CITY OF
MUKILTEO

REQUEST FOR COMMENTS

DATE: September 20, 2016

X	Alderwood Water District – Dan Sheil /Lauren Balisky		Puget Sound Clean Air Agency (Beth Carper)
	Burlington Northern Santa Fe Railway (Marvinique Hill)	X	Puget Sound Energy (Dom Amor)
	City of Edmonds (Rob Chave)		Puget Sound Regional Council
	City of Everett (Allan Giffen)		Seattle Dist. Corps of Engineers (Dept. Army-Reg. Branch)
	City of Everett (Steve Ingalsbe)	X	Snohomish Co. Airport/Paine Field (A. Rardin/B. Dolan)
	City of Lynnwood (Paul Krauss)		Snohomish Co. Assessor's Office ***(Ordinances Only)***
	City of Mill Creek (Tom Rogers)		Snohomish Co. Conservation District
X	City of Mukilteo (Building Official)		Snohomish Co. Environmental (Cheryl Sullivan)
X	City of Mukilteo (Fire Chief)		Snohomish Co. Fire District #1 (Kevin Zweber)
X	City of Mukilteo (Fire Marshal)		Snohomish Co. Marine Res. Comm. (Kathleen Herrmann)
X	City of Mukilteo (Engineering "In-Box")		Snohomish Co. Planning & Dev. Srvc. (Darryl Easton)
X	City of Mukilteo (Com. Dev. Dir.)**(Postcard/Notice only)**		Snohomish Co. Public Works (Deb Werdal)
X	City of Mukilteo (police Chief, Cheol Kang, Colt Davis)	X	Snohomish Co. PUD: Dist. Eng. Services (Mary Wicklund)
X	Comcast of Washington (Casey Brown)	X	Snohomish Health District (Bruce A. Straughn)
X	Community Transit (Kate Tourtellot)	X	Sound Transit Authority (Perry Weinberg)
	Dept. of Commerce (Growth Mgmt. Svcs Rev. Team)	X	Tulalip Tribes
	Dept. of Natural Resources (James Taylor)	X	Tulalip Tribes – (Richard Young)
	FAA/Air Traffic Division, ANM-0520 (Daniel Shoemaker)	X	United States Postal Service (Soon H. Kim)
	FEMA (John Graves)	X	Verizon Company of the NW, Inc. (Tim Rennick.)
	Island County MRC (Rex Porter) (*Shoreline Only)*	X	Washington Dept. of Ecology (Peg Plummer)
	Master Builders King/Sno. Counties (Jennifer Anderson)		Washington Dept of Fish & Wildlife (Jamie Bails)
X	Mukilteo Beacon (Editor) **(Postcard/Notice only)**	X	WSDOT (Scott Rodman)
	Mukilteo School District (Cindy Steigerwald)	X	WSDOT (Ramin Pazooki)
X	Mukilteo School District (Josette Fisher)		WSDOT Ferries(Kojo Fordjour) (*Shoreline Only)*
X	Mukilteo Tribune (Editor) **(Postcard/Notice only)*)***		WRIA 7 Water Resources
	Mukilteo Water & Wastewater District (Jim Voetberg, Manager; Rick Matthews; Jodi Kerslake)	X	Planning Commission ***(Postcard Only)***
	National Marine Fishery Service	X	Adjacent Property Owners
X	Office of Archaeology & Historic Pres. (Allyson Brooks)	X	Applicant/Contact Person ***(Notice Only)***
	Ogden, Murphy, Wallace (Angela Belbeck) ***(Ordinances Only)***	X	Parties of Interest
	Pilchuck Audubon Society (Karen Snyder)		Parties of Record
	Port of Everett (Graham Anderson)	X	Property Owners within 300' ***(Postcard/Notice Only)***
			Other:

FILE NO.: PPR 2016-008

PROPONENT: J.A. Bredal Architect on the behalf of Ron Honeycutt

PROJECT NAME: Honeycutt Manufacturing

PROJECT DESCRIPTION: Construction of a 9,000 square foot building with associated grading, parking, landscaping and frontage improvements located in the Light Industrial (LI) zone.

FILE NO: PPR 2016-008

PROPONENT: J.A. Bredal Architect on the behalf of Ron Honeycutt

PROJECT NAME: Honeycutt Manufacturing

ATTACHED IS:

X	Notice of Application		Plat Map (Reduced)
	DNS ( )	X	Site Plan (Reduced)
X	Environmental Checklist	X	Location Map
X	Application		Vicinity Map
X	Narrative Statement(s)	X	Geotechnical Report

NOTE: _____

_____

****

Please review this project as it relates to your area of concern and return your comments with this cover sheet by, Friday, October 7, 2016 to Linda Ritter, Senior Planner, City of Mukilteo, 11930 Cyrus Way, Mukilteo, WA 98275.

Linda Ritter
Senior Planner

9/20/16
Date

****

RESPONSE SECTION:

_____ Comments Attached _____ No Comments

COMMENTS: _____

_____

_____ _____
Signature Date

_____
Company

DO YOU WANT A COPY OF OUR NOTICE OF DECISION ***YES __ NO __***

CITY OF MUKILTEO

11930 Cyrus Way
Mukilteo, WA 98275
(425) 263-8000

Notice of Application
for Honeycutt Manufacturing Facility at 12414 Evergreen Drive by J.A. Bredal Architect on behalf of Ron Honeycutt

J.A. Bredal Architect on the behalf of **Ron Honeycutt** applied for a Project Use Permit with the City of Mukilteo on September 9, 2016. The application became complete on September 9, 2016. This application and all supporting documents are available at City Hall for public viewing. (File No. PPR-2016-008).

Description of Proposal: Construction of a 9,000 s.f. building with associated grading, parking, landscaping, and street frontage improvements. SEPA review is required due to the grading amounts over 1,000 cubic yards.

Location of Proposal: EVERGREEN MANOR NO 2 BLK 000 D-01 - TH PTN LOT 20 LY NLY OF FDL - BEG MOSTELY COR SD LOT 20 TH NWLY ALG R/W OF EVERGREEN DR 85.02FT TPB SD LN TH S65*58 40W TAP ON SWLY LN SD LOT S24*01 20E 75FT FR MOST WLY COR SD LOT &END SD LN; otherwise known as 12414 Evergreen Drive, Mukilteo, Washington.

Environmental Documents Prepared for the Proposal:

- Environmental Checklist
- Geotechnical Engineering Report prepared by Zipper Geo Associates, LLC dated August 25, 2016

List of Required Permits:

- Project Permit
- Engineering Permit
- Building Permit
- Any State and Federal Permits if applicable

Applicable Policies and Requirements

The project will be reviewed for consistency with the following policies, standards and regulations:

- ☐ Possession Shores Master Plan
- ☒ Comprehensive Plan, Shoreline Master Plan
- ☒ International Building Code (2015 Edition)
- ☒ International Fire Code (2015 Edition)
- ☐ Sector Plan & Amendments
- ☒ Mukilteo Municipal Code
- ☒ City of Mukilteo Development Standards

Comment Period
The application and supporting documents are available for review at the City of Mukilteo, 11930 Cyrus Way, Mukilteo, WA 98275. Contact: Linda Ritter, Senior Planner at (425) 263-8043. The public is invited to comment on the project by submitting written comments to the Planning Department at the above address by 4:30 p.m. on the date noted below.

Notice of Application Issued: Friday, September 23, 2016

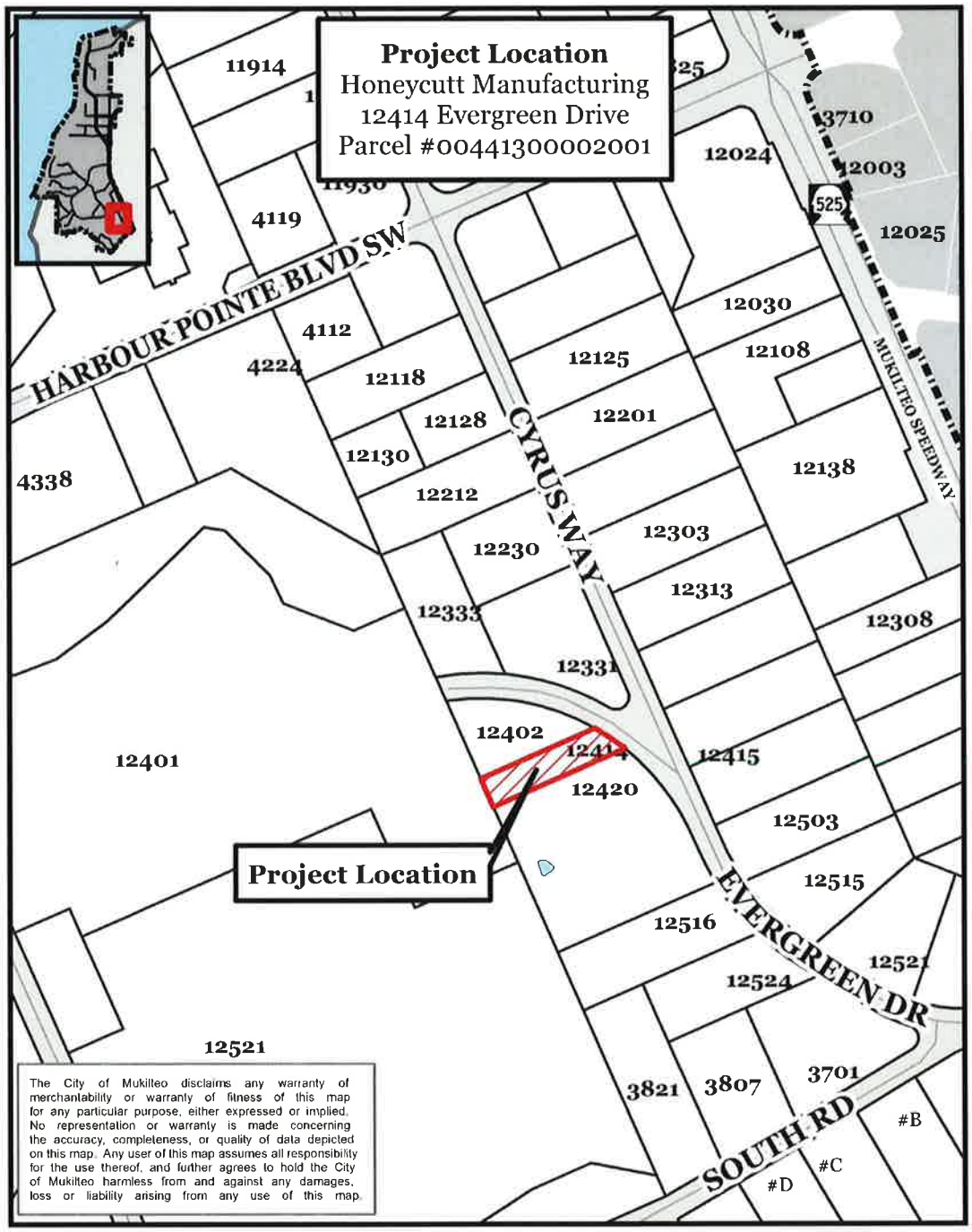
End of Comment Period: Friday, October 7, 2016

The City will not act on this application until the end of the 14-day public comment period. Upon completion of project review the proposed application will be administratively approved, approved with conditions, or denied. You may request a copy of the final decision on the project by making a written request to the City contact person named below.

Appeals
The final decision on this project is administratively appealable. An appeal must be filed within 14 days after the final decision on the project is issued. Only persons who file written comments on the project in response to the Notice of Application are considered parties of record who may appeal the decision. If you do not file written comments within the comment period, you may not appeal the final decision.

Contact Person: Linda Ritter, Senior Planner (425) 263-8043

Signature: Linda Ritter Date: 9/20/16
Linda Ritter, Senior Planner



Location Map

Date Issued: Friday, September 23, 2016
Date Advertised: Friday, September 23, 2016
End Comment Period: Friday, October 7, 2016

pc: Applicant/Representative
Property own. w/i 300 ft.
Interested Parties
Planning Director
Management Services Director
Permit Services Supervisor
Permit Services Technicians (2)
File Copy (2)

Date stamp

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SEP 09 2016
CITY OF MUKILTEO

CITY OF MUKILTEO

11930 Cyrus Way Mukilteo, WA 98275
Fax (425) 212-2068

PPR # _____
SEPA # _____
Misc # _____

Land Use Permit Application

Applicant:	U.A. BREDAL ARCHITECT	Owner:	REN HONEYCUTT
Address:	3736 SMUGGLERS CV. RD. GREENBANK, WA 98253	Address:	12402 EVERGREEN DR MUKILTEO WA 98275
Phone:	206 715 6881	Phone:	425 493 0525

Project Address: 12414 EVERGREEN DR MUKILTEO, WA 98275

Legal Description of Property: REFER TO ATTACHED DOCUMENT

Key Contact Person: U.A. BREDAL ARCHITECT Phone: 206 715 6881

Fax: _____

Project Type:

- ☒ Commercial
- ☐ Multi-Family
- ☐ Industrial
- ☐ Shoreline* (JARPA)
- ☐ Conditional Use*
- ☐ Variance*
- ☐ Preliminary Subdivision*
- ☐ Final Subdivision*
- ☐ Preliminary Short Plat*
- ☐ Final Short Plat*
- ☐ Sector Plan Amendment
- ☐ Waterfront Development
- ☐ Single Family Residence
- ☐ Special Use Permit*
- ☐ Reasonable Use
- ☐ Lot Line Adjustment*
- ☐ Grading*
- ☐ Binding Site Plan
- ☐ Project Rezone
- ☐ Other, Specify_____

* Need to fill out supplemental application form with project.

Project Resume:

Existing Use: STORAGE (OUTDOOR) Proposed Use: MANUFACTURING

Total Site Area: 23,299 SF Water District: ALDERWOOD

Building Foot Print Area: 9000 SF Sewer District: ALDERWOOD

BUILDING Lot Coverage: 38.62 % # of Proposed Units: 0

BUILDING + PAVING: 99.06%

No. of Parking Stalls Provided: 21 Building Height: 23'-5"

Comp Plan Designation: LI LIGHT INDUSTRIAL Zoning: LI LIGHT INDUSTRIAL

Gross Floor Area by Uses: 9000 MANUFACTURING

Electric Vehicle Charging Units Provided: Yes ___ No X If Yes, How Many? _____

Solar Panels being installed: Yes ____ No. X If Yes, How Many

Pre-application Meeting Held: (Y/N; date) MARCH 3, 2016

The information given is said to be true under the penalty of perjury by the laws of the State of Washington.

U.A. Bredal Architect — **Applicant/Authorized Agent Signature**

09 SEPT. 2016 — **Date**

_____ — **Owners Signature**

9-9-16 — **Date**

Pacific Engineering Technologies INC.
1700 Westlake Avenue North - Suite 100 Seattle, Washington 98109
Telephone: (206) 281-7500 Facsimile: (206) 281-4611
Nationwide: (800) 621-7300

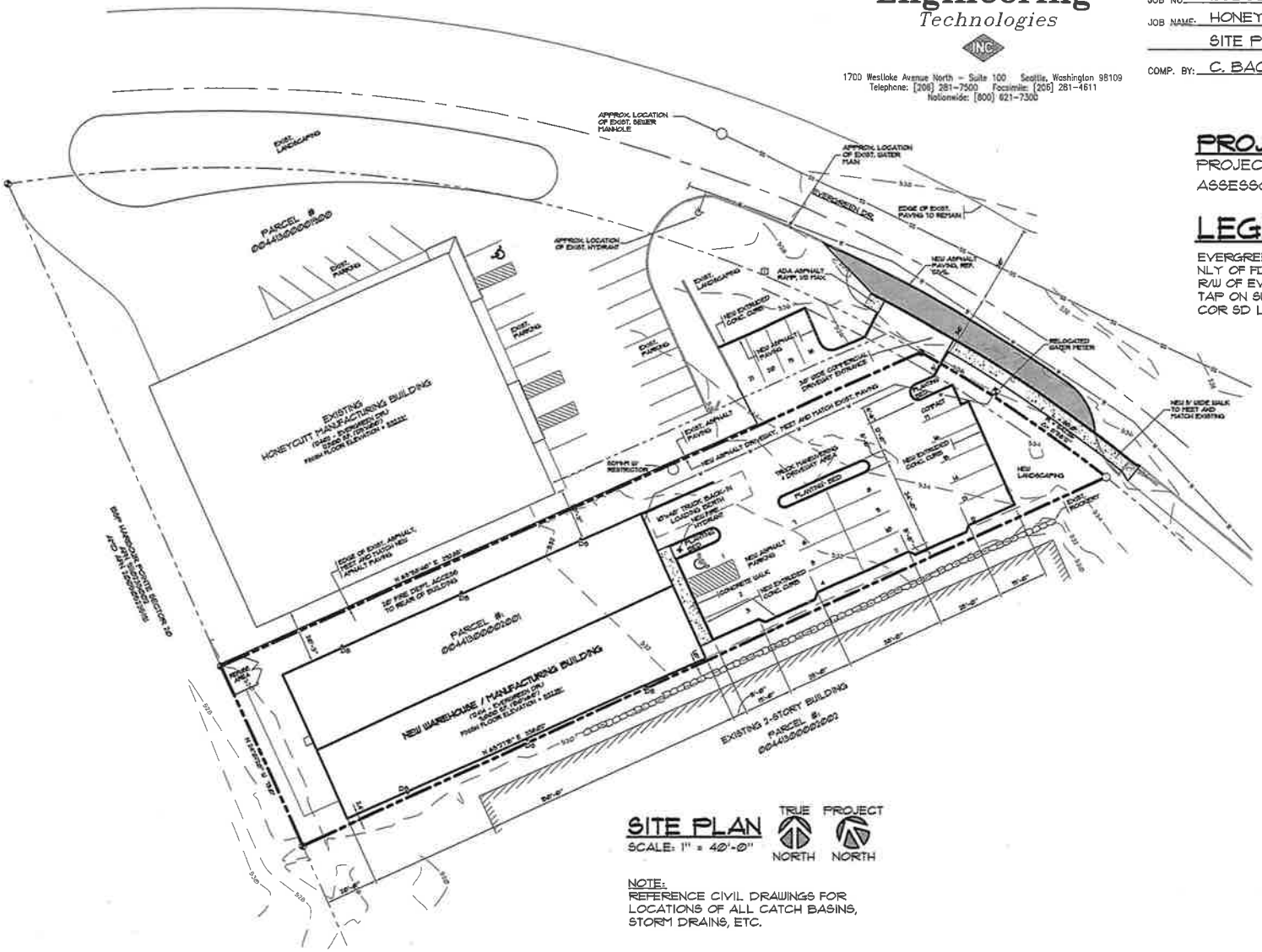
JOB NO. 15306.00 SHEET ____ OF ____
JOB NAME: HONEYCUTT MANUFACTURING
SITE PLAN
COMP. BY: C. BACUS DATE 9 SEPT., 2016 CHK. BY M.P.S.

PROJECT INFORMATION:

PROJECT ADDRESS: 12402 - EVERGREEN DR.
ASSESSOR'S No.: 0044130000201

LEGAL DESCRIPTION

EVERGREEN MANOR NO.2 BLK 000D-1-TH PTN LOT 20 LY NLY OF FDL-BEG MOSTELY COR SD LOT 20 TH NWLY ALG R/W OF EVERGREEN DR 85.02 FT TPB SD LN TH S 65 40 W TAP ON SWLY LN SD LOT S 24 01 20 E 75 FT FR MOST WLY COR SD LOT & END SD LN



SITE PLAN

SCALE: 1" = 40'-0"

TRUE NORTH PROJECT NORTH

NOTE:
REFERENCE CIVIL DRAWINGS FOR LOCATIONS OF ALL CATCH BASINS, STORM DRAINS, ETC.

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SEP 09 2016
CITY OF MILTON

15306.wd.A1.dwg

Project Narrative

The purpose of these drawings is to indicate the construction of a new pre-fabricated steel framed F2 – Low Hazard manufacturing building.

The project also includes new asphalt paving and onsite parking for (21) vehicles and a truck loading space.

In addition a new storm drainage system shall be provided that includes catch basin(s), a drainage chamber, a restrictor vault and a water quality man hole.

CITY OF MUKILTEO

11930 Cyrus Way, Mukilteo, WA 98275
(425) 263-8000
Fax (425) 212-2068

ENVIRONMENTAL CHECKLIST

PURPOSE OF CHECKLIST

The State Environmental Policy Act (SEPA), Chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

INSTRUCTION FOR APPLICANTS

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply". Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

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.

USE OF CHECKLIST FOR NONPROJECT PROPOSALS

Complete this checklist for non-project proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (PART D).

For non-project actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

Part Eleven WAC 197-11-960 Environmental Checklist

CITY OF MUKILTEO
ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. **Honeycutt Manufacturing**

2. **Mr. Ron Honeycutt**

3. **12402 Evergreen Drive**
   Mukilteo, Washington 98275

4. Date checklist prepared:

   May 20, 2016 (revised August 19, 2016)

5. Agency requesting checklist:

   City of Mukilteo

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

   It is the intent of the applicant to begin construction after obtaining the required permits and approvals on or about mid-October 2016.

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

   Not at this time.

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

   None are known.

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:

   No other applications are pending at this time.

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

    Commercial building permit, Mechanical permit, Electrical permit.

Part Eleven WAC 197-11-960 Environmental Checklist

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 proposed development consists of the construction of a 9,000 s.f., one-story, pre-manufactured steel building. (60' x 150'). The building will be used for manufacturing metal parts for the aircraft industry.

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:

Project address: 12402 Evergreen Drive Mukilteo, WA 98275. ASSESSORS PARCELL No. 00441300002001. Zone LI-light Industrial. Legal Description Refer to Appendix No. 1 Site Plan Refer to Appendix No. 2.

TO BE COMPLETED BY APPLICANT: EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS:

1. EARTH

a. General description of this site (circle one) (Flat), rolling, hilly, steep slopes, mountainous, other _____: ❑

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

1.4%

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 prime farmland: ❑

The site and vicinity are under lain by Vashon lodgement glacial till. The till typically consists of silt, sand, gravel, cobbles and boulders. There are no farmland soils in the vicinity of the site.

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

No.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

e. Describe the purpose, type and approximate quantities of any filling or grading proposed. Indicate source of fill: ❑

Grading will consist of excavating the site for a 9,750 cu. ft. storm drain infiltration tank, a 170 lin. ft. storm drain line and 50 lin. ft. dispersion trench. Foundation excavation of 800 cu. ft.

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

No. During construction remedial measures such as hay bales and filter fences will control erosion.

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

83.5%.

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

Post construction erosion will be controlled by the onsite storm water system consisting of a drainage detention tank, catch basins and a dispersion trench. There also will be a landscaped area at the street frontage.

2. AIR

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known: ❑

There may be some dust emissions during the site preparation and grading phase of the project. The dust disturbed by grading activity will be mitigated with watering trucks. There will be minor exhaust emissions from the trenching and grading equipment.

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

None are known.

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

Watering trucks during trenching and grading.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

3. WATER

a. Surface:

(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: ❑

There is no surface water body in the vicinity of the project. There is a woodland area adjacent to the site on the Western property line.

(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: ❑

Fill or dredge material will not be placed or removed from the surface water or wetlands. None are in the vicinity of the project site.

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

It is not anticipated that ground water withdrawal or diversions will occur, based on the geotechnical report.

(5) Does the proposal lie within a 100-year flood plain? If so, note location on the site plan: ❑

The site is not located in a flood plain.

(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: ❑

None are anticipated.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

b. Ground:

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known: Ground water withdrawal is not expected to occur. ❑

If encountered during footing excavation and site development, ground water shall be pumped and recharged into the ground and/or hauled away to an approved disposal site.

(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. ❑

The site is served by the municipal sanitary sewer system. The new building will have two restrooms. The manufacturing activity does not generate or produce the discharge of chemicals.

c. Water Runoff (including storm water):

(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: ❑

Run off from the new roof and parking areas shall drain into an underground conveyance system that flows to an onsite detention system. The detention system shall infiltrate the majority of the developed run off to drain into an emergency over flow system along the West boundary of the site.

(2) Could waste materials enter ground or surface waters? If so, generally describe: Waste will not enter ground or surface waters. ❑

Waste materials will not enter the ground or surface waters.

d. Proposed measures to reduce or control surface, ground and runoff water impact, if any: ❑

The development proposes to control surface water runoff with an onsite storm water detention tank and dispersion trench.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

4. PLANTS

a. Check or circle types of vegetation found on the site: ❑

___ Deciduous tree: alder, maple, aspen, other
___ Evergreen tree: fir, cedar, pine, other
___ Shrubs
X **Grass**
___ Pasture
___ Crop or grain
___ Wet soil plants: cattail, buttercup, bulrush, 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? ❑

The site is mostly covered with gravel. Some grass will be removed for onsite vehicle parking. A planting strip will be provided at the street frontage.

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

There are no threatened or endangered species on or near the site.

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

A planting area will be located at the street frontage.

5. ANIMALS

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site: ❑

Local bird species are present in the adjacent greenbelt and woodlands.

Birds: hawk, heron, eagle, **songbirds**, other:
Mammals: deer, bear, elk, beaver, other:
Fish: bass, salmon, trout, herring, shellfish, other:

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

None are known to exist.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

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

The site is not part of a wildlife migration route.

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

Since wildlife is not present on the site there are no measures to preserve wildlife.

6. ENERGY AND NATURAL RESOURCES

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. ❑

Electricity will be used for building lighting and for the manufacturing equipment. Building heat will be provided by natural gas.

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

No.

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: ❑

Energy efficient lighting fixtures. Building envelope thermal insulation in accordance with the current energy code.

7. ENVIRONMENTAL HEALTH

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: ❑

Toxic chemicals and flammable materials are not used in the manufacturing process in the proposed building.

(1) Describe special emergency services that might be required: ❑

None are anticipated.

(2) Proposed measures to reduce or control environmental health hazards, if any: ❑

None are anticipated or proposed.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

b. Noise:

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

Adjacent and local uses do not generate significant noise that will be detrimental to the proposed project.

(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. ❑

Minor noise will be generated during construction. Noise generated in the long term is not anticipated in that the manufacturing equipment does not generate significant noise.

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

None are anticipated.

8. LAND AND SHORELINE USE

a. What is the current use of the site and adjacent properties? ❑

The site is currently used as an outdoor storage lot. There also is an existing residence and a storage shed. On the adjacent site to the North there is a manufacturing building. A religious facility is located to the South and a manufacturing building is located on the West side of the subject site.

b. Has the site been used for agriculture? ❑

No.

c. Describe any structures on the site: If so, describe: ❑

There is an existing vacant residence and a storage shed.

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

Yes. The residence and the storage shed.

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

LI-Light Industrial.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

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

LI-Light Industrial.

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

Not applicable.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify: ❑

No.

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

Approximately 12 to 17 people will work at the building upon completion.

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

None.

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

None.

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

The site is zoned LI-light industrial. Manufacturing is permitted outright in this zone.

9. HOUSING

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

Housing is not in the development scope.

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

None.

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

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

None are proposed.

10. AESTHETICS

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

The roof ridge is 28'- 4" above grade. Metal siding is the principal exterior material.

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

None.

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

Installation of a planting area at the street frontage.

11. LIGHT AND GLARE

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

The exterior of the building (metal siding) does not generate reflected glare during daylight hours.

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

No.

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

The existing off-site occupancies do not generate detrimental glare due to the existing woodlands and muted building materials.

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

None are proposed.

12. RECREATION

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

None are known to exist.

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

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

No.

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

None are proposed.

13. HISTORIC AND CULTURAL PRESERVATION

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe: ❑

None are present.

b. Generally, describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site: ❑

Historic landmarks are not present at the site.

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

None are proposed.

14. TRANSPORTATION

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any: ❑

The site is accessed by Evergreen Drive which connects to Cyrus Way which eventually intersects with the Mukilteo Speedway.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? ❑

The site is not served by public transit.

c. How many parking spaces would the completed project have? How many would the project eliminate? None will be eliminated. ❑

The site will have 17 new parking stalls. An additional 4 stalls are planned to be provided on the adjacent site, which is also owned by the applicant.

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

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

Curb and sidewalk improvements are planned at the street frontage.

e. Describe the existing condition of the proposed access road, including width of easement, width of pavement or roadway, curbs, gutters, and/or sidewalks. ❑

Evergreen Drive is an existing 60 ft. wide right of way. The road is paved with asphalt. There is an existing sidewalk located to the South of the subject development. A new sidewalk fronting the project site will connect to, meet and match the existing sidewalk.

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

None will be used.

g. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur. ❑

Approximately 12-17 vehicle trips will occur two times a day during working hours.

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

Promote employee carpooling.

15. PUBLIC SERVICES

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe: The project will not increase the need for increased public services in that the development is in an area of existing businesses that are currently being supported by public services. ❑

A new fire suppression system and a new fire hydrant is proposed to serve the site - enhancing fire protection.

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

None are planned.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

16. UTILITIES

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: ❑

New electrical service. Connection to the city sanitary sewer system. Connection to natural gas service.

C. SIGNATURE

The information and answers provided in the Environmental Checklist (including Supplement for Non-project Actions, if applicable) 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: J.A. Bredal ARCHITECT

Date Submitted: 9.9.16

Agency Evaluation completed by: _____ Date: _____

Note: boxes (❑) are checked to indicate agency review of items in checklist.

Part Eleven WAC 197-11-960 Environmental Checklist

SUPPLEMENT FOR NON-PROJECT ACTIONS

(Do Not Use This Sheet for Project Actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise? ❑

   The project will not increase; discharge to water, emissions to air quality, release of toxic or hazardous substances or produce noise.

   Proposed measures to avoid or reduce such increases are: ❑

   A new storm water drainage and detention system will control and reduce the discharge of storm water. The manufacturing equipment does not generate significant noise and the manufacturing process does not produce toxic or hazardous substances.

2. How would the proposal be likely to affect plants, animals, fish or marine life? The project will not affect plants, animals, fish or marine life. ❑

   Plants or wildlife do not exist on the site except for the street frontage landscaping.

   Proposed measures to protect or conserve plants, animals, fish, or marine life are: ❑

   None are proposed.

3. How would the proposal be likely to deplete energy or natural resources? ❑

   The project will not consume more energy than other manufacturing uses in the vicinity.

   Proposed measures to protect or conserve energy and natural resources are: ❑

   Energy efficient lighting fixtures, efficient natural gas heating, and building envelope thermal insulation in accordance with the current energy code.

Part Eleven WAC 197-11-960 Environmental Checklist

TO BE COMPLETED BY APPLICANT:

EVALUATION FOR AGENCY USE ONLY

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands? ❑

The project will not affect environmentally sensitive or wilderness areas. The site is an existing gravel surfaced outdoor storage lot located in an existing developed industrial zone.

Proposed measures to protect such resources or to avoid or reduce impacts are: ❑

None are proposed.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land uses incompatible with existing plans? The development is located in an existing developed industrial zone and does not impact nor is it located near a shoreline environment. ❑

The proposed development is compatible with the designated zoning uses.

Proposed measures to avoid or reduce shoreline and land use impacts are: ❑

None are proposed.

6. How would the proposal be likely to increase demands on transportation or public services and utilities? ❑

The site is not currently served by public transportation.

Proposed measures to reduce or respond to such demand(s) are: ❑

None are proposed.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment. ❑

The proposed project will not conflict with state or federal laws with respect to environmental protection.

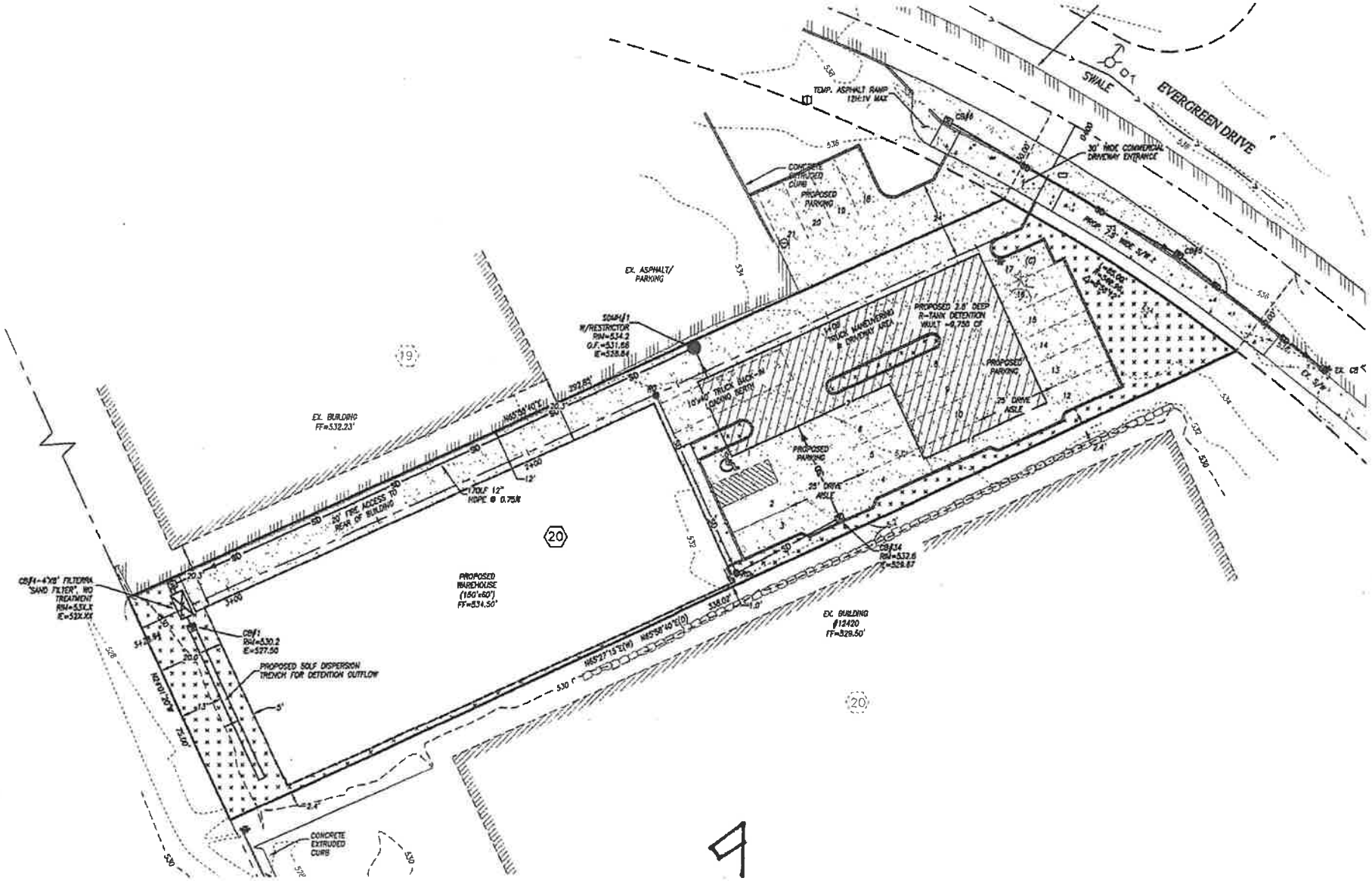
Proposed measures to protect or conserve energy and natural resources are: ❑

Energy efficient lighting fixtures. Efficient natural gas heating. Building envelope thermal insulation in accordance with the current edition of the energy code.

Appendix No. 1

Legal Description

Evergreen Manor No. 2 BLK 000 D-1-TH PTN LOT 20 LY NLY of FDL-BEG MOSTLY COR SD LOT 20 TH NWLY ALG R/W of Evergreen Dr. 85.02 FT TPB SD LN TH S 65* 58' 40" W TAP on SWLY LN SD LOT S 24* 01' 20" E 75 FT MOST WLY COR SD LOT E END SD LN



SITE PLAN
APPENDIX NO.2

GEOTECHNICAL ENGINEERING REPORT

PROPOSED HONEYCUTT MANUFACTURING FACILITY EXPANSION
12414 EVERGREEN DRIVE
MUKILTEO, WASHINGTON

Project No. 1611.01
25 August 2016

Prepared for:
HONEYCUTT MANUFACTURING, INC.

Prepared by:

ZGA

Zipper Geo Associates, LLC
Geotechnical and Environmental Consultants
19023 36th Avenue W., Suite D
Lynnwood, WA 9803

Zipper Geo Associates, LLC
Geotechnical and Environmental Consulting

Project No. 1611.01
25 August 2016

Honeycutt Manufacturing, Inc.
12402 Evergreen Drive
Mukilteo, Washington 98275

Attention: Mr. Ron Honeycutt

Subject: Geotechnical Engineering Report
Proposed Honeycutt Manufacturing Facility Expansion
12414 Evergreen Drive
Mukilteo, Washington

Dear Mr. Honeycutt:

In accordance with your request and written authorization, Zipper Geo Associates, LLC (ZGA) has completed the subsurface exploration and geotechnical engineering evaluation for the proposed expansion of your facility. This report presents the findings of the subsurface exploration and geotechnical recommendations for the project. Our services have been provided in general accordance with our *Scope of Geotechnical Engineering Services and Fee Proposal* (Proposal No. P16165) dated 20 March 2016. Written authorization to proceed was provided by you on 21 March 2016. This report supplements our draft report dated 26 April 2016. We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Zipper Geo Associates, LLC

David C. Williams, LG, LEG
Principal

State of Washington
Engineering Geologist
1172
Licensed Geologist
DAVID C. WILLIAMS

Thomas A. Jones, PE
Managing Principal

THOMAS A. JONES
STATE OF WASHINGTON
29074
REGISTERED
PROFESSIONAL ENGINEER

Copies: Addressee (1 pdf)
Western Engineers & Surveyors (1 pdf)
Pacific Engineering Technologies, Inc. (1 pdf)

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PROPOSED HONEYCUTT MANUFACTURING EXPANSION
12414 EVERGREEN DRIVE
MUKILTEO, WASHINGTON
Project No. 1611.01
25 August 2016

INTRODUCTION

This report documents the surface and subsurface conditions encountered at the site and our geotechnical engineering recommendations for the proposed expansion of the Honeycutt Manufacturing facility. The project description, site conditions, and our geotechnical conclusions and design recommendations are presented in the text of this report. Supporting data including detailed exploration logs and field exploration procedures, results of laboratory testing, and other supporting information are presented as appendices.

Our geotechnical engineering scope of services for the project included a literature review, site reconnaissance, subsurface exploration, laboratory testing, field infiltration testing, geotechnical engineering analysis, and preparation of this report. The subsurface evaluation consisted of completing five exploratory borings (designated B-1 through B-5) and test pit TP-1. The borings extended to depths of approximately 13.5 to 34 feet below the ground surface, while test pit TP-1 extended to a depth of approximately 7 feet.

SITE DESCRIPTION

The project site is a developed commercial/industrial property bordered by other developed properties. The site supports a single-story house, a garage/shop building, some landscaping near Evergreen Drive, and gravel surfacing throughout the balance of the property. The site is immediately southeast of the existing Honeycutt Manufacturing facility. The site is roughly rectangular, oriented northeast-southwest, and has approximate plan dimensions of 75 feet (northwest-southeast) by 293 to 338 feet (northeast-southwest). The project site is shown on the *Site and Exploration Plan*, Figure 1.

The northeastern portion of the site has a very gentle slope downward from Evergreen Drive toward the proposed building location, with elevations ranging from about 536 to 532 feet. The proposed building location, which is currently used for vehicle storage and parking, ranges in elevation from about 530 to 532 feet. A relatively level wooded area on the adjacent Travis Industries property extends for a distance of approximately 50 feet. A cut slope, about 14 to 15 feet high, extends below the level area to the Travis Industries parking lot. The level area supports mature trees and brush and the cut slope lacks surficial evidence of past or current slope instability.

PROJECT UNDERSTANDING

A plan prepared by Western Engineers and Surveyors (dated 2 February 2016) indicates that a new manufacturing facility comprising a single building is proposed for construction in roughly the southwestern half of the property. Vehicle parking and a below-grade stormwater management system are proposed for the northeastern portion of the property, and a stormwater outfall pipe will extend to the southwest to the Travis Industries property. The proposed building's finished floor elevation will be very near that of the adjacent manufacturing building (approximately 532 feet).

We understand that the building will employ metal framing, walls, and roof. Isolated column foundations around the perimeter will likely be connected with grade beams, and interior columns will be present as well. Preliminary indications are that the interior slab-on-grade will be on the order to 12 inches thick as relatively heavy machinery will be installed in the building.

SUBSURFACE CONDITIONS

Regional Geology

According to published geologic maps, the site and vicinity are underlain by Vashon lodgement glacial till. The till typically consists of silt, sand, gravel, cobbles and boulders, is glacially consolidated, and exhibits relatively low compressibility characteristics when unweathered and undisturbed. Undisturbed glacial till is typically well-suited for support of conventional shallow foundations. The till is locally overlain by recessional outwash deposits frequently consisting of normally consolidated sand with a variable silt and gravel content. The developed nature of the site suggests that fill material is present as well, and this was confirmed by our exploratory borings and test pit. The explorations also disclosed relatively low density outwash soils above glacially consolidated soils, suggesting that these materials may have been deposited in a depression, such as a kettle, historically formed in the underlying glacially consolidated soils.

Soil Conditions

The subsurface evaluation for this project included advancing five borings (B-1 to B-5) and test pit TP-1 at the approximate locations shown on the *Site and Exploration Plan*, Figure 1. Descriptive logs of the subsurface explorations and the procedures utilized in the subsurface exploration program are presented in *Appendix A*. A generalized description of soil conditions encountered at the exploration locations is presented below. Detailed descriptions of soils encountered are provided on the descriptive logs in *Appendix A*. We also able observe shallow soil conditions on the portion of the Travis Industries property to the southwest of the project site.

The soil descriptions presented below have been generalized for ease of report interpretation. Please refer to the boring logs for a more detailed soil description. Variations in subsurface conditions may exist in proximity to exploration locations and the nature and extent of such variation may not become evident

until construction. If variations then appear, it may be necessary to reevaluate the recommendations of this report.

Proposed Building Location

Borings B-1, B-2, and B-3 were completed in the proposed building location. The borings disclosed undocumented fill material ranging in depth from approximately 2.5 feet at the boring B-3 location to approximately 12.5 feet at the boring B-1 location. The fill consisted of very loose to medium dense sand, silty sand, and sandy silt with trace to some gravel. Some metal debris was observed within the fill below a depth of 10 feet at the boring B-1 location. The fill thickness increases from the northeast to the southwest. It should be noted that the composition and depth of undocumented fill material may vary significantly over relatively short distances.

Please note that we were informed by Mr. Ron Honeycutt that a former property owner had indicated that some concrete rubble had been buried in the southwestern portion of the property. We did not encounter the rubble at the boring locations.

The fill was underlain by apparent outwash soils consisting of loose to medium dense silty sand with sandy silt horizons and trace to some gravel to depths of approximately 12.5 to 22.5 feet, with the thickness of this deposit increasing from northeast to southwest. The borings were terminated in sandy silt, ranging in consistency from medium stiff to hard.

Stormwater Management/Parking Area

Borings B-4 and B-5 were advanced in the proposed northeast stormwater management and parking area. These borings disclosed approximately 3 feet of very loose to medium dense fill material consisting of sand and silty sand with trace to come gravel and some organics. The fill was underlain by loose to medium dense silty sand with trace to some gravel, which in turn graded to medium stiff to hard sandy silt with trace to some gravel. The fines content (the silt and clay particles passing the US No. 200 sieve) of the soils between depths of approximately 6 and 10 feet (below the base of the proposed stormwater management system) ranged from approximately 37 to 74 percent. Test pit TP-1, which was excavated at the location of the infiltration test completed in the proposed stormwater infiltration facility, disclosed approximately 4 feet of loose to medium dense sand with gravel and a variable silt content. The fill was underlain by medium dense sand with some silt, gravel, and trace cobbles interpreted as glacial till.

Travis Industries Property

Shallow soil conditions observed in the wooded area and cut slope adjacent to the project site consisted of loose gravelly silty sand to a depth of about 18 inches with denser soils below (based on hand probing).

Soil exposed in shallow excavations on the cut slope above the Travis Industries parking lot consisted of silty, gravelly sand and were consistent with weathered glacial till.

Groundwater Conditions

Groundwater was observed in all borings at the time of exploration. Groundwater was observed at depths ranging from approximately 13 to 28.5 feet below grade while drilling at the locations of borings B-1, B-2, and B-3 in the proposed building location, indicating a northeast to southwest groundwater gradient. Groundwater was observed at depths of approximately 8.5 and 12.5 feet at the locations of borings B-4 and B-5, respectively, in the northeastern portion of the site.

Fluctuations in groundwater levels will likely occur due to seasonal variations in the amount of rainfall, surface water runoff and other factors not evident at the time the explorations were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher than indicated on the logs. It has been our experience that seasonal high groundwater in the site vicinity occurs during the spring, and we expect that the observed groundwater depths are at or near the seasonal high.

Summary of Laboratory Testing

Laboratory testing was completed on selected samples obtained from the borings. Testing completed included moisture content, grain size analysis, and a fines content determination (percent passing the US No. 200 sieve). Laboratory testing procedures are summarized in Appendix B and results are presented on the logs in Appendix A as appropriate.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on our subsurface exploration program and associated document review, we conclude that the proposed development is feasible from the geotechnical perspective, contingent on proper design and construction practices and implementation of the recommendations presented in this report. The following paragraphs present generalized descriptions of identified geotechnical concerns of particular interest for this project. More detailed information including recommendations regarding these concerns as well as other general geotechnical recommendations follow this section.

Aspects of the site conditions that will influence design and construction are summarized below on a preliminary basis with detailed discussion presented in the balance of the report.

- The presence of undocumented fill material and normally consolidated outwash soils with an increasing thickness from the northeast to the southwest and glacial till in the cut slope on the adjoining Travis property suggest that a depression, such as a kettle, was present on the site prior to earlier development activity. We reviewed an old US Geological Survey topographic

map that shows a slight expression of a topographic low point near the southwestern portion of the property. Review of a grading plan for the adjoining Travis Industries property to the southwest indicates that the depression did not extend onto the Travis property.

- The nature of undocumented fill is such that its composition and depth may vary over relatively short distances. The density of some of the fill is relatively low, and some foundation and floor subgrade improvement is recommended in order to reduce the likelihood of post-construction building settlement.

- The extent of undocumented fill material that is considered not suitable to leave in place below the proposed building or parking area may not become apparent until construction. It would be prudent to provide a contingency in the project construction budget for removal of unsuitable materials and importation and placement of imported structural fill.

- Liquefaction analysis results indicate that the lower density soils below the water table are susceptible to liquefaction and consolidation of these soils, and some seismic settlement of the overlying loose soils, would theoretically occur during the 2012 IBC design seismic event. We anticipate that the potential total and differential settlements associated with the seismic event could be accommodated by the proposed building.

- The native soils have a relatively high fines content and increasing density with depth. However, some degree of infiltration, albeit low, appears feasible from the geotechnical perspective.

Geotechnical engineering recommendations for foundation systems and other earthwork related phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendix A and B, respectively), engineering analyses, and our current understanding of the proposed project. ASTM and Washington State Department of Transportation (WSDOT) specification codes cited herein respectively refer to the current manual published by the American Society for Testing & Materials and the current edition of the *Standard Specifications for Road, Bridge, and Municipal Construction,* (Publication M41-10).

Regulated Geologic Sensitive Areas

Section 17.52A.020 of the Mukilteo Municipal Code (MMC) *Designation of geologic sensitive areas* indicates that regulated geologic sensitive areas include erosion hazards; landslide hazards; steep slopes; seismic hazards; areas having soil types that fall within Soil Category II or III per the 1976 *Preliminary Geologic Map of the Mukilteo and Everett Quadrangle, Snohomish County, Washington*, and areas that are subject to tsunami wave action. The presence or absence of regulated geologic sensitive areas is summarized below.

Erosion Hazard

According to mapping accessed from the US Department of Agriculture National Resource Conservation Service (NRCS), the site and vicinity are underlain by soils meeting the Everett very gravelly sandy loam, 15 to 30 percent slope characterization. These soils are described as presenting a slight to moderate erosion hazard for slopes up to 25 percent inclination. The site itself lacks slopes this steep, and does not meet the MMC criteria for an erosion hazard.

Steep Slopes & Landslide Hazard

The site itself is either level or very gently sloping and does not meet the MMC criteria for a steep slope (40 percent or steeper inclination and greater than 10 feet of relief). The project site does not the MMC criteria for a potential landslide hazard.

Seismic Hazard

The MMC defines a seismic hazard as an area subject to liquefaction due to soil type and/or location or seismically-induced ground disturbance such as surface rupture, fissuring, and lateral spreading. The site is underlain by glacial till, a glacially consolidated soil characterized by a high density, overlain by loose to medium dense native and fill soils and groundwater is perched above the low permeability glacial till. Based upon our analysis, the southwestern portion of the site meets the MMC criteria for a seismic hazard in that there is the potential for liquefaction to occur during the 2012 IBC design seismic event.

Liquefaction is a phenomenon wherein saturated cohesionless soils build up excess pore water pressures during earthquake loading. Liquefaction typically occurs in loose soils, but may occur in denser soils if the ground shaking is sufficiently strong. The potential hazardous impacts of liquefaction include liquefaction-induced settlement and slope instability. ZGA completed a liquefaction analysis for the 2012 IBC design earthquake which has a 2 percent probability of exceedance in 50 years (2,475 year return period).

Our liquefaction analyses for the proposed development was based on conditions observed at the locations of borings B-1 and B-3 and site-specific laboratory test results. In general, site soils encountered within potential liquefaction depths for this evaluation included medium dense silty sand and medium stiff silt with trace to some sand below the observed water table.

Our liquefaction analysis was completed using the computer program LiquefyPro Version 5.8. Our evaluation used a fines content correction per Idriss and Seed (1997) and saturated soil settlement calculation procedure per Ishihara and Yoshimine (1990).

Liquefaction Settlement: Based on our analysis, limited liquefaction settlement is anticipated to develop in the medium dense, native silty sand and medium stiff silt with sand soil below the water table as observed at the boring B-1 and boring B-3 locations during the design seismic event. We determined that the maximum settlement that may be attributed to liquefaction of soil below the water table and consolidation of loose soils above the water table may approach 2.7 inches, with differential settlement approximately one-half of the total settlement.

Based on our review of the USGS Quaternary age fault database for Washington State, the site is located between two splays of the Southern Whidbey Island Fault. The Whidbey Island fault zone is a collective term for a complex series of northwest trending fault splays. The fault zone is about 5 to 7 kilometers wide and extends from the Mukilteo area northwest into the eastern portions of the Strait of Juan de Fuca. Most of the fault zone is concealed by Holocene glacial and post-glacial deposits, and sediments, and is primarily mapped based on the location of gravity and magnetic anomalies and offshore seismic reflection data. Inferred Quaternary strata are reportedly folded and faulted by strands of the southern portion of the fault zone in offshore seismic reflection data. On land, the youngest strata cut by the fault zone appear to be 80 to 125 thousand year old Whidbey Formation deposits. Given the limited fault history data, the USGS has concluded that there is insufficient information to infer a recurrence interval for earthquakes on the Whidbey Island fault zone. Based on the currently available information, it appears that the risk of damage to the site due to ground surface rupture is low and comparable to the risk to the existing nearby structures.

Soil Type Category

The project site is underlain by a variable depth of fill material, Vashon recessional outwash, and by Vashon lodgement glacial till. The outwash and till are Category II and Category I soils, respectively, as described in Table 1 of MMC 17.52A.020. The presence of Category II soils places the site within a geologic sensitive area.

Tsunami Hazard

The site is situated at approximately elevation 530 feet and the risk of being adversely impacted by tsunami action in Puget Sound is low.

Seismic Design Criteria

Description	Value
2012 IBC Site Classification	D [1,2]
S_s Spectral Acceleration for a Short Period	1.408 (Site Class B)
S_1 Spectral Acceleration for a 1-Second Period	0.554 (Site Class B)

Description	Value
S_{MS} Spectral Acceleration for a Short Period	1.408 (Site Class D)
S_{M1} Spectral Acceleration for a 1-Second Period	0.803 (Site Class D)

1. In general accordance with the *2012 International Building Code,* Table 1613.3.2.
2. The 2012 International Building Code (IBC) requires a site soil profile determination extending a depth of 100 feet for seismic site classification. The current scope did not include the complete 100 foot soil profile determination. The borings performed for this evaluation extended to a maximum depth of approximately 34 feet, and this seismic Site Class D assignment considers that at least medium dense soils continue below the maximum depth of the subsurface exploration based upon published geologic mapping. Additional exploration to greater depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to justify a more favorable seismic site class.

Site Preparation

Erosion Control Measures: Fortunately, the site is level or only very gently sloped, so significant surface water erosion is not expected to be problematic. However, the soils that will be exposed during construction have a moderate to high fines content, and stripped surfaces and soil stockpiles are typically a source of runoff sediment. We recommend that silt fences, berms, and/or swales be installed around stripped areas and stockpiles in order to capture runoff water and sediment. If earthwork occurs during wet weather, we recommend that all stripped surfaces be covered with straw to reduce runoff erosion, whereas soil stockpiles should be protected with anchored plastic sheeting.

It would be advantageous to leave the existing crushed rock in the proposed building area in place as long as practical in order to reduce the potential for surface water erosion. This would be particularly useful in areas frequented by vehicle traffic and in material storage areas.

Temporary Drainage: Stripping, excavation, grading, and subgrade preparation should be performed in a manner and sequence that will provide drainage at all times and provide proper control of erosion. The site should be graded to prevent water from ponding in construction areas and/or flowing into excavations. Exposed grades should be crowned, sloped, and smooth-drum rolled at the end of each day to facilitate drainage if inclement weather is forecasted. Accumulated water must be removed from subgrades and work areas immediately and prior to performing further work in the area. Equipment access may be limited and the amount of soil rendered unfit for use as structural fill may be greatly increased if drainage efforts are not accomplished in a timely manner.

Existing Structure Removal: The house in the northeastern portion of the site and the shop building to the southwest will be removed as part of site development. We recommend that existing concrete on-grade slabs and foundations be removed prior to grading. The resulting excavations should be backfilled with compacted structural fill.

Existing Utility Removal: We recommend that all underground utilities within the proposed building pad be completely removed if they are not going to be reused. Utility pipes outside the building envelope could be abandoned in place, provided they are fully grouted with controlled density fill (CDF) and the trench backfill is density tested to verify that it meets the compaction levels presented in the project specifications. Localized excavations made for removal of utilities or existing unsuitable trench backfill should be backfilled with structural fill as outlined in the following section of this report.

Stripping: Landscaping is present between the existing house and shop building. Stripping should include the removal of all vegetation, organic topsoil, and roots larger than about a one-half inch in diameter from areas slated for improvement. The existing crushed rock in the proposed building location may be reused as temporary surfacing and in structural fill applications.

All backfill soils present in trenches of existing utilities should be tested for conformance with the criteria in this report for support of slabs, footings, or pavements. Existing fill soils should be removed and replaced or recompacted as necessary to meet the recommended density.

Subgrade Preparation: Once site preparation is complete, all areas that are at design subgrade elevation or areas that will receive new structural fill should generally be compacted to a firm and unyielding condition and to a compaction level of at least 95 percent of the maximum laboratory density (per ASTM D1557) within the upper 12 inches. Some moisture conditioning of site soils may be required to achieve an appropriate moisture content for compaction within ±2 percent of the soils laboratory optimum moisture content. This would include moistening soils that are dry of optimum and drying soils that are wet of optimum.

Earthwork should be completed during drier periods of the year when the soil moisture content can be controlled by aeration and drying. If earthwork or construction activities take place during extended periods of wet weather, the surficial and shallow silty sand soils may become unstable or not be compactable. In the event the exposed subgrade becomes unstable, yielding, or unable to be compacted due to high moisture conditions, we recommend that the materials be removed to a sufficient depth in order to develop stable subgrade soils that can be compacted to the minimum recommended levels. The severity of construction problems will be dependent, in part, on the precautions that are taken by the contractor to protect the subgrade soils.

Once compacted, subgrades should be evaluated through density testing and proof rolling with a loaded dump truck or heavy rubber-tired construction equipment weighing at least 20 tons to assess the subgrade adequacy and to detect soft and/or yielding soils. In the event that soft or yielding areas are detected during proof rolling, the upper 12 inches of subgrade should be scarified, moisture conditioned and re-compacted as necessary to obtain at least 95 percent of the maximum laboratory density (per ASTM D1557) and a firm, non-yielding condition. Those soils which are soft/loose, yielding, or unable to

be compacted to the specified criteria should be over-excavated and replaced with suitable material as recommended in the *Structural Fill* section of this report. As an alternate to subgrade compaction during wet site conditions or wet weather, the upper 12 inches of subgrade should be overexcavated to a firm, non-yielding and undisturbed condition and backfilled with compacted imported structural fill consisting of free-draining Gravel Borrow or crushed rock.

Once subgrades are compacted, it may be desirable to protect prepared subgrades, such as the building pad. To protect stable subgrades, we recommend using crushed rock. The thickness of the protective layer should be determined at the time of construction and be based on the moisture condition of the soil and the amount of anticipated traffic or potential disturbance. The existing crushed rock in the building location may be reused for this purpose.

Freezing Conditions: If earthwork takes place during freezing conditions, all exposed subgrades should be allowed to thaw and then be compacted prior to placing subsequent lifts of structural fill. Alternatively, the frozen material could be stripped from the subgrade to expose unfrozen soil prior to placing subsequent lifts of fill or foundation components. The frozen soil should not be reused as structural fill until allowed to thaw and adjusted to the proper moisture content, which may not be possible during winter months.

Structural Fill Materials and Preparation

Structural fill includes any material placed below foundations and pavement sections, within utility trenches, and behind retaining walls. Prior to the placement of structural fill, all surfaces to receive fill should be prepared as previously recommended in the *Site Preparation* section of this report.

Laboratory Testing: Representative samples of imported soil to be used as structural fill should be submitted for laboratory testing at least four days in advance of its intended use in order to complete the necessary Proctor tests.

Re-use of Site Soils as Structural Fill: Field and laboratory test data indicates that the existing fill and native soils encountered on the site are suitable for reuse as general structural fill from a compositional standpoint provided the soil is placed and compacted in accordance with the compaction recommendations presented in this report. Soil will need to be near the optimum moisture content in order to compact it to the recommended density. Drying of over-optimum moisture soils may be achieved by scarifying or windrowing surficial materials during extended periods of dry weather. If encountered, soils which are dry of optimum may be moistened through the application of water and thorough blending to facilitate a uniform moisture distribution in the soil prior to compaction.

We recommend that site soils used as structural fill have less than 4 percent organics by weight as determined by ASTM D 2974 and have no woody debris greater than ½ inch in diameter. We recommend that all pieces of organic material greater than ½ inch in diameter be picked out of the fill before it is

compacted. Any organic-rich soil derived from earthwork activities should be utilized in landscape areas or wasted from the site. It is our understanding that some concrete debris may have been buried in the proposed building location prior to Honeycutt Manufacturing taking ownership of the property. Deleterious debris, such as concrete or metal waste, should be removed if encountered and removed from the site.

Imported Structural Fill: in the event that imported structural fill is required, it should be noted that the appropriate type of imported structural fill will depend on weather conditions. During extended periods of dry weather, we recommend imported fill, at a minimum, meet the requirements of Common Borrow as specified in Section 9-03.14(3) of the 2014 Washington State Department of Transportation, *Standard Specifications for Road, Bridge, and Municipal Construction* (Publication M41-10). During wet weather, higher-quality structural fill might be required, as Common Borrow may contain sufficient fines to be moisture sensitive. During wet weather we recommend that imported structural fill meet the requirements of Gravel Borrow as specified in Section 9-03.14(1) of the WSDOT *Standard Specifications*.

Special types of imported fill may be required below infiltration facilities. The gradation and compositional requirements of fill used below infiltration facilities should be coordinated/specified as part of infiltration facility design.

Retaining Wall Backfill: Retaining walls should include a drainage fill zone extending at least 2 feet back from the back face of wall for the entire wall height. The drainage fill should meet the requirements of Gravel Backfill for Walls as specified in Section 9-03.12(2) of the WSDOT *Standard Specifications*.

Conventional Pavement Subgrades: Any structural fill used within the upper one foot below pavement sections should have a minimum California Bearing Ratio (CBR) of 15 when compacted to a minimum of 95 percent of the modified Proctor maximum dry density. A CBR value of 15 is representative of the existing shallow silty sand soils and has been used to develop our pavement section recommendations. Our design recommendations assume that imported fill types as recommended above (Common or Gravel Borrow) will meet the CBR requirement. However, samples of proposed imported fill should be submitted for laboratory testing and approval prior to use.

Moisture Content: The suitability of soil for use as structural fill will depend on the time of year, the moisture content of the soil, and the fines content (that portion passing the US No. 200 sieve) of the soil. As the amount of fines increases, the soil becomes increasingly sensitive to small changes in moisture content. Soils containing more than about 5 percent fines cannot be consistently compacted to the appropriate levels when the moisture content is more than approximately 2 percent above or below the optimum moisture content (per ASTM D1557). The optimum moisture content is that moisture content which results in the greatest compacted dry density with a specified compactive effort. Laboratory testing, the results of which are presented in Appendix B, indicate that the soil typically have more than 5 percent fines.

Fill Placement: Structural fill should be placed in horizontal lifts not exceeding 10 inches in loose thickness. Each lift of fill should be compacted using compaction equipment suitable for the soil type and lift thickness. Each lift of fill should be compacted to the minimum levels recommended below based on the maximum laboratory dry density as determined by the ASTM D 1557 testing procedure (modified Proctor). The moisture content of fill at the time of placement should be within plus or minus 2 percent of optimum moisture content for compaction as determined by the ASTM D 1557 test method.

Compaction Criteria: Our recommendations for soil compaction are summarized in the following table. Structural fill for pavement and utility trenches in public rights-of-way should be placed and compacted in accordance with City of Mukilteo codes and standards. We recommend that a ZGA representative be present during grading so that an adequate number of density tests may be conducted as structural fill placement occurs. In this way, the adequacy of the earthwork may be evaluated as it proceeds.

RECOMMENDED SOIL COMPACTION LEVELS	
Location	**Minimum Percent Compaction***
Stripped native subgrade soils, prior to fill placement (upper 12 inches), except infiltration areas	95
Footing and slab subgrades, fill or native (upper 12 inches)	95
All fill below building floor slabs and foundations	95
Upper 2 feet below pavements	95
Retaining wall backfill less than 3 feet from wall	90
Retaining wall backfill more than 3 feet from wall	95
Upper 4 feet of utility trench backfill	95
Utility trenches below 4 feet	90
Landscape areas	85 - 90
* *ASTM D 1557 Modified Proctor Maximum Dry Density*	

Utility Trenches

We recommend that utility trenching conform to all applicable regulations, such as OSHA, for open excavations. Trench excavation safety guidelines are presented in 29 CFR 1926.650, 1926.651, and 1926.652.

Trench Dewatering: Groundwater was observed at depths ranging from approximately 8.5 to 28.5 feet below grade at the time of exploration. Consequently, we anticipate that the likelihood of excavations encountering groundwater over most of site will be low. However, depending on the time of year that construction takes place and the prevailing weather conditions, water may be encountered in excavations. We recommend that any excavations within groundwater seepage zones be undertaken only when

suitable dewatering equipment and temporary excavation shoring are available, or where space is available to flatten the excavation sidewalls. Dewatering should be expected for this project if utilities will extend below the groundwater table. The appropriate type of dewatering system should be determined by the contractor based on the conditions encountered, and should be designed and maintained by the contractor.

Utility Subgrade Preparation: We recommend that all utility subgrades be firm and unyielding and free of all soils that are loose, disturbed, or pumping. Such soils should be removed and replaced, if necessary. All structural fill used to replace over-excavated soils should be compacted as recommended in the *Structural Fill* section of this report. If utility foundation soils are soft, we recommend that they be over-excavated 12 inches and replaced with compacted crushed rock.

Bedding: We recommend that a minimum of 4 inches of bedding material be placed above and below all utilities or in general accordance with the utility manufacturer's recommendations and local ordinances. We recommend that pipe bedding consist of Gravel Backfill for Pipe Zone Bedding as described in Section 9-03.12(3) of the WSDOT *Standard Specifications*. All trenches should be wide enough to allow for compaction around the haunches of the pipe, or material such as pea gravel should be used below the spring line of the pipes to eliminate the need for mechanical compaction in this portion of the trenches. If water is encountered in the excavations, it should be removed prior to fill placement.

Trench Backfill: Materials, placement and compaction of utility trench backfill should be in accordance with the recommendations presented in the *Structural Fill* section of this report. We recommend that the initial lift thickness not exceed one foot unless recommended by the manufacturer to protect utilities from damage by compacting equipment. Light hand operated compaction equipment may be utilized directly above utilities if damage resulting from heavier compaction equipment is of concern.

Temporary and Permanent Slopes

Temporary excavation slope stability is a function of many factors, including:

- The presence and abundance of groundwater;
- The type and density of the various soil strata;
- The depth of cut;
- Surcharge loadings adjacent to the excavation; and
- The length of time the excavation remains open.

As a cut is deepened, or as the length of time an excavation is open, the likelihood of bank failure increases; therefore, maintenance of safe slopes and worker safety should remain the responsibility of the contractor, who is present at the site, able to observe changes in the soil conditions, and monitor the performance of the excavation.

It is exceedingly difficult under the variable circumstances to pre-establish a safe and "maintenance-free" temporary cut slope angle. Therefore, it should be the responsibility of the contractor to maintain safe temporary slope configurations since the contractor is continuously at the job site, able to observe the nature and condition of the cut slopes, and able to monitor the subsurface materials and groundwater conditions encountered. Unsupported vertical slopes or cuts deeper than 4 feet are not recommended if worker access is necessary. The cuts should be adequately sloped, shored, or supported to prevent injury to personnel from local sloughing and spalling. The excavation should conform to applicable Federal, State, and Local regulations.

According to OSHA regulations, the contractor should make a determination of excavation side slopes based on classification of soils encountered at the time of excavation. Temporary cuts may need to be constructed at flatter angles based upon the soil moisture and groundwater conditions at the time of construction. Adjustments to the slope angles should be determined by the contractor at that time. It should be noted that the native soils expected to be encountered in excavations consist of relatively clean sand and may be susceptible to rapid collapse in unsupported conditions.

We recommend that all permanent cut or fill slopes constructed in native soils or with imported structural fill be designed at a 2H:1V inclination or flatter. All permanent cut and fill slopes should be adequately protected from erosion both temporarily and permanently. If the slopes are exposed to prolonged rainfall before vegetation becomes established, the surficial soils will be prone to erosion and possible shallow sloughing. We recommend covering permanent slopes with a rolled erosion protection product, such as coir matting or Curlex II, if vegetation has not been established by the wet season (typically November through May).

Foundation Considerations – General

The liquefaction analysis indicates that during the 2012 IBC design seismic event, total settlement attributed to consolidation of liquefiable soils and consolidation of loose soils above the water table may approach 2.7 inches, with differential settlement approximately half of the total settlement. The settlement magnitude would decrease from the southwest to the northeast. Lesser degrees of settlement may occur in association with seismic events less severe than the 2012 IBC design event.

Metal frame and skin buildings can oftentimes be designed to accept significant amounts of settlement, typically more than comparable masonry or concrete tilt-up buildings. Provided that the building can be designed to meet current building code requirements in regard to the theoretical settlements, mitigation of the liquefaction potential may not be necessary; this is a decision for the building owner.

In order to mitigate undesirable building settlement in association with the 2012 IBC design seismic event, it would be necessary to improve ground conditions (in effect partially replacing and densifying the soil) which would allow the use of conventional shallow foundations for the building, or support the building on piling. We understand that Honeycutt Manufacturing does not intend to undertake ground

improvement to mitigate the potential liquefaction-induced settlement or utilize piling. Our recommendations for shallow foundations are summarized below.

Shallow Foundations

We understand that the proposed building will employ isolated column footings with grade beams between. The use of conventional shallow foundations is feasible provided that some limited removal of existing loose fill material and its replacement with compacted structural fill is undertaken in order to reduce post-construction settlement. Based on our analyses, conventional spread footings will provide adequate support for the proposed building provided that the foundation subgrades are properly prepared.

Foundation Subgrade Preparation: Borings B-1, B-2, and B-3, advanced in the proposed building location, disclosed shallow loose fill material. In order to reduce the potential for undesirable post-construction settlement, we recommend removing the existing loose material and replacing it with structural fill compacted to 95 percent density per ASMT D 1557. We estimate that excavation to a depth of approximately 5 feet below existing grade and backfilling up to foundation design subgrade excavation with compacted structural fill will be adequate. The depth of loose fill excavation is likely to vary across the building pad. We recommend that a ZGA representative be on to observe the foundation subgrade procedures so that recommendations regarding the loose fill removal can be made as the work is underway.

Allowable Bearing Pressure: Continuous and isolated column footings bearing on at least 2 feet of structural fill compacted to at least 95 percent density per ASTM D 1557 may be designed for a maximum allowable net bearing capacity of 2,000 psf. A one-third increase of this bearing pressure may be used for short-term transient loads such as wind and seismic forces. The above-recommended allowable bearing pressure includes a factor of safety of 3.

Shallow Foundation Depth and Width: For frost protection, the bottom of all exterior footings should bear at least 18 inches below the lowest adjacent outside grade, whereas the bottoms of interior footings should bear at least 12 inches below the surrounding slab surface level. We recommend that all continuous wall and isolated column footings be at least 15 and 24 inches wide, respectively.

Lateral Resistance: Resistance to lateral loads can be calculated assuming an ultimate passive resistance of 460 pcf equivalent fluid pressure (triangular distribution) and an ultimate base friction coefficient of 0.4. An appropriate safety factor (or load/resistance factors) should be included for calculating resistance to lateral loads. For allowable stress design, we recommend a minimum 1.5 safety factor. We recommend neglecting passive resistance in the upper 18 inches of embedment.

Estimated Static Settlement: Assuming the foundation subgrade soils are prepared in accordance with recommendations presented herein, we estimate that total and differential static settlements will be less

than 1 inch and ½ inch over a distance of about 40 feet, respectively. Please refer to the *Seismic Hazard* section of this report for estimated seismic total and differential settlements.

On-Grade Concrete Slabs

The following sections provide recommendations for on-grade floor slabs. The building's floor slab will potentially be subject to settlement in the event of a seismic event of sufficient magnitude to induce liquefaction as described previously. In the event that the floor slab can be designed to accommodate the total and differential settlements described previously, or in the event that Honeycutt Manufacturing elects to forego site improvements to mitigate the liquefaction potential, the following recommendations are applicable. Please note that additional slab subgrade preparation or slab support measures may be necessary in the event that machinery placed above the slabs produces vibrations significant enough to promote consolidation of the underlying soils. We recommend consulting with the machinery manufacturers in regard to any special requirements for machinery support.

Subgrade Preparation: Subgrades for on-grade slabs should be prepared in accordance with the *Site Preparation* and *Structural Fill* sections of this report. This would include densification of existing loose fill soils to a depth of at least 1 feet below the slab subgrade elevation.

Capillary Break: We recommend the on-grade slabs be underlain by a 6-inch thick layer of compacted granular fill consisting of coarse sand and fine gravel containing less than 5 percent fines, based on that soil fraction passing the US No. 4 sieve. Alternatively, a clean angular gravel such as No. 7 aggregate per WSDOT 9-03.1(4) C could be used for this purpose. Alternative capillary break materials should be submitted to the geotechnical engineer for review and approval before use.

Vapor Retarder: The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture or is otherwise considered moisture-sensitive. When conditions warrant the use of a vapor retarder, the slab designer and contractor should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Drainage Considerations

Surface Drainage: Final site grades should be sloped to carry surface water away from the building and other drainage-sensitive areas. Additionally, site grades should be designed such that concentrated runoff from softscape surfaces is avoided.

Building Perimeter Footing Drains: We recommend that the new building be provided with a footing drain system to reduce the risk of future moisture problems. The footing drains should consist of a minimum 4-inch diameter, Schedule 40, rigid, perforated thermoplastic pipe placed at the base of the heel of the footing with the perforations facing down. The pipe should be surrounded by a minimum of 6 inches of clean free-draining granular material conforming to WSDOT Standard Specification 9-03.12(4), Gravel

Backfill for Drains. A non-woven filter fabric such as Mirafi 140N, or equivalent, should envelope the free-draining granular material. At appropriate intervals such that water backup does not occur, the drainpipe should be connected to a tightline system leading to a suitable discharge. Cleanouts should be provided for future maintenance. The tightline system should be separate from the roof drain system.

Asphalt Pavement

Pavement Life and Maintenance: It should be realized that asphaltic pavements are not maintenance-free. The following pavement sections represent our minimum recommendations for an average level of performance during a 20-year design life; therefore, an average level of maintenance will likely be required. A 20-year pavement life typically assumes that an overlay will be placed after about 12 years. Thicker asphalt, base, and subbase courses would offer better long-term performance, but would cost more initially. Conversely, thinner courses would be more susceptible to "alligator" cracking and other failure modes. As such, pavement design can be considered a compromise between a high initial cost and low maintenance costs versus a low initial cost and higher maintenance costs. Please note that we made assumptions regarding traffic type and frequency in the absence of specific traffic count data.

Soil Design Values: Pavement subgrade soils are anticipated to consist of the site-characteristic silty sand. Our analysis assumes the pavement section subgrade will have a California Bearing Ratio (CBR) value of 15.

Recommended Pavement Sections: For light duty pavements (parking stalls), we recommend 2 inches of asphalt concrete over either 4 inches of crushed rock base course or 3 inches of Asphalt Treated Base (ATB). For heavy duty pavements (main access roads, truck delivery routes, etc.), we recommend 3 inches of asphalt concrete over either 6 inches of crushed rock base course or 4 inches of ATB. Areas subject to heavy surface loading, such as dumpster approach slabs that experience short-term high wheel loading, would benefit from either a thicker asphalt pavement section or the use of concrete pavement.

Materials and Construction: We recommend the following regarding asphalt pavement materials and pavement construction.

- Subgrade Preparation and Compaction: The upper 12 inches of the pavement subgrade should be prepared in accordance with the recommendations presented in the *Subgrade Preparation* section of this report, and all fill should be compacted in accordance with the recommendations presented in the *Structural Fill* section of this report.

- Asphalt Concrete: We recommend that the asphalt concrete conform to Section 9-02.1(4) for PG 58-22 or PG 64-22 Performance Graded Asphalt Binder as presented in the 2014 WSDOT Standard Specifications. We also recommend that the gradation of the asphalt aggregate conform to the aggregate gradation control points for ½-inch mixes as presented in Section 9-03.8(6), HMA Proportions of Materials.

- Base Course: We recommend that the crushed aggregate base course conform to Section 9-03.9(3) of the WSDOT *Standard Specifications*.

- Compaction and Paving: All base material should be compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D 1557. We recommend that asphalt be compacted to a minimum 96 percent of the Marshall (Maximum laboratory) density. Placement and compaction of asphalt should conform to requirements of Section 5-04 of the WSDOT *Standard Specifications*.

Surface Water Infiltration Considerations

We understand that surface water management for the project will be addressed in accordance with the design criteria presented in the Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (2012, amended in 2014). At the time this report was prepared, the system was proposed to incorporate an infiltration system below the new parking area in the northeastern portion of the site and an outfall extending to the adjoining Travis Industries property to the southwest.

A large-scale Pilot Infiltration Test (IT-1) was completed at the proposed infiltration system in general accordance with the procedures described in Ecology stormwater manual. The infiltration test yielded an unfactored rate of 0.22 inches per hour. Taking into account the correction factors regarding site variability and number of locations tested, the field testing methodology, and the degree of influent control to prevent siltation and biobuildup required by the stormwater manual, this unfactored infiltration rate must be reduced to approximately 0.15 inches per hour for design purposes.

Groundwater Considerations: Groundwater was observed at depths of approximately 8.5 to 12.5 feet while advancing borings B-4 and B-5 in the proposed stormwater management facility location. Based upon our experience, we anticipate that these groundwater observations reflect, or are very near, the seasonal high groundwater condition. We did not observe distinct mottling of soil samples recovered from above the observed groundwater elevations; mottling is sometimes and indicator of a fluctuating water table. It should also be considered that the borings were advanced toward the end of a very wet winter and spring. More definitive characterization of the site's groundwater conditions would require monitoring groundwater conditions over at least one year.

The infiltration system is proposed to have a bottom elevation of 526.55 feet. Groundwater observed at the locations of borings B-4 an B-5 was approximately 3 to 6 feet below this elevation. It is our opinion that the proposed infiltration system will function as intended relative to groundwater conditions.

In addition to the topics described above, design of surface water infiltration systems should also take into consideration the following:

- Variations in soil conditions can affect the effective infiltration rate. We recommend that ZGA personnel be provided the opportunity to observe conditions at the infiltration facilities during construction.

- The receptor soil infiltration rate will be reduced in the event that fine sediment or organic materials are allowed to accumulate on exposed soil surfaces. The use of an infiltration facility as a temporary sedimentation cell during construction can substantially decrease the infiltration rate of the underlying soils. Use of an infiltration facility as a temporary sedimentation feature is not recommended. If site conditions are such that this cannot be avoided, it will likely be necessary to excavate the soils below the sedimentation feature bottom that have been contaminated with sediment, organic materials, or other deleterious materials (such as waste concrete) that may reduce soil permeability before operation of the facility for infiltration purposes.

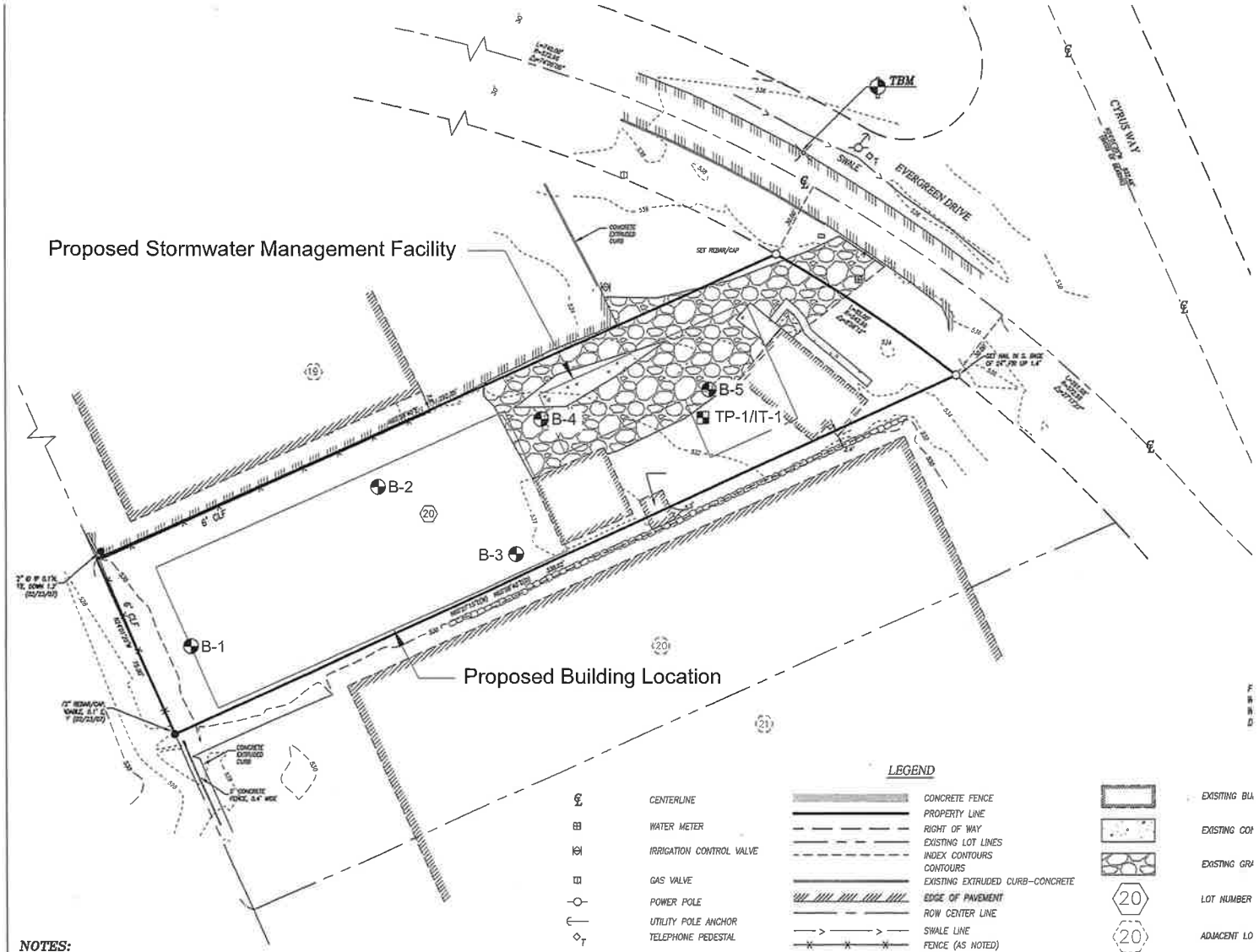
- Operation of heavy equipment may densify the receptor soils below an infiltration facility. Soils exposed in the bottom of an infiltration facility should not be compacted more densely than described in this report. It may be necessary to scarify the infiltration facility subgrade to facilitate adequate infiltration.

- Satisfactory long-term performance of an infiltration facility will require some degree of maintenance. Accumulations of sediment, organic materials, or other material that serves to mask the receptor soil surface or reduce its permeability should be removed on a regular basis.

CLOSURE

The analysis and recommendations presented in this report are based, in part, on the explorations completed for this study. The number, location, and depth of the explorations were completed within the constraints of budget and site access so as to yield the information to formulate our recommendations. The performance of earthwork, structural fill, foundations, and pavements depend greatly on proper site preparation and construction procedures. We recommend that Zipper Geo Associates, LLC be retained to provide geotechnical engineering services during the earthwork-related construction phases of the project. If variations in subsurface conditions are observed at that time, a qualified geotechnical engineer could provide additional geotechnical recommendations to the contractor and design team in a timely manner as the project construction progresses.

This report has been prepared for the exclusive use of Honeycutt Manufacturing, Inc., and its agents, for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the



NOTES:

1.) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF PARTIES WHOSE

REFERENCE: BOUNDARY AND TOPOGRAPHIC SURVEY PREPARED BY WESTERN ENGINEERS AND SURVEYORS DATED MARCH 26, 2007.
CONCEPTUAL DRAINAGE PREPARED BY WESTERN ENGINEERS AND SURVEYORS DATED FEBRUARY 2, 2016.

HONEYCUTT MANUFACTURING PROPOSED BUILDING
12414 EVERGREEN DRIVE
MUKILTEO, WASHINGTON

SITE AND EXPLORATION PLAN

DATE: AUGUST 2016 Job No. 1611.01

Zipper Geo Associates, LLC
19023 36th Ave. W.,Suite D
Lynnwood, WA, 98036

FIGURE 1
SHT.1 of 1

conclusions and recommendations contained in this report shall not be considered valid unless Zipper Geo Associates, LLC reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

FIELD EXPLORATION PROCEDURES & LOGS

APPENDIX A
FIELD EXPLORATION PROCEDURES AND LOGS

Field Exploration Description

Our field exploration for this project included advancing five borings on 7 April 2016. The approximate exploration locations are shown on the *Site and Exploration Plan*, Figure 1. Exploration locations were determined by measuring distances with steel and fiberglass tapes from site features shown on the *Civil Conceptual Drainage* plan prepared by Western Engineers & Surveyors (dated 2 February 2016). The approximate ground surface elevation at the exploration locations was determined by interpolating from topographic information shown on a boundary and topographic survey, dated 26 March 2007, prepared by Western Engineers & Surveyors. As such, the exploration locations and elevations should be considered accurate only to the degree implied by the measurement methods.

Boring Procedures

The borings were advanced using a truck-mounted drill rig operated by an independent drilling company working under subcontract to ZGA. The borings were advanced using hollow stem auger drilling methods. An engineering geologist from our firm continuously observed the borings, logged the subsurface conditions encountered, and obtained representative soil samples. All samples were stored in moisture-tight containers and transported to our laboratory for further evaluation and testing. Samples were generally obtained by means of the Standard Penetration Test at 1.5-foot to 5-foot intervals throughout the drilling operation.

The Standard Penetration Test (ASTM D 1586) procedure consists of driving a standard 2-inch outside diameter steel split spoon sampler 18 inches into the soil with a 140-pound hammer free falling 30 inches. The number of blows required to drive the sampler through each 6-inch interval is recorded, and the total number of blows struck during the final 12 inches is recorded as the Standard Penetration Resistance, or "blow count" (N value). If a total of 50 blows are struck within any 6-inch interval, the driving is stopped and the blow count is recorded as 50 blows for the actual penetration distance. The resulting Standard Penetration Resistance values indicate the relative density of granular soils and the relative consistency of cohesive soils.

The enclosed boring logs describe the vertical sequence of soils and materials encountered in each boring, based primarily upon our field classifications. Where a soil contact was observed to be gradational, our logs indicate the average contact depth. Where a soil type changed between sample intervals, we inferred the contact depth. Our logs also graphically indicate the blow count, sample type, sample number, and approximate depth of each soil sample obtained from the boring. If groundwater was encountered in a borehole, the approximate groundwater depth, and date of observation, are depicted on the log.

Field Infiltration Testing

Field infiltration test IT-1 was completed on 23 May 2016 by a ZGA engineering geologist working with a local contractor who provided a tracked excavator. Water was provided by an on-site source. The approximate infiltration test location is illustrated on Figure 1. The field infiltration testing procedures were completed in general accordance with the large-scale Pilot Infiltration Test (PIT) method as described in the Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (2012, amended in 2014). The field infiltration testing procedures are summarized below. Test results are discussed in the report text.

- A tracked excavator was used to excavate a hole to a depth of approximately 5 feet below existing grade. The base of the excavation had dimensions of approximately 10 feet by 10 feet.

- A length of slotted PVC pipe was placed on the excavation bottom and a hose attached to the end of the pipe was connected to an on-site water source. An in-line flow meter allowed measuring the rate at which water flowed into the test site.

- A constant water level was maintained in the excavation for approximately 3.5 hours to pre-soak the soils.

- Following the pre-soak period, a falling head infiltration test was completed over four hours.

- Following completion of the infiltration test, the trackhoe was used to excavate below the test surface in order to observe soil conditions immediately below the test elevation and to determine whether perching layers were present or whether some other condition that could affect the infiltration rate was present.

- The excavation was backfilled.

Infiltration Test Pit Log

A ZGA engineering geologist continuously observed the excavation completed at the infiltration test location (referred to herein as test pit TP-1), logged the subsurface conditions, and obtained representative soil samples. The samples were stored in moisture tight containers and transported to our laboratory for further visual classification. The enclosed test pit log indicates the vertical sequence of soils and materials encountered at the infiltration test pit, based on our visual classification. Where a soil contact was observed to be gradational or undulating, our log indicates the approximate contact depth. We estimated the relative density of *in situ* soils by means of the excavation characteristics and by the sidewall stability. Our log also indicates sample numbers and approximate sample depths.

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: EDI	Bore Hole Dia.: 8"	**B-1**
Top Elevation: 530 ft.	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 4/7/2016	Drill Rig: Truck	Logged by: BGF	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Groundwater	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop:	Blowcount	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				0 20 40 60		
0	1 to 2 inches of gravel over very loose, moist, brown to light brown, silty SAND, with sandy SILT horizons, some gravel, trace charcoal (Fill)	S-1	12"		▲ ○	3	
		S-2	12"		▲ ○	3	
5	Medium dense, moist to wet, gray, silty SAND, with 1/2 to 1-inch sandy seams, trace to some gravel (Fill)	S-3	18"		○ ▲ ◇	23	GSA
		S-4	18"		▲	13	
10	Loose/Soft, wet, gray, silty SAND/sandy SILT, trace clay, trace to some gravel, wire pieces, screw fragments (Fill)	S-5	18"		▲	6	
	Loose to medium dense, wet, gray, silty SAND, trace fine gravel	S-6	18"		▲	9	
15		S-7	18"		▲	8	
		S-8	18"		▲	11	
20	Stiff, wet, gray, sandy SILT, with 1/2 - 1-inch sandy seams, trace gravel	S-9	18"		▲	10	
		S-10	18"		▲	12	
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. split spoon sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

PID = Photoionization Detector

Att. = Atterberg Limits

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25/2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-1

Boring Location:	See Figure 1, Site and Exploration Plan	Drilling Company:	EDI	Bore Hole Dia.:	8"
Top Elevation:	530 ft.	Drilling Method:	Hollow Stem Auger	Hammer Type:	Auto
Date Drilled:	4/7/2016	Drill Rig:	Truck	Logged by:	BGF

B-1

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Groundwater	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop:	Blowcount	PID (ppm)
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				0 20 40 60		
25	Medium dense, wet, gray, silty SAND, with 1/2 - 1-inch sand seams, trace gravel						
	Grades wet to saturated	S-11	18"	ATD	▲ ◇	13	<200
30							
	Dense, saturated, gray, silty SAND, trace gravel (Glacial Till)	S-12	18"		▲	34	
	Boring completed at 34 feet on 4/7/2016. Groundwater observed at approximately 28.5 feet ATD.						
35							
40							
45							
50							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. split spoon sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. (11/2/12)

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

PID = Photoionization Detector

Att. = Atterberg Limits

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25/2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-1

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: EDI	Bore Hole Dia.: 8"	**B-2**
Top Elevation: 531 ft.	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 4/7/2016	Drill Rig: Truck	Logged by: BGF	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Groundwater	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop: 0 20 40 60	Blowcount	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.						
0	1-2 inches gravel over loose to medium dense, moist, yellowish-brown to light brown, SAND with silt, some gravel (Fill)	S-1	12"			10	
		S-2	18"			21	
5	Medium dense, moist, light grayish-brown, SAND, with silt, trace gravel	S-3	18"			14	
	Medium dense to loose, moist to wet, brownish-gray, silty SAND, trace gravel	S-4	18"			11	
10		S-5	18"				
	Grades with identifiable 1/2 to 1-inch thick sandy seams	S-6	18"			12	
15							
	Grades to loose	S-7	18"	ATD		10	
20							
	Medium stiff, saturated, gray, sandy SILT, some gravel (Glacial Till)	S-8	18"			19	
	Boring completed at 24 feet on 4/7/2016. Groundwater observed at approximately 21 feet ATD.						
25							

SAMPLE LEGEND
- 2-inch O.D. split spoon sample
- 3-inch I.D. split spoon sample

GROUNDWATER LEGEND
- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

TESTING KEY
- GSA = Grain Size Analysis
- 200W = 200 Wash Analysis
- PID = Photoionization Detector
- Att. = Atterberg Limits

◇ % Fines (<0.075 mm)
○ % Water (Moisture) Content
Plastic Limit ⊢—○—⊣ Liquid Limit
Natural Water Content

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25/2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-2

Boring Location:	See Figure 1, Site and Exploration Plan	Drilling Company:	EDI	Bore Hole Dia.:	8"
Top Elevation:	532 ft.	Drilling Method:	Hollow Stem Auger	Hammer Type:	Auto
Date Drilled:	4/7/2016	Drill Rig:	Truck	Logged by:	BGF

B-3

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery	Groundwater	PENETRATION RESISTANCE (blows/foot)	Blowcount	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				▲ Standard Penetration Test △ Hammer Weight and Drop: _____ 0 20 40 60		
0	1-2 inches gravel over loose, moist, yellowish-brown to brown, SAND with silt, trace some gravel (Fill)	S-1	12"			5	
	Medium dense, moist, brown to grayish-brown, silty SAND, with sandy SILT horizons, trace gravel	S-2	18"			25	
5		S-3	18"			14	
	Medium dense, moist, gray, silty SAND, with sandy SILT horizons, trace gravel	S-4	18"			12	
10	Medium dense, moist, gray with trace orange mottling, silty SAND, some gravel	S-5	18"				
	Medium stiff, wet to saturated, gray, SILT, with trace sand, interbedded with loose silty SAND, some gravel	S-6	18"	ATD		8	
15	Grades to stiff	S-7	18"			11	
	Boring completed at 19 feet on 4/7/2016. Groundwater observed at approximately 13 feet ATD.						
20							
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. split spoon sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

PID = Photoionization Detector

Att. = Atterberg Limits

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25/2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-3

Boring Location: See Figure 1, Site and Exploration Plan	Drilling Company: EDI	Bore Hole Dia.: 8"	**B-4**
Top Elevation: 532 ft.	Drilling Method: Hollow Stem Auger	Hammer Type: Auto	
Date Drilled: 4/7/2016	Drill Rig: Truck	Logged by: BGF	

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery (Inches)	Ground Water	PENETRATION RESISTANCE (blows/foot) ▲ Standard Penetration Test △ Hammer Weight and Drop:	Blowcount	Testing
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.				0 20 40 60		
0	1 to 2 inches gravel over medium dense to loose, moist, yellowish-brown to brown, SAND with silt, trace to some gravel (Fill)	S-1	18"		▲	13	
		S-2	18"		▲	6	
	Medium dense to loose, moist to wet, grayish-brown, silty SAND, with trace to some gravel	S-3	6"		▲	17	
5		S-4	18"		▲	15	
		S-5	18"		○ ▲ ◇	18	GSA
	Grades to loose, wet to saturated, with identifiable 2 to 4 inch sandy seams	S-6	18"	▼ ATD	▲	10	
	Medium stiff, saturated, gray, sandy SILT, trace angular gravel	S-7	18"		▲ ○ ◇	14	GSA
10	Very stiff to hard, saturated to moist, brownish-gray, sandy SILT, trace to some gravel (Glacial Till)	S-8	18"		▲	18	
		S-9	18"		▲	34	
	Boring completed at 13.5 feet on 4/7/2016. Groundwater observed at approximately 8.5 feet ATD.						
15							
20							
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- ▼ 11/2/12 Groundwater level at time of drilling (ATD) or on date of measurement.

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25 2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-4

Boring Location:	See Figure 1, Site and Exploration Plan	Drilling Company:	EDI	Bore Hole Dia.:	8"
Top Elevation:	533 ft.	Drilling Method:	Hollow Stem Auger	Hammer Type:	Auto
Date Drilled:	4/7/2016	Drill Rig:	Truck	Logged by:	BGF

B-5

Depth (ft)	SOIL DESCRIPTION	Sample Number	SAMPLES Recovery (Inches)	Ground Water	PENETRATION RESISTANCE (blows/foot)	Blowcount	Testing
0	*The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.*				▲ Standard Penetration Test △ Hammer Weight and Drop: _____ 0 20 40 60		
0	1 to 2 inches of gravel over very loose, dark brown to yellowish-brown, silty SAND, with sandy SILT horizons, trace gravel, trace charcoal and fine organics (Fill)	S-1	12"			8	
		S-2	18"			1	
	Medium dense, moist to wet, brownish-gray, silty SAND, trace to some angular gravel	S-3	18"			14	
5		S-4	18"			15	
		S-5	18"			16	GSA
		S-6	18"			16	
10		S-7	18"			22	GSA
	Medium dense, wet, grayish-brown, silty SAND, trace gravel	S-8	18"			17	
	Stiff, grayish-brown, sandy SILT, trace gravel	S-9	18"	ATD		13	
15	Boring completed at 19 feet on 4/7/2016. Groundwater observed at approximately 12.5 feet ATD.						
20							
25							

SAMPLE LEGEND

- 2-inch O.D. split spoon sample
- 3-inch I.D. Shelby tube sample

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

◇ % Fines (<0.075 mm)

○ % Water (Moisture) Content

Plastic Limit ⊢—○—⊣ Liquid Limit

Natural Water Content

TESTING KEY

GSA = Grain Size Analysis

200W = 200 Wash Analysis

Consol. = Consolidation Test

Att. = Atterberg Limits

Honeycutt Manufacturing Expansion
12414 Evergreen Drive
Mukilteo, WA

Date: 8/25/2016 Project No.: 1611.01

Zipper Geo Associates
19023 36th Ave. W, Suite D
Lynnwood, WA

BORING LOG: B-5

	Test Pit TP-1 **Location:** See Site and Exploration Plan, Figure 1 **Approx. Ground Surface Elevation:** 532 feet	**Project:** Honeycutt Manufacturing **Project No:** 1611.01 **Date Excavated:** 5-23-16			
Depth (ft.)	**Material Description**	**Sample**	**N_C**	**%M**	**Testing**
	Grass over loose to medium dense, moist, brown, SAND with gravel, with to some silt (Fill)	S-1: 0 to 4 ft.			
1					
2					
3					
4					
	Medium dense, moist, gray, SAND with silt, some gravel, scattered cobbles	S-2: 4 to 5 ft.			
5					
6	(Infiltration test performed at approximately 5 feet)				
7					
	TP-1 completed at approximately 7 feet. No groundwater observed at time of exploration.	S-3: 7 ft			
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

Nc is the Dynamic Cone Penetrometer blow count averaged over three 1.75 inch intervals measured in accordance with ASTM Special Technical Publication #399.

APPENDIX B

LABORATORY TESTING PROCEDURES & RESULTS

APPENDIX B
LABORATORY TESTING PROCEDURES AND RESULTS

A series of laboratory tests were performed by ZGA during the course of this study to evaluate the index and geotechnical engineering properties of the subsurface soils. Descriptions of the types of tests performed are given below.

Visual Classification

Samples recovered from the exploration locations were visually classified in the field during the exploration program. Representative portions of the samples were carefully packaged in moisture tight containers and transported to our laboratory where the field classifications were verified or modified as required. Visual classification was generally done in accordance with ASTM D 2488. Visual soil classification includes evaluation of color, relative moisture content, soil type based upon grain size, and accessory soil types included in the sample. Soil classifications are presented on the exploration logs in Appendix A.

Moisture Content Determinations

Moisture content determinations were performed on representative samples obtained from the explorations in order to aid in identification and correlation of soil types. The determinations were made in general accordance with the test procedures described in ASTM D 2216. Moisture contents are presented on the exploration logs in Appendix A.

Grain Size Analysis

A grain size analysis indicates the range in diameter of soil particles included in a particular sample. Grain size analyses were performed on representative samples in general accordance with ASTM D 422. The results of the grain size determinations for the samples were used in classification of the soils, and are presented in this appendix.

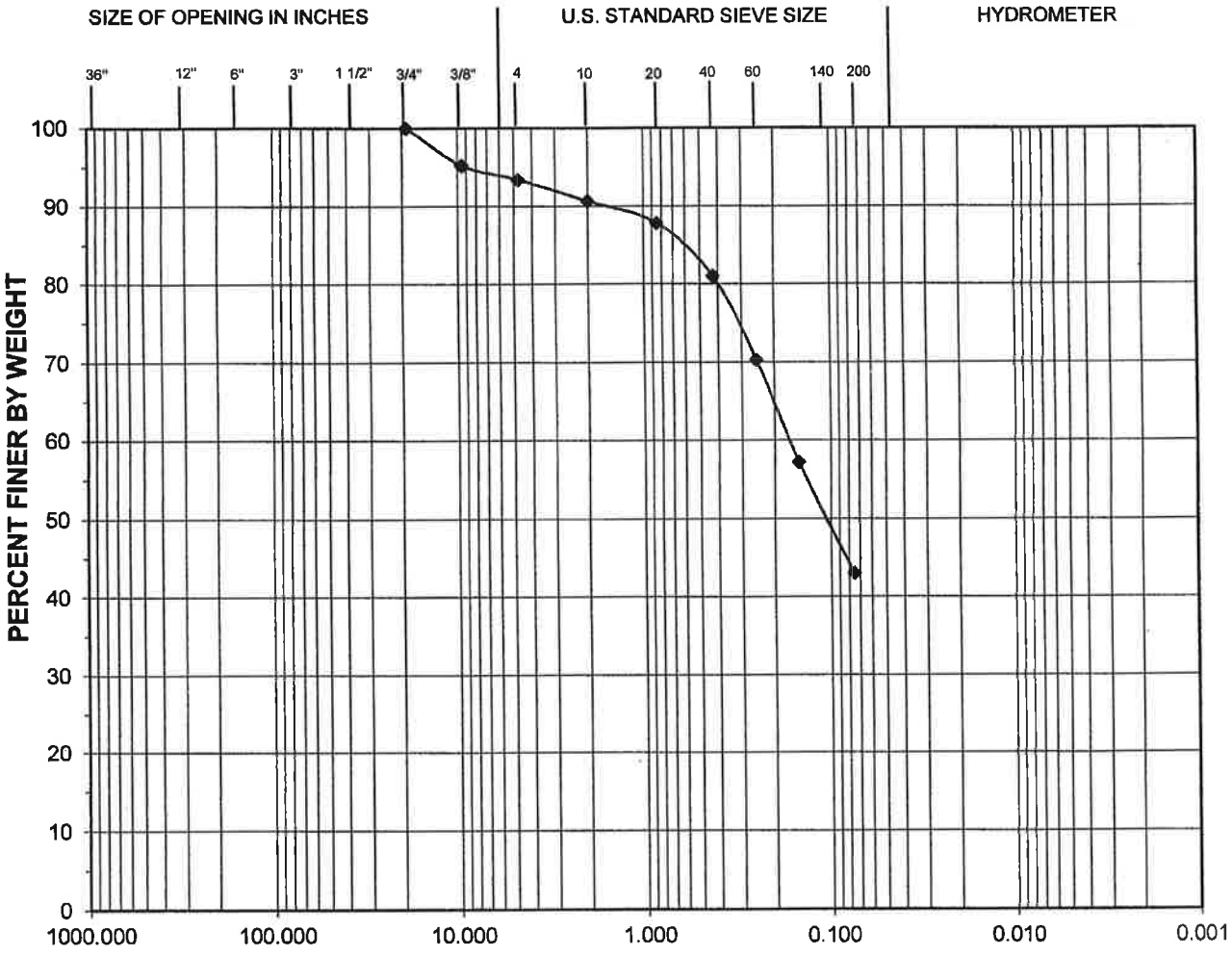
Fines Content Determination

The soil fraction passing the US No. 200 sieve for selected samples was determined in general accordance with ASTM D 1140. The test results are discussed in the report text.

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

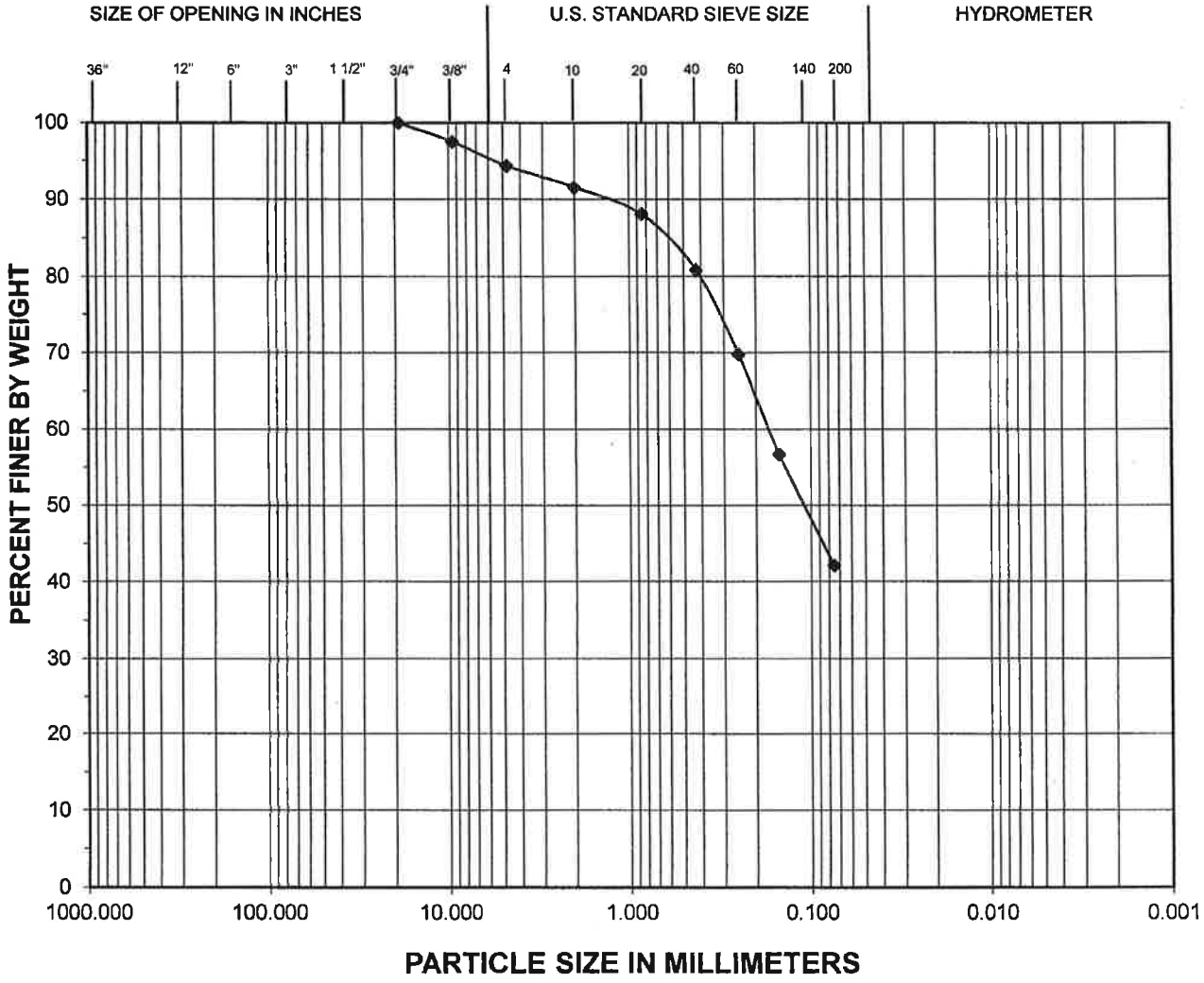
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-1	S-3	5.0	13.1	43.0	Silty SAND, some gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	Project No.: 1611.01 DATE OF TESTING: 4/8/2016	PROJECT NAME: Honeycutt Manufacturing Expansion

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

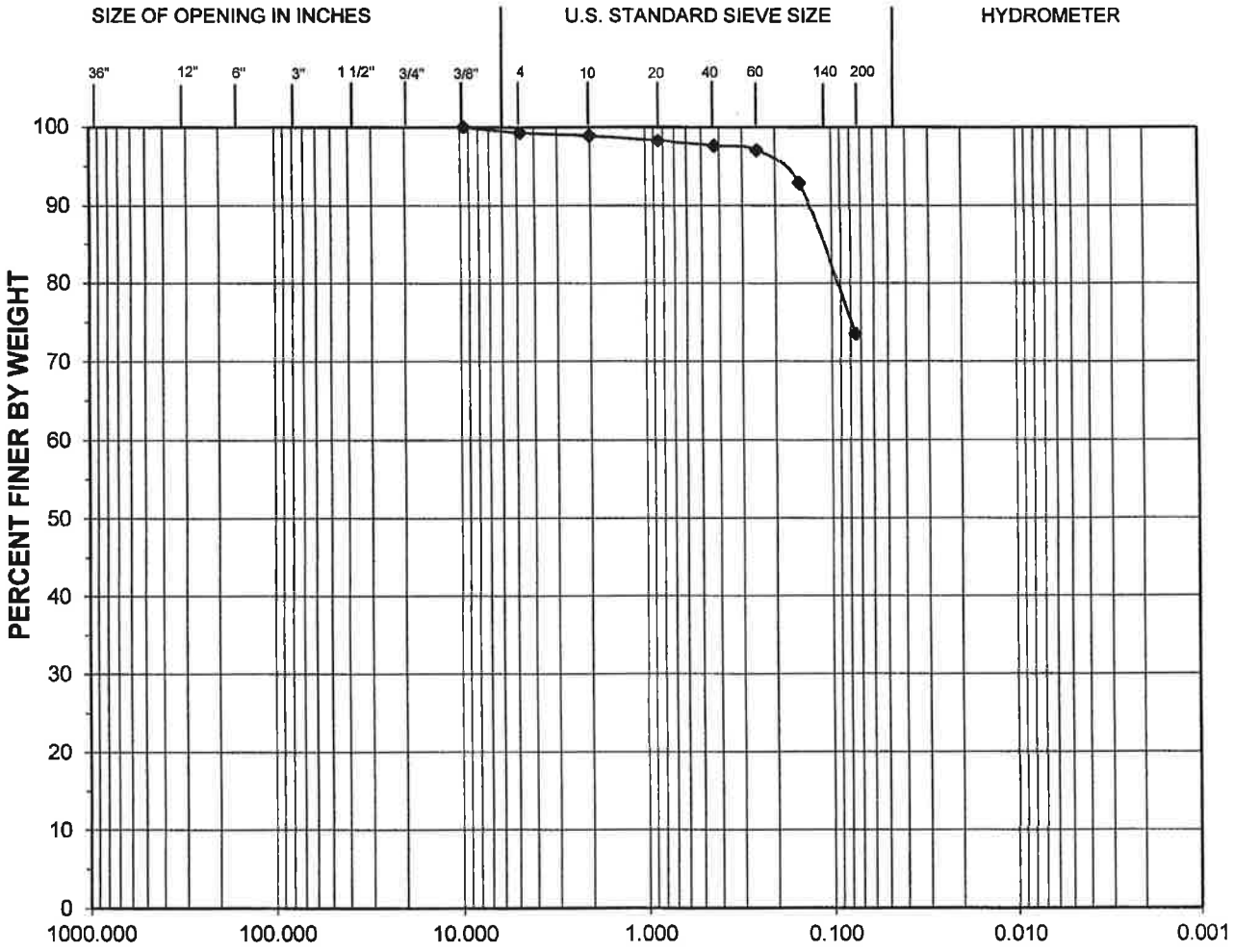
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-4	S-5	6.0	14.5	42.1	Silty SAND, some gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	Project No.: 1611.01 DATE OF TESTING: 4/8/2016	PROJECT NAME: Honeycutt Manufacturing Expansion

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

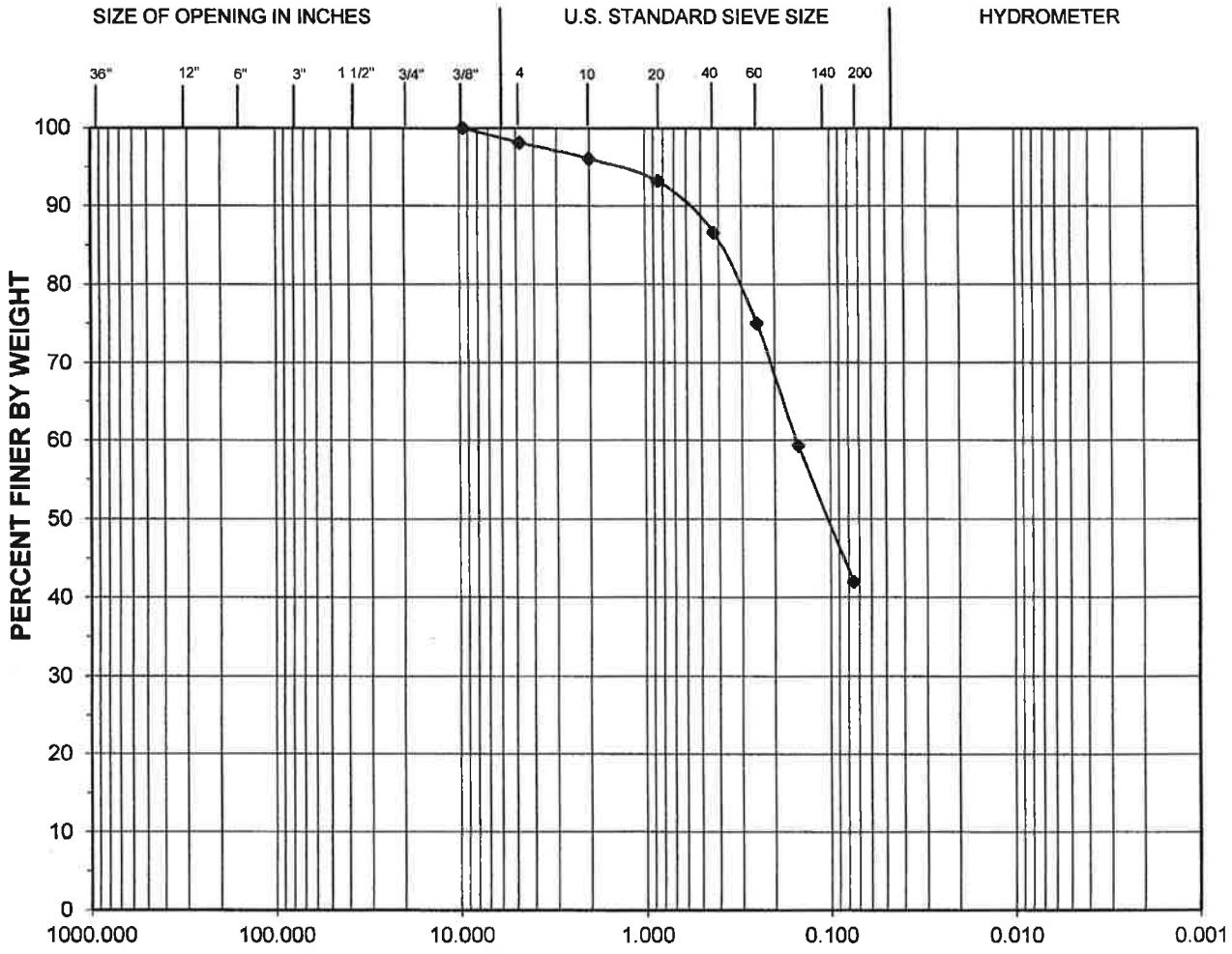
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-4	S-7	9.0	24.3	73.5	Sandy SILT

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	Project No.: 1611.01 DATE OF TESTING: 4/8/2016	PROJECT NAME: Honeycutt Manufacturing Expansion

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

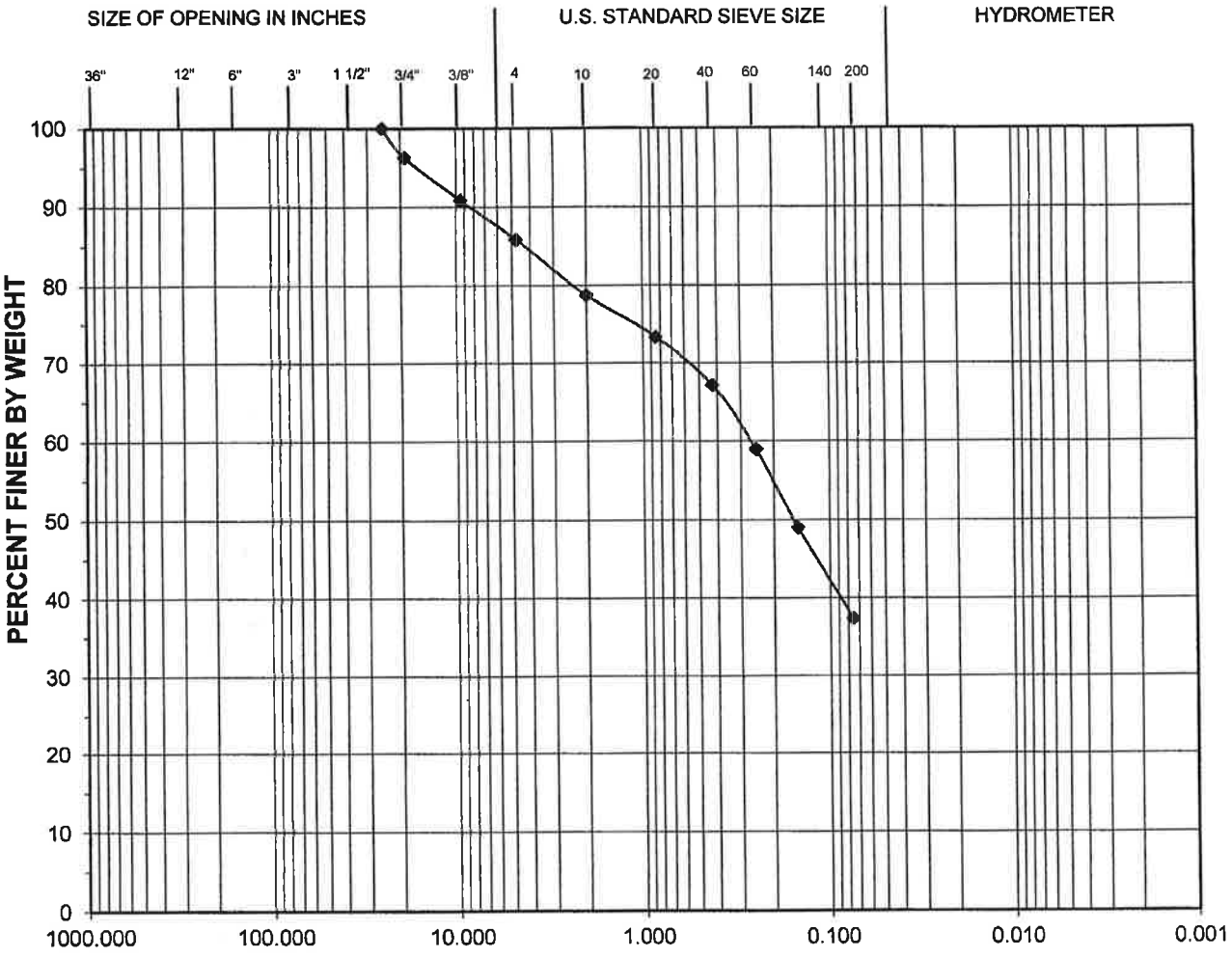
Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-5	S-5	6.0	14.7	42.0	Silty SAND, trace gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	Project No.: 1611.01 DATE OF TESTING: 4/8/2016	PROJECT NAME: Honeycutt Manufacturing Expansion

GRAIN SIZE ANALYSIS

Test Results Summary

ASTM D 422



		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
BOULDERS	COBBLES	GRAVEL		SAND			FINE GRAINED	

Comments:

Exploration	Sample	Depth (feet)	Moisture (%)	Fines (%)	Description
B-5	S-7	9.0	13.4	37.4	Silty SAND, some gravel

Zipper Geo Associates, LLC Geotechnical and Environmental Consultants	Project No.: 1611.01 DATE OF TESTING: 4/8/2016	PROJECT NAME: Honeycutt Manufacturing Expansion