTM) D 1143 "quick load test."

Anticipated settlement of pile-supported foundations should be less than ½ inch. Pile installation must be observed by AESI to verify that the design bearing capacity of the piles has been attained and that construction conforms to the recommendations contained herein. The City of Mercer Island may also require such inspections.

No lateral capacity will be provided by vertically-installed pipe piles. Lateral resistance can be derived from passive soil resistance against the buried portion of the foundation (i.e., the pile caps and grade beam) or from the installation of batter piles. Lateral resistance for batter piles should be taken as the horizontal component of the axial pile load. Batter piles are typically installed at 1H:4V inclination.

<u>Pile Inspections</u>

The actual total length of each pile may be adjusted in the field based on required capacity and conditions encountered during driving. Since completion of the pile takes place below ground, the judgment and experience of the geotechnical engineer or their field representative must be used as a basis for determining the required penetration and acceptability of each pile. Consequently, use of the presented pile capacities in the design requires that the installation of all piles be observed by a qualified geotechnical engineer or engineering geologist from our firm, who can interpret and collect the installation data and examine the contractor's operations. AESI, acting as the owner's field representative, would determine the required lengths of the piles and keep records of pertinent installation data.

Load testing should be performed to verify that the design capacity of the piles has been attained. Because of the variation in the soil types and their densities, we recommend that AESI monitor the load testing program. A common pile load testing program would consist of one or more 200-percent verification tests of the design capacity of the pile in the soil. Verification test piles are usually loaded in 25-percent increments that are held for 2 minutes up to the final load of 200-percent design load. The 200-percent load is commonly held for 20 minutes and creep-measured. The load is then reduced by 25-percent increments to evaluate the effect of elasticity in the pile to overall displacement.

Passive Resistance and Friction Factors

Lateral loads can be resisted by friction between the foundation and the natural soils or supporting structural fill soils, and by passive earth pressure acting on the buried portions of the foundations. The foundations must be backfilled with structural fill and compacted to at least 95 percent of the maximum dry density to achieve the passive resistance provided below. We recommend the following allowable design parameters which include a factor of safety of 1.5:

- Passive equivalent fluid = 300 pounds per cubic foot
- Coefficient of friction = 0.30

Friction between the base of the foundation and underlying soils should be ignored for foundation elements supported on pipe piles.

Slab-on-Grade Support

Slabs-on-grade can be supported directly on native lodgement till sediments or on a minimum of 2 feet of new structural fill placed above existing fill that has been recompacted to a firm and unyielding condition. All fill placed beneath the slab must be compacted to at least 95 percent of ASTM D-1557. Interior floor slabs should be cast atop a minimum of 4 inches of washed crushed "chip rock" to act as a capillary break. It should also be protected from dampness by an impervious, 15-mil (minimum thickness) plastic sheeting placed atop the capillary break specifically designed for use as a moisture barrier.

CLOSURE

We appreciate the opportunity to have been of service to you on this project. Should you have any questions, or require additional information, please do not hesitate to call.

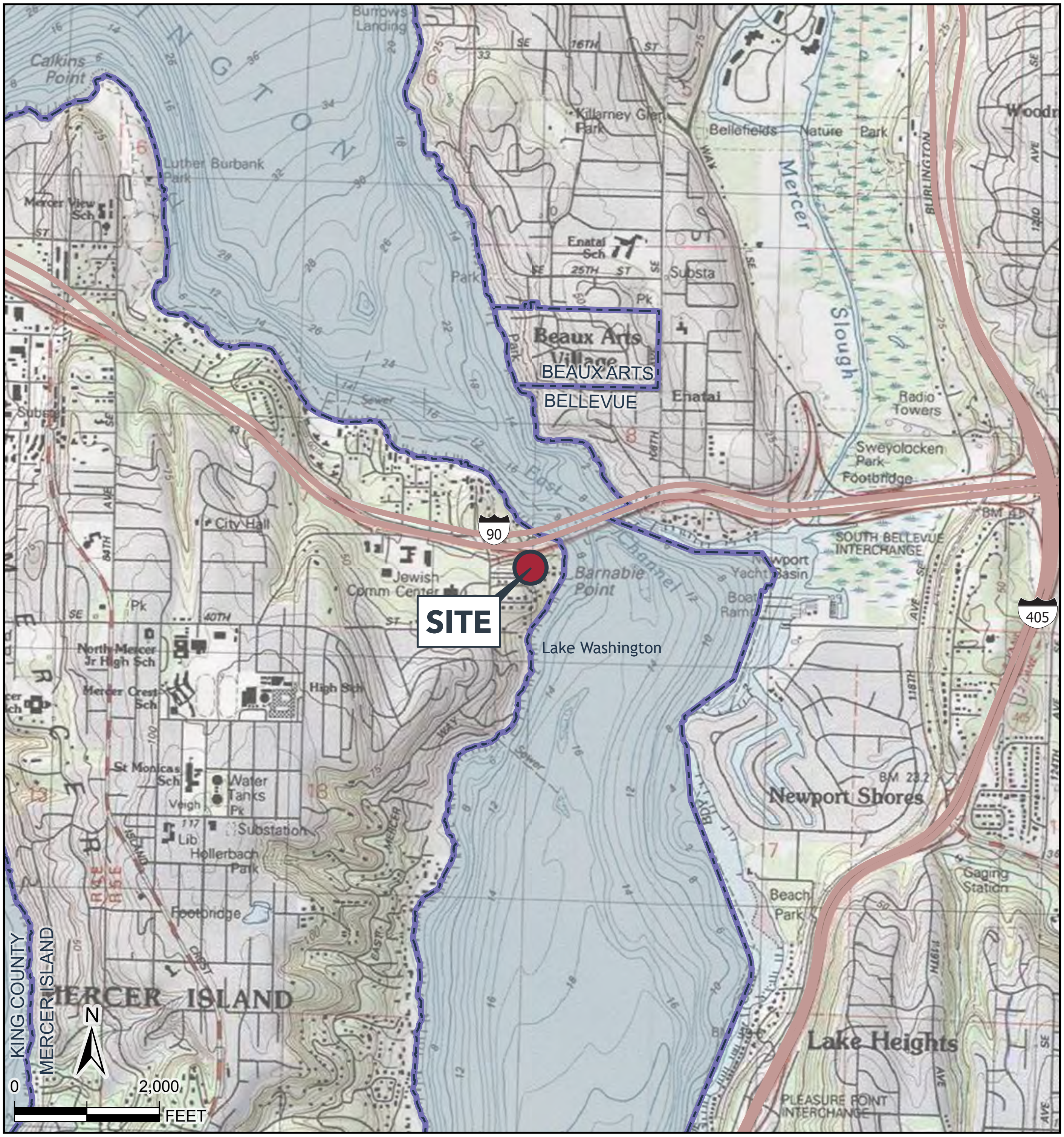
Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Brendan C. Young, L.G.
Senior Staff Geologist

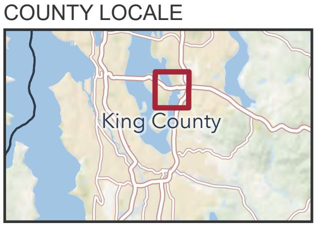
Kurt D. Merriman, P.E.
Senior Principal Engineer

G. Bradford Drew, P.E.
Senior Engineer

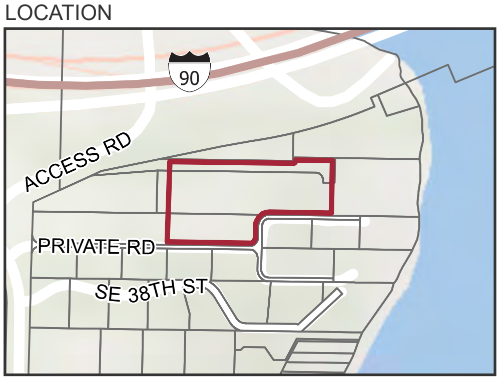
Attachments: Figure 1: Vicinity Map
Figure 2: Existing Site and Exploration Plan
Appendix A: Exploration Logs



COUNTY LOCALE



LOCATION



ESRI, USGS, NATIONAL GEOGRAPHIC, DELORME, NATURALVUE, I-CUBED, GEBCO: ARCGIS ONLINE BASEMAP. WADOT STATE ROUTES 24K (12/20). KING CO: PARCELS (4/23), ROADS (5/23).

NOTE: LOCATION AND DISTANCES SHOWN ARE APPROXIMATE. BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

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VICINITY MAP

HERZL-NER TAMID CONSERVATIVE CONGREGATION
PRESCHOOL RENOVATIONS AND DECK ADDITION
MERCER ISLAND, WASHINGTON

PROJECT NO.	DATE	FIGURE
20210371E001	12/23	1

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LEGEND

- SITE
- PROJECT AREA
- EXPLORATION BORING
- CONTOUR 10 FT
- CONTOUR 2 FT
- PARCEL

DATA SOURCES / REFERENCES:
WADNR WGS: WA LIDAR PORTAL, KING CO. 2021, USGS 3DEP
GRID CELL SIZE 1.5', FLOWN 4/2021
CONTOURS DERIVED FROM LIDAR

KING CO: STREETS, PARCELS, 4/23
AERIAL PICTOMETRY INT. 2021

LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE

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BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION

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EXISTING SITE AND EXPLORATION PLAN

HERZL-NER TAMID CONSERVATIVE CONGREGATION
PRESCHOOL RENOVATIONS AND DECK ADDITION
MERCER ISLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
20210371E001	12/23	2

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APPENDIX A

Exploration Logs

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Exploration Boring EB-1

Herzl-Ner Tamid Conservative Congregation Preschool — Sheet: 1 of 1

Mercer Island, WA	Start Date: 12/8/23	Logged By: BCY
20210371E001	Ending Date: 12/8/23	Approved By: CMM

Driller/Equipment: Geologic Drill Partners/Mini Track
Hammer Weight/Drop: 140#/30"
Hole Diameter (in): 6
Groundwater Depth ATD (ft): Not encountered

Total Depth (ft): 15
Ground Surface Elevation (ft): 70
Datum: NAVD88
Groundwater Depth Post Drilling (ft) (Date): ()

Depth (ft)	Sample Type	Sample	% Recovery	Graphic Symbol	Description	Water Level	Blows/6"	Blows/Foot (10 20 30 40 50+)	Other Tests
0					**Fill** Slightly moist, brown to dark brown, silty, fine to medium SAND, some gravel; occasional organics (SM).				
2.5		1			Slightly moist to moist, grayish brown with minor oxidation staining in upper 6 inches, silty, fine SAND, trace to some gravel; scattered organics (SM).		13 18 31	49	
					Vashon Lodgement Till				
5		2			Slightly moist, brownish gray, silty, fine SAND, some gravel; unsorted; diamict texture (SM). Driller notes gravel at 6 feet.		21 27 36	63	
7.5		3			As above.		11 21 21	42	
10		4			Slightly moist, brownish gray, silty, fine SAND, some gravel; unsorted; broken gravel in spoon; blow counts may be assorted (SM).		29 50/6"	50/6"	
12.5									
		5			As above. Driller notes refusal due to hard drilling.		30 50/6"	50/6"	
15					No groundwater encountered.				
17.5									

12/27/2023
20210371E002

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Exploration Boring EB-2

Herzl-Ner Tamid Conservative Congregation Preschool			Sheet: 1 of 1
Mercer Island, WA	Start Date: 12/8/23		Logged By: BCY
20210371E001	Ending Date: 12/8/23		Approved By: CMM

Driller/Equipment: Geologic Drill Partners/Mini Track
Hammer Weight/Drop: 140#/30"
Hole Diameter (in): 6
Groundwater Depth ATD (ft): Not encountered
Total Depth (ft): 10.5
Ground Surface Elevation (ft): 67
Datum: NAVD88
Groundwater Depth Post Drilling (ft) (Date): ()

Depth (ft)	Sample Type	Sample	% Recovery	Graphic Symbol	Description	Water Level	Blows/6"	Blows/Foot	Other Tests
0		1			**Fill** Moist, brown mixed with dark brown and some minor oxidation staining, silty, fine to medium SAND, some gravel; abundant organics (roots/rootlets) (SM).		1 3 10	13	
2.5		2			Moist, dark brown, silty, fine SAND, some gravel; scattered organics (thinning with depth); color change to tan and light brown in tip of sampler (SM).		3 7 18	25	
5		3			**Vashon Lodgement Till** Driller notes heavy gravel chatter at 5 feet. Slightly moist, brown, silty, fine to medium SAND, some gravel; diamict texture (SM).		16 27 23	50	
7.5		4			Slightly moist, brownish gray, silty, fine to medium SAND, some gravel; unsorted (SM).		31 50/6"	50/6"	
10		5			As above. Driller notes refusal due to hard drilling.		50/6"	50/6"	
					No groundwater encountered.				
12.5									
15									
17.5									

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