



File No. EA2021-130

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal: Grading and site preparation of approximately 2.7 acres of a 5.48 parcel of land for the future construction of a 4,000 s.f. warehouse/office type commercial building. It is estimated that there will be approximately 4,000 cubic yards of material moved from cut to fill area with all material originating on-site.

Proponent: DJCD Properties, LLC
Dennis Hollis
Dennis@nwcs-inc.com
Or
Joan Hollis
Jayhollis99@gmail.com

Location of Proposal: The project site is located at the SE corner of the intersection of Polar Way and Logan Street, Richland, WA, 99352 upon Parcel No. 128081000002018.

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

() There is no comment for the DNS.

(X) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

() This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Mike Stevens

Position/Title: Planning Manager

Address: 625 Swift Blvd., MS #35, Richland, WA 99352

Date: August 24, 2021

Signature 



COMMUNITY DEVELOPMENT DEPARTMENT

625 Swift Blvd, Richland, WA 99352

Phone: 509-942-7794 Fax: 509-942-7764

GRADING PERMITS

Grading permits are regulated by Appendix J of the 2018 IBC. Fees are according to the fee schedule of the 1997 UBC Appendix Chapter 33, Table A-33-A (plan review fee) and Table A-33-B (grading permit).

SUBMITTAL REQUIREMENTS:

1. **Application for Grading Permit**
2. **Affidavit for Grading Operations**
3. **Site Plan** - A site plan showing existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work shall be submitted. The grades must also show in detail that it complies with all the requirements for slopes and setbacks in Appendix J. The site plan must also show the existing grades on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of Appendix J. The City requires 6 sets of the site plan to be submitted.
4. **Geotechnical Report** - A soils report prepared by a registered design professional shall be provided. It must contain the minimum following information:
 - a. Existing soils types and distribution of existing soils.
 - b. Conclusions and recommendations for grading procedures, specifically describing that all Appendix J requirements are being met.
 - c. Soil design criteria for any structures (walls, etc.) or embankments, required to accomplish the proposed grading.
 - d. Slope stability studies and recommendations, specifically describing that all Appendix J requirements are being met, including recommendations and conclusions regarding site geology.
 - e. Liquefaction study (required only where mapped maximum earthquake S_s is greater than 0.5g).
5. **SEPA required if more than 500 CY being moved.**

Inspection Process after Permit Issuance

In addition to periodic inspections by the City (pre-fill placement, all buried items—such as filter fabrics, etc.—prior to burial, and at least one inspection of one layer of fill placement during compaction), the owner shall hire either a certified special inspector or a registered design professional to inspect all work in accordance with Section 1705.6 of the 2015 IBC (site preparation, during fill placement, in-place density evaluations). Written field reports and density test reports by either the special inspector or by the registered design professional shall be submitted to the City following each site visit. A final inspection by the City will occur when all the work is done, all written reports have been submitted, AND written final letter from the special inspector or registered design professional is received. Final letter shall document compliance with the Geotechnical Report.

Please read and have your professionals read and apply each section of Appendix J concerning excavations, fills, and especially SETBACKS and drainage, terracing, and erosion. The plans and

reports submitted before permit issuance must clearly show how each of these sections is being addressed in your proposal.

CITY OF RICHLAND
www.ci.richland.wa.us
Application for Grading Permit

PROJECT NAME / OWNER NAME C192-DJCD Properties, LLC – Polar Way & Logan / DJCD Properties, LLC – Dennis & Joan Hollis			
Owner's or Tenant's Mailing Address / City / State / Zip 28004 S 887 PR SE / Kennewick / WA / 99338		Phone Number 509-727-1345	
Fax Number N/A	Cell Number 509-727-1345	EMail Dennis@nwcs-inc.com	
Property Owner (if different from Project Owner) Same		Phone Number Same	
Property Owner's current Address / City / State / Zip Same			
Project Contact Name & Company Dennis Hollis – Northwest Construction Services, Inc		Contact Number 509-727-1345	EMail Dennis@nwcs-inc.com
ADDRESS OF PROPERTY - SE Corner of Polar Way and Logan St – Richland WA			
Tax Parcel # 128081000002018	Subdivision Binding site plan 2056	Lot Property ID310531	Block
Lender Information – required for projects over \$5000 in valuation per RCW 19.27.095 If a lender or bond company is not loaning monies on this project, please check here: <input type="checkbox"/>			
LENDING INSTITUTION – Name/Address HAPO Community Credit Union / 7601 W Clearwater Ave – Suite 305 – Kennewick WA 99336 -		Phone Number 509-222-3685	
Description of project: (fully describe the type of grading to be done, fill to be used, wetlands, etc.)			
Per the attached site plan – will grade from the NE side of the property using the dirt as fill for the NW side of the property bringing the west side up to grade with the existing roadway – plan on no import/export			
ESTIMATED # OF CUBIC YARDS OF EARTH TO BE MOVED, FILLED, AND/OR GRADED: 4,000 CY			
CONTRACTOR FOR PROJECT (please note that all sub-contractors also must have a City of Richland business license)			
Name Northwest Construction Services, Inc.		City Business License Required prior to permit issuance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Address/City/State/Zip 28004 S 887 PR SE / Kennewick / WA / 99338		Phone 509-727-1345	
Fax Number N/A	Cell Number 509-727-1345	EMail Dennis@nwcs-inc.com	
CIVIL ENGINEER (required for certain grading permits, see Appendix J of the 2015 IBC)			
Name Alan R. Rainey	St License # 31392	Phone Number 509-946-1581	Fax Number N/A
Address/City/State/Zip 1623 Terminal Drive / Richland / WA / 99352		Email Alan@spinkeng.com	
SOILS ENGINEER (required for certain grading permits, see Appendix J of the 2015 IBC)			
Name Paxton K. Anderson, PE	St License # 52820	Phone Number 509-720-9311 (cell)	Fax Number N/A
Address/City/State/Zip 10020 E Knox Ave #200 / Spokane / WA / 99206		Email PAnderson@stratageotech.com	
Billing Account: - check party responsible for fees: <input checked="" type="checkbox"/> Owner <input type="checkbox"/> Contractor <input type="checkbox"/> Applicant		FOR OFFICE USE ONLY PERMIT# INITIALS	

I understand that this permit application is valid for 180 days. If the permit is not obtained within 180 days, all submittal documents will be discarded.



Signature of Owner or Authorized Agent

08/01/2021

Date



COMMUNITY DEVELOPMENT DEPARTMENT
625 Swift Blvd., Richland, WA 99352
Phone: 509-942-7794 Fax: 509-942-7764

**AFFIDAVIT FOR GRADING OPERATIONS
REQUIREMENTS FOR CITY INSPECTION OF GRADING**

GEO Parcel ID 128081000002018 – SE Corner of Polar Way & Logan St

Address or legal description of property where project is being proposed

Grade North half of Lot – using east material to fill west area – see attached site plan – Grading for new Commercial building

Description of project (i.e., new commercial building, addition, new residence, etc.)

EXPLANATION OF CITY INSPECTION REQUIREMENTS

In accordance with the Appendix J of the IBC, it is the City’s policy that grading operations shall require a permit. "Grading" is the movement of soil in the form of excavation and/or placement of fill. The City recognizes that grading is a necessary and beneficial activity when appropriately managed to reduce harmful effects to the community and the environment. Under an issued grading permit, multiple inspections will be specified. These City inspections are in addition to the required on-site observation and written field reports by the soils engineer AND are in addition to any required soils compaction testing by third-party testing agencies. To verify that you understand the requirements to receive a grading permit and to have the grading work inspected by the City, we are requiring the contractor, owner, or owner’s agent who picks up the grading permit to sign this affidavit attesting that they understand the potential penalties allowed by law for failure to call for City inspection of the grading work.

The preliminary meeting noted in item #1 on the “green” permit sign-off card is **MANDATORY**. This meeting helps establish with the City inspector what the parameters of the grading operations will be, what kind of inspections will be needed, and how often.

As allowed by law in RMC Title 21 and building code Section 109, failure to call for inspections may result in fines of up to \$5000/day and other legal penalties to be levied against the owner of the property, as well as notices to “stop work”.

The City does not want to hinder development work, but serious grading problems have occurred because of failure to follow permit requirements. The City does not want to delay your project, so please follow these inspection requirements.

AFFIDAVIT

By signing below, I hereby affirm that I have read and understand the inspection requirements. I further attest and affirm that I understand the legal ramifications, including penalties as noted by law, for failure to call for City inspection of the grading work for which this permit is being issued. My signature below represents a good faith effort to ensure that the grading contractor will call for City inspection of the grading work as noted on the permit sign-off card (“green card”). I will keep this sign-off card and the field set of approved plans on the job site for the City inspector to use during inspections. If a sub-contractor is hired to accomplish the grading work, I hereby affirm that all information relating to City inspections as noted herein and as noted on the permit sign-off card will be given to the sub-contractor. If I am not the owner of the property for which this permit is being issued, then by my signature, I attest that I am an authorized agent of the owner and have authority to sign this affidavit on behalf of the owner.

08/01/2021

Signature of owner (or authorized representative of owner or corporation)

Date

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

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

Instructions for applicants:

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

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

Instructions for Lead Agencies:

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

Use of checklist for nonproject proposals:

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

A. Background

1. Name of proposed project, if applicable:
C192-Polar Way & Logan – DJCD Properties, LLC
2. Name of applicant:

DJCD Properties, LLC (Landowner Dennis & Joan Hollis) – Northwest Construction Services, Inc. will be the General Contractor

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

DJCD Properties, LLC

Dennis Hollis

509-727-1345

Dennis@nwcs-inc.com

Joan Hollis

509-366-3133

Jayhollis99@gmail.com

4. Date checklist prepared: 07/30/2021

Project Design Stage: Geo Report done and Site Plan done. Plan is to prepare part of the undeveloped 5.48 acres to construct a 4000SF Warehouse/Office type Commercial Building.

Status of existing environment: Undeveloped land

Information about known or anticipated environmental impacts: None known of

5. Agency requesting checklist:

City of Richland WA

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

1st phase of land development is scheduled to start after receipt of Grading Permit

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

After development of phase 1, plans would be to develop phase 2 with additional lots/Buildings, or sell off the undeveloped land.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. Land is zoned Medium Commercial and Geotechnical

Geotechnical Report has been done for the 5.48 acres. Current land development is ongoing in the area. The land is a corner lot that is accessed by Polar Way and Logan. We plan to 1st develop along Logan.

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.

Not known by landowner

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

SEPA, City of Richland Grading Permit and City of Richland Building Permit

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 entire lot size is 5.48 acres, of which we propose to grade approximately 118,000 SF of the 5.48 acres. Per our proposed site plan, we propose to build a 4,000 SF Warehouse/Office facility in the NE corner (along Logan) of which approximately 3,000SF will be paved and 20,000SF will be gravel. The other areas will be sprayed with soil stabilizer or stay undeveloped (in current state)

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.

NE Corner of Polar Way and Logan ST – City of Richland, County of Benton, State of Washington – A portion of binding site plan 2056, according to the survey thereof recorded in Volume 1 of Surveys, page 2056, under auditor’s file no. 1995-018807, records of Benton County, Washington and a portion lying outside the limits of said survey situated in the Northeast Quarter of Section 28, Township 10 North, Range 28 East Willamette Meridian (see attached survey plot of the land).

B. Environmental Elements

1. Earth

a. General description of the site:

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

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

2.75% (388 to 399 in 400 ft)

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

No Agriculture Land Use – per the Geotechnical Report soils are classified as: SM / SP

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

Owner has no knowledge of unstable soils in immediate vicinity - Please refer to Geotechnical Report

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

Total area to be graded is approximately 118,000 SF with the east excavated materials being used as fill in western fill area. It is estimated that there will be approximately 4,000 CY of material moved from cut to fill area. Material will be from site, there are no plans for import or export of fill material.

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

Erosion control measures will mitigate possible erosion. Soil erosion due to water and air is likely during grading operations. The existing soil appears to be very absorbent of water and there should minimal erosion, as the existing slope is gentle.

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

Of the 118,000SF of graded area, we will have approximately 3,000SF Paved and 4,000SF of Building area

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

Watering and silt fence during construction. Following construction the graded area will be stabilized with paving, gravel, building, and soil stabilization/hydroseeding. Undisturbed areas will remain as is.

2. Air

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

Increased automobile and construction related emissions during construction, dust control measures will be implemented. After construction disturbed areas will be covered by asphalt, concrete/building, gravel and soil stabilization or hydroseeding.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. No

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

Dust control during construction, soil cover after construction.

3. Water

- a. Surface Water:

- 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.

Owner is not aware of any surface water bodies in immediate vicinity of project.

- 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 known waters in vicinity of project, so No unless notified otherwise.

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

None

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

No

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

Owner is not aware of this project/land being in a 100 year 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.

No

b. Ground Water:

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

No, property will utilize City supplied water – Storm water will be drained onsite

- 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.

Stormwater runoff will be discharged into the ground per designed system – Building waste will utilize City sewer system for waste discharge

c. Water runoff (including stormwater):

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

Water run off from paved area will run off into the gravel area provided between the paved area and the property line. There will be minor runoff of water from the driveway area that will flow into Logan Street. We do not anticipate any run off from the gravel areas

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

No waste materials are anticipated to enter the ground or surface waters.

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

No

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

Drainage area provided off of paved areas, except for driveway area off of Logan Street

4. **Plants** [\[help\]](#)

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

- deciduous tree: alder, maple, aspen, other
 evergreen tree: fir, cedar, pine, other
 shrubs
 grass (like a prairie grass)
 pasture
 crop or grain
 Orchards, vineyards or other permanent crops.
 wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
 water plants: water lily, eelgrass, milfoil, other
 other types of vegetation

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

Only the existing vegetation for the planned Phase 1 will be removed as part of the clear and grub operations to prepare for cut and fill operations. Undisturbed areas will remain as is.

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

None known of

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

Area not disturbed by this project will remain in native state, Area graded for project will either be paved, graveled or soil stabilized/hydroseeded – Storm runoff will drain to gravel areas and be designed by engineer as required per Local and State requirements.

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

None known of

5. **Animals**

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

None observed on site

Examples include:

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

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

None known of

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

YES – Richland is within Pacific Flyway

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

Leave as much of site in natural state as long as possible, construction will be phased

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

Owner is not aware of any invasive animal species to be on or near site

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.

Electric – Heating/Cooling and Power needs for Office/Warehouse/Possible Production

- 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:

Plan to use energy efficient HVAC system, Insulation (building will meet WSEC), LED lighting, energy efficient appliances.

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.

No

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

Owner is not aware of any present or past possible contamination at the site

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

Owner is not aware of any existing hazardous chemicals/conditions that might affect project development and design.

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

During construction, diesel and gasoline will be used by construction equipment.

- 4) Describe special emergency services that might be required.

Do not anticipate the need for emergency services during construction unless we have an accident or fire that would need emergency response from already established city services.

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

Construction will minimize, if any, storage of hazardous materials on site, such as fuel and lubricants

b. Noise

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

None

- 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.

Construction equipment – 6:00am to 7:00pm – After construction could have traffic 24/7 depending on building occupant

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

None

8. Land and Shoreline Use

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

Current use of site is undeveloped land - Adjacent properties are undeveloped land and land under construction - No – project will meet current IM – Medium Industrial Zoning

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

No – land is not being used as farmlands or working forest lands. Land is currently undeveloped Commercial Property.

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

No

c. Describe any structures on the site.

None

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

No

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

IM-Medium Industrial

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

Industrial

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

LU-5 – Shoreline – City of Richland – No shown Environment Designation

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

No

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

In finished Building 1 to 12 persons

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:

Project will be constructed meeting zoning classification, approved permitting, and the Cities Comprehensive plan.

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

None – area is zoned IM – Medium Industrial

9. Housing

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

None – area zoned IM – Medium Industrial

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

None – no housing in immediate area

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

None – no housing in area

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?

22 foot eave – 2:12 roof slope – 26ft-2 inches to peak – exterior material to be PBR steel panels

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

None

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

None

11. Light and Glare [\[help\]](#)

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

Building will have exterior wall packs, will use LED system and look at minimizing glare and still meet lighting requirements.

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?

Existing street light – will not affect our proposal

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

Will utilize LED lighting – position lighting to minimize potential glare

12. Recreation

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

Horn Rapids Golf Course, Horn Rapids Recreation Area, Horns Rapid Little League Park

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

None

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

None

13. Historic and cultural preservation

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

Owner is not aware of any Buildings, Structures or sites located near the site that are over 45 years old and listed or eligible to be listed in national, state or local preservation registers.

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

None known of by Owner

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

None

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

None

14. Transportation

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

Polar way and Logan Street – Driveway entrance is currently located approximately 600 feet east of the intersection of Polar Way and Logan Street. Driveway will come off Logan Street.

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

No – Closest transit stop looks like it would be route 126 – stop 8 Spengler & Stevens Center which I estimate to be 3 to 4 miles away.

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

The finished building is proposing 2 Handicap parking spaces – no spaces would be eliminated by project.

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

None

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

No

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

The project is a mix between mini-warehousing and office parks. Mini-warehousing, ITE Land Use Code 151, generates an average of 1.51 trips per day per 1,000 sf. An office park, ITE land use Code 750, generates an average of 11 trips per day per 1,000 sf. If the buildings are estimated to be 50% office park and 50% warehousing, the total trip generation for the 4,000 sf is about 25 trips per day.

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

No

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

None

15. Public Services

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

None Projected

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

None

16. Utilities

- a. Circle utilities currently available at the site:

electricity natural gas water, refuse service, telephone, sanitary sewer septic system,
other _____

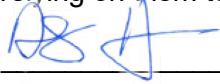
- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

City Utilities – Electrical / Water / Sewer are stubbed to site – Private utilities such as internet/phone are in vicinity of site – Power will need to be installed and transformer set for service to building. Sewer stub is on site – Water meter will need to be installed from water main onsite.

C. Signature

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

Signature: _____



Name of signee Dennis Hollis

Position and Agency/Organization Managing Partner - DJCD Properties, LLC

Date Submitted: 08/02/2021

D. Supplemental sheet for nonproject actions

(IT IS NOT NECESSARY to 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.

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?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

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

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

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

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?

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

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

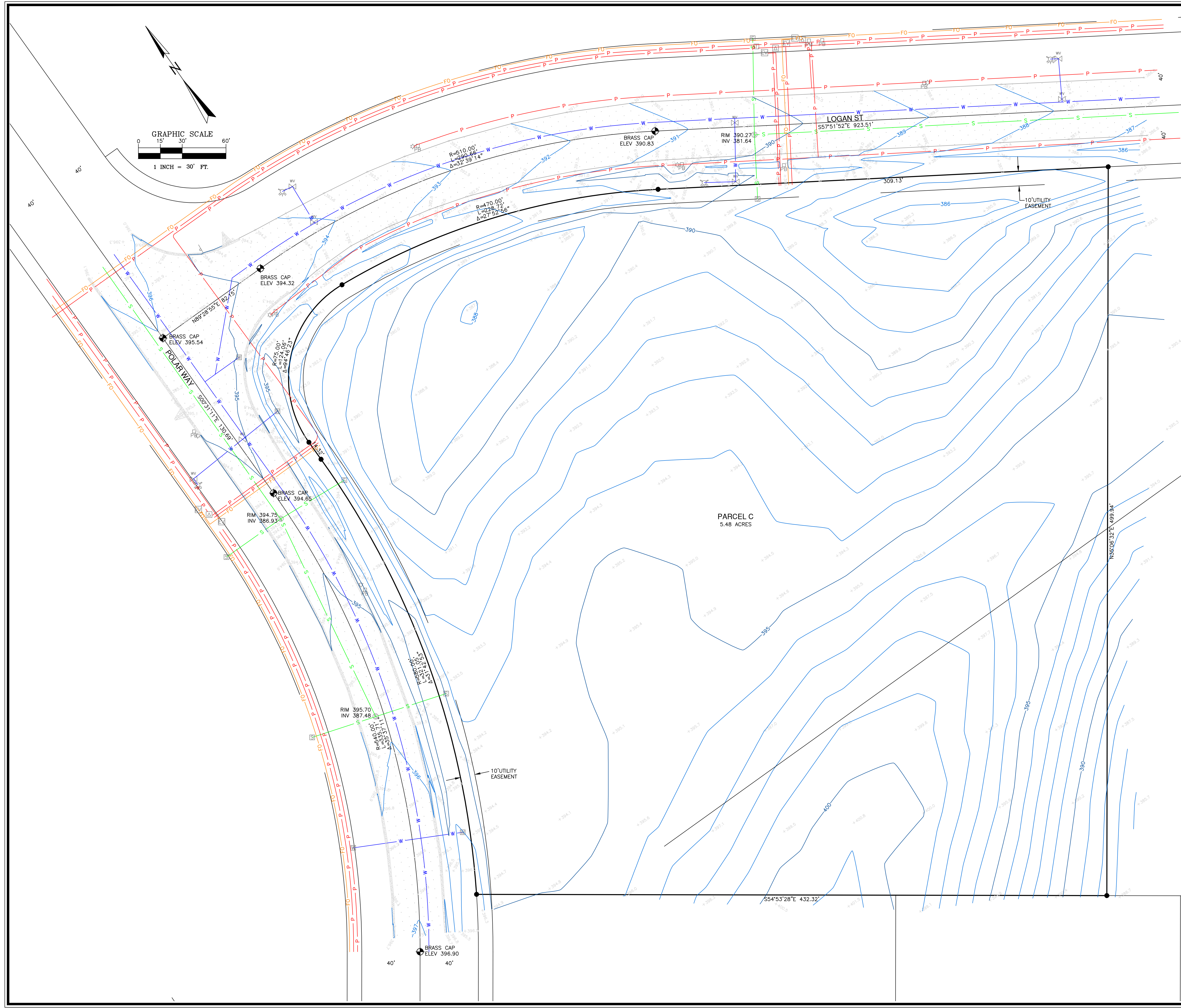
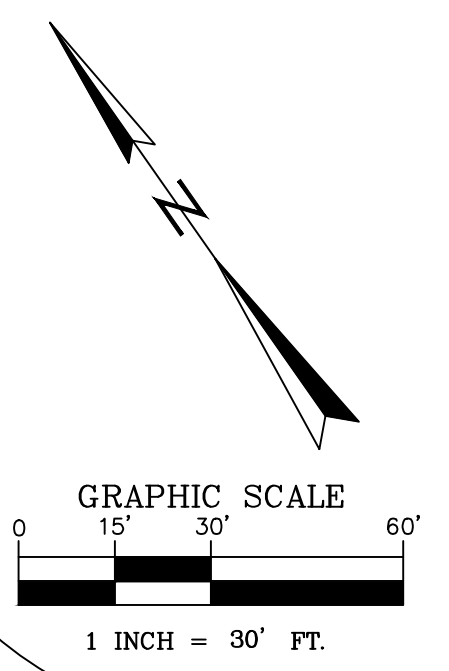
Proposed measures to avoid or reduce shoreline and land use impacts are:

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

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

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

TOPOGRAPHICAL SURVEY
PORTION OF NE1/4 OF THE NE1/4 & SE1/4 OF THE NE1/4,
SECTION 28, TOWNSHIP 10 NORTH, RANGE 28 EAST,
WILLAMETTE MERIDIAN, BENTON COUNTY, WASHINGTON



DESCRIPTION

A PORTION OF BINDING SITE PLAN 2056, ACCORDING TO THE SURVEY THEREOF RECORDED IN VOLUME 1 OF SURVEYS, PAGE 2056, UNDER AUDITOR'S FILE NO. 1995-018807, RECORDS OF BENTON COUNTY, WASHINGTON; AND A PORTION LYING OUTSIDE THE LIMITS OF SAID SURVEY SITUATED IN THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 10 NORTH, RANGE 28 EAST WILLAMETTE MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF A PUBLIC ROAD KNOWN AS LOGSTON BOULEVARD AND ROBERTSON DRIVE, AS DEPICTED ON RECORD OF SURVEY 4575, AS RECORDED IN VOL. 1 OF SURVEYS, PAGE 4575, UNDER AUDITOR'S FILE NUMBER 2015-003647, RECORDS OF BENTON COUNTY, WASHINGTON; THENCE NORTH 54°53'28" WEST ALONG THE CENTERLINE OF SAID ROBERTSON DRIVE FOR A DISTANCE OF 1764.71 FEET; THENCE NORTH 35°06'32" EAST AT RIGHT ANGLES FOR A DISTANCE OF 50.00 FEET TO THE NORTHERLY RIGHT-OF-WAY MARGIN OF SAID ROBERTSON DRIVE; THENCE CONTINUING NORTH 35°06'32" EAST FOR A DISTANCE OF 223.02 FEET TO THE NORTHEASTLY CORNER OF PARCEL "F" AS DEPICTED ON RECORD OF SURVEY 4756, AS RECORDED IN VOL. 1 OF SURVEYS, PAGE 4756, UNDER AUDITOR'S FILE NUMBER 2016-019344, RECORDS OF BENTON COUNTY, WASHINGTON; THENCE NORTH 54°53'28" WEST ALONG THE NORTH LINE THEREOF FOR A DISTANCE OF 831.88 FEET TO A POINT ON THE NORTH LINE OF PARCEL "I" OF SAID RECORD OF SURVEY 4756 AND THE TRUE POINT OF BEGINNING; THENCE NORTH 35°06'32" EAST FOR A DISTANCE OF 499.99 FEET TO THE SOUTHERLY RIGHT-OF-WAY MARGIN OF LOGAN STREET EXTENSION (FUTURE); THENCE NORTH 57°51'52" WEST ALONG THE SOUTHERLY MARGIN THEREOF FOR A DISTANCE OF 309.21 FEET AND A POINT ON A CURVE TO THE LEFT; THENCE ALONG THE SOUTHERLY MARGIN THEREOF AND SAID CURVE THROUGH A CENTRAL ANGLE OF 27°52'56" HAVING A RADIUS OF 470.04 FEET, AN ARC LENGTH OF 228.74 FEET TO POINT ON A CURVE TO THE LEFT; THENCE ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 94°46'23" HAVING A RADIUS OF 75.00 FEET, AN ARC LENGTH OF 124.06 FEET, A CHORD BEARING SOUTH 46°52'00" WEST AND A CHORD DISTANCE OF 110.40 FEET TO POINT ON THE NORTHERLY RIGHT-OF-WAY MARGIN OF A PUBLIC ROAD KNOWN AS POLAR WAY AS DEPICTED ON RECORD OF SAID RECORD OF SURVEY 4575; THENCE SOUTH 00°31'11" EAST ALONG SAID MARGIN FOR A DISTANCE OF 14.32 FEET TO A POINT ON A CURVE TO THE RIGHT; THENCE ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 31°42'53" HAVING A RADIUS OF 580.05 FEET, AN ARC LENGTH OF 321.10 FEET TO POINT TO A POINT ON THE NORTHWEST CORNER OF PARCEL "J" OF SAID RECORD OF SURVEY 4756; THENCE SOUTH 54°53'28" EAST ALONG THE NORTH LINE THEREOF FOR A DISTANCE OF 432.36 FEET TO A POINT ON THE NORTH LINE OF SAID PARCEL "I" OF AND THE TRUE POINT OF BEGINNING.

CONTAINS ~5.48 ACRES

LEGEND

- FOUND 3" BRASS CAP IN MONUMENT CASE
- SET 5/8" REBAR & CAP "PERMIT SURVEY PLS 45774"
- LIGHT POLE
- PULL-BOX
- ELECTRICAL VAULT
- TRANSFORMER
- POWER METER
- TELEPHONE RISER
- SEWER MANHOLE
- SEWER SERVICE
- WATER VALVE
- HYDRANT
- WATER SERVICE
- ↑ SIGN

- P POWER
- FO FIBER-OPTIC
- W WATER
- S SEWER
- CONCRETE
- ASPHALT

SURVEYOR'S NOTES

1. DATE OF SURVEY: JANUARY 29 & FEBRUARY 1, 2019.
2. BASIS OF BEARING: NAD83(2011) WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE.
3. UNITS OF MEASURE: US SURVEY FEET GRID DISTANCES. MULTIPLY GRID DISTANCES BY A COMBINED SCALE FACTOR OF 1.000094243 TO ACHIEVE GROUND DISTANCES.
4. VERTICAL DATUM: NAVD88 CITY OF RICHLAND DATUM.
5. PRIMARY CONTROL POINTS: POINT 1031 AND POINT 1080, CITY OF RICHLAND SURVEY CONTROL NETWORK.
6. CONTOUR INTERVAL: 1 FOOT.
7. EQUIPMENT/PROCEDURES: TOPCON HIPER GNSS, RTK METHOD. LINEAR CLOSURES MEET OR EXCEED STANDARDS CONTAINED IN WAC 332-130-090.

SURVEYOR'S CERTIFICATION

I, CHRISTOPHER C. AMMANN, A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF WASHINGTON, HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THIS MAP IS THE RESULT OF AN ACTUAL FIELD SURVEY CONDUCTED BY ME OR UNDER MY DIRECTION AND THAT ALL INFORMATION SHOWN HEREON IS TRUE AND ACCURATELY SHOWN.

NO.	DATE	DESCRIPTION
0	02/13/19	ORIGINAL SUBMITTAL

<p>PERMIT SURVEYING INC.</p>	2245 Robertson Drive Richland, Washington 99354 OFFICE 509-375-4123 FAX 509-371-0999	PROJECT NO. 19012 DRAWN BY: JLS CHECKED BY: CCA
	<p>NORTHWEST CONSTRUCTION SERVICES, INC. HORN RAPIDS INDUSTRIAL CENTRAL RICHLAND, WASHINGTON</p>	SCALE: 1" = 30' REVISION 0 SHEET 1 OF 1 SV1

2557 Logan St

21-02131

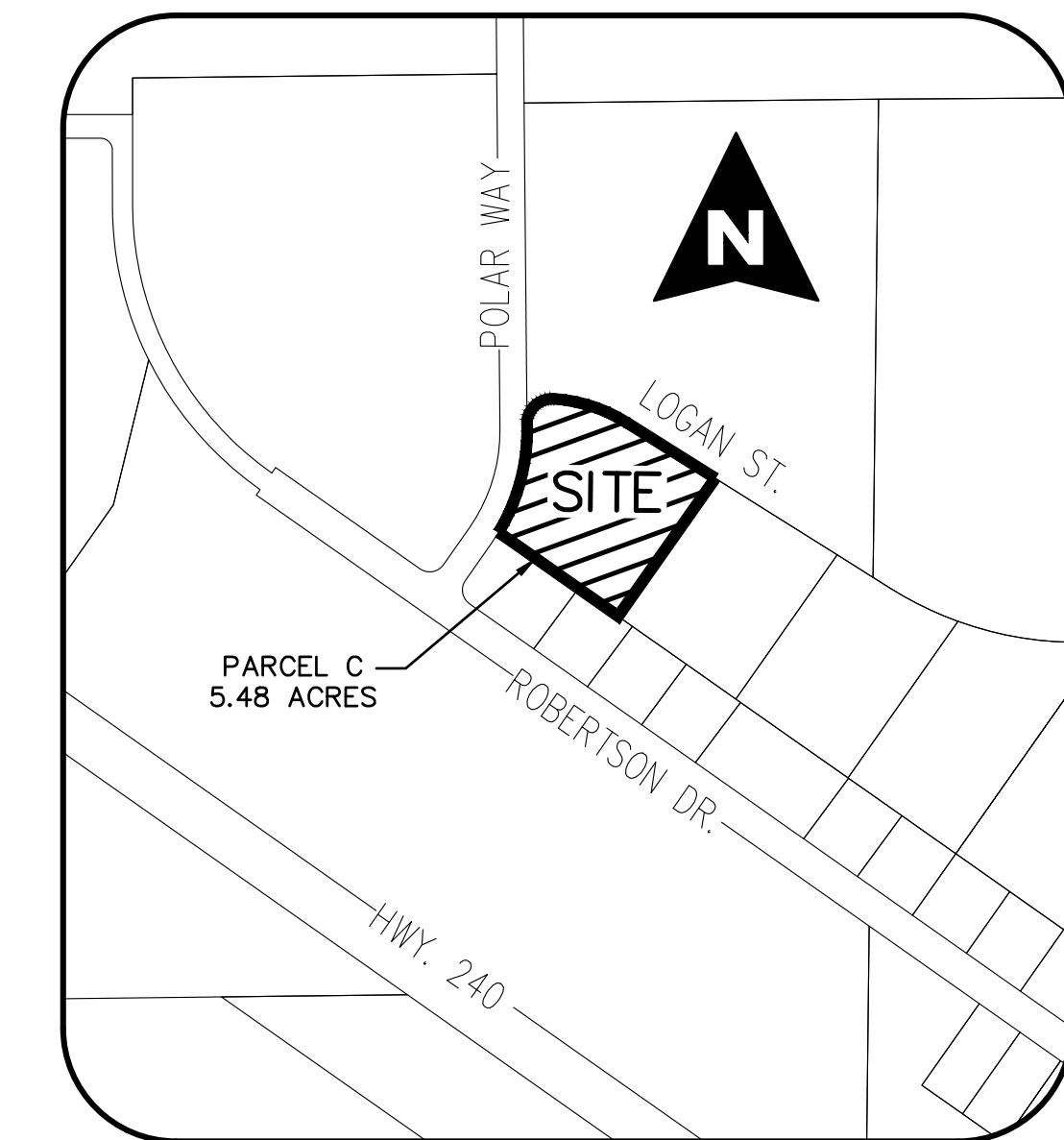
GENERAL CONSTRUCTION NOTES

(MODIFIED 4-18)

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST REVISION OF THE CITY OF RICHLAND STANDARD SPECIFICATIONS AND DETAILS AND THE CURRENT EDITION OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION. PLEASE CONFIRM THAT YOU HAVE THE LATEST SET OF STANDARD SPECS AND DETAILS BY VISITING THE CITY'S WEB PAGE.
- ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, UTILITY EASEMENT, OR INVOLVING THE CONSTRUCTION OF PUBLIC INFRASTRUCTURE WILL REQUIRE THE APPLICANT TO OBTAIN A RIGHT-OF-WAY PERMIT PRIOR TO CONSTRUCTION. A PLAN REVIEW AND INSPECTION FEE IN THE AMOUNT EQUAL TO 5% OF THE CONSTRUCTION COSTS OF THE WORK THAT WILL BE ACCEPTED AS PUBLIC INFRASTRUCTURE OR IS WITHIN THE RIGHT-OF-WAY OR EASEMENT WILL BE COLLECTED AT THE TIME THE PERMIT IS ISSUED. A STAMPED, ITEMIZED ENGINEERS ESTIMATE (OPINION OF PROBABLE COST) SHALL BE USED TO CALCULATE THE 5% FEE.
- ONCE THE PLANS HAVE BEEN ACCEPTED BY THIS DEPARTMENT, A PRE-CONSTRUCTION CONFERENCE WILL BE REQUIRED PRIOR TO THE START OF ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY OR EASEMENT. CONTACT THE PUBLIC WORKS ENGINEERING DIVISION AT 942-7500 OR 942-7742 TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE.
- NO WORK ON THIS PROJECT SHALL COMMENCE UNTIL A CITY OF RICHLAND RIGHT-OF-WAY CONSTRUCTION PERMIT HAS BEEN ISSUED.
- ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."
- THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE LICENSED BY THE STATE OF WASHINGTON AND BE BONDED TO DO WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL PROVIDE THE CITY A CERTIFICATE OF INSURANCE PRIOR TO ISSUANCE OF THE RIGHT-OF-WAY CONSTRUCTION PERMIT. THE MINIMUM COVERAGES SHALL COMPLY WITH THE CITY'S INSURANCE REQUIREMENTS.
- THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A CURRENT CITY OF RICHLAND BUSINESS LICENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CONSTRUCTION DEFICIENCIES FOR A PERIOD OF ONE-YEAR FROM THE DATE OF ACCEPTANCE BY THE CITY OF RICHLAND.
- THE CONTRACTOR SHALL BE REQUIRED TO CALL 1-800-424-5555 OR "811" A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCING ANY EXCAVATION ACTIVITIES TO DETERMINE FIELD LOCATIONS OF ALL UNDERGROUND UTILITIES.
- ANY CHANGES OR MODIFICATIONS TO THE PROJECT PLANS SHALL FIRST BE APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.
- THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED WITH THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- IRRIGATION VALVE BOXES OR LIDS WITHIN THE ROADWAY OR PUBLIC RIGHT-OF-WAY NEED TO BE PER CITY OF RICHLAND SPEC: "RICH 931" CAST IRON LID SHALL HAVE "1RR" CAST INTO TOP.
- A MINIMUM HORIZONTAL SEPARATION OF TEN- FEET SHALL BE MAINTAINED BETWEEN WATER MAINS AND SEWER MAINS AND SERVICE LINES. WATER MAINS SHOULD CROSS OVER THE TOP OF SEWER MAINS WITH A MINIMUM VERTICAL SEPARATION OF 18-INCHES. ANY CROSSING WITH A VERTICAL SEPARATION OF LESS THAN 18" OR ANY CROSSING IN WHICH THE WATER MAIN CROSSES BELOW THE SEWER MAIN SHALL BE IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OF ECOLOGY STANDARDS. PRESSURIZED SEWER MAINS SHALL NOT CROSS OVER POTABLE WATER MAINS IN ANY CASE. IF A MINIMUM VERTICAL SEPARATION OF 12" CANNOT BE MAINTAINED BETWEEN MAINLINE PIPES, CDF OR CONCRETE SHALL BE USED AS BACKFILL IN PLACE OF NATIVE SOILS OR GRAVEL.
- RESIDENTIAL SEWER SERVICES SHALL BE 4-INCHES IN DIAMETER AND SHALL EXTEND 10- FEET BEYOND THE RIGHT-OF-WAY INTO THE LOT. THE END SHALL BE MARKED WITH A MARKER POST INSTALLED IN ACCORDANCE WITH CITY STANDARD DETAILS.
- THE CONTRACTOR SHALL TAKE ANY NECESSARY MEANS TO KEEP FROM TRACKING MUD AND DEBRIS OUT ONTO THE EXISTING STREETS, AND SHALL ALSO KEEP MUD AND ANY OTHER DEBRIS FROM HIS SITE FROM ENTERING THE EXISTING PUBLIC STORM DRAINAGE SYSTEM.
- THE CONTRACTOR SHALL SUPPLY A DUST CONTROL PLAN PRIOR TO STARTING WORK IN ACCORDANCE WITH RMC CHAPTER 9.16.046, SECTION J.
- ALL DISTURBED AREAS SHALL BE HYDRO-SEEDED AT THE COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL TAKE CARE TO PREVENT CONSTRUCTION SITE RUNOFF FROM THE ENTERING INTO THE CITY'S STORMWATER SYSTEM, IN ACCORDANCE WITH RMC CHAPTER 16.05. CONSTRUCTION MATERIALS THAT MAY INTRODUCE SEDIMENT INTO THE STORMWATER SYSTEM MAY NOT BE STOCKPILED IN THE STREET. SUCH MATERIALS MAY INCLUDE BUT NOT BE LIMITED TO: CONSTRUCTION MATERIALS, SOIL, SAND, GRAVELS, ETC.

HOLLIS SITE PLAN

RICHLAND WASHINGTON
SECTION 28, T. 10 N., R. 28 E., W.M.



VICINITY MAP
NOT TO SCALE

ABBREVIATIONS

AC	ASPHALTIC CONCRETE	LP	LOW POINT
ACP	ASPHALT CONCRETE PAVEMENT	LS	LANDSCAPING
ADA	AMERICANS WITH DISABILITIES ACT	MAX	MAXIMUM
APPROX	APPROXIMATE	MH	MANHOLE
ARCH	ARCHITECTURAL	MIN	MINIMUM
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MON	MONUMENT
BLDG	BUILDING	MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
BO	BLOW OFF	NIC	NOT IN CONTRACT
BVC	BEGIN VERTICAL CURVE	NTS	NOT TO SCALE
BW	BACK OF WALK	OC	ON CENTER
CB	CATCH BASIN	OD	OUTSIDE DIAMETER
CF	CUBIC FEET	PW	POWER
CI	CAST IRON	PC	POINT OF CURVATURE
CL	CENTERLINE	PCC	POINT OF COMPOUND CURVE
CMP	CORRUGATED METAL PIPE	PERF	PERFORATED
CO	CLEANOUT	PI	POINT OF INTERSECTION
CSBC	CRUSHED SURFACING BASE COURSE	PT	POINT OF TANGENCY
CSTC	CRUSHED SURFACING TOP COURSE	PL	PROPERTY LINE
CY	CUBIC YARD	R	RADIUS
DI	DUCTILE IRON	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	REQ'D	REQUIRED
DW	DRYWELL	R/W	RIGHT OF WAY
EA	EACH	S	SLOPE
EASE	EASEMENT	SD	STORM DRAIN
EG	EXISTING GRADE	SF	SQUARE FEET
EL	ELEVATION	SPECS	SPECIFICATIONS
EP	EDGE OF PAVEMENT	SS	SANITARY SEWER
EST	ESTIMATED	STA	STATION
EVC	END VERTICAL CURVE	STD	STANDARD
(E)	EXISTING	SW	SIDEWALK
FCA	FLANGED COUPLING ADAPTER	SY	SQUARE YARD
FF	FINISHED FLOOR	T	TELEPHONE
FG	FINISHED GRADE	TBM	TEMPORARY BENCH MARK
FND	FOUND	TC	TOP OF CURB
FT	FEET	TV	TELEVISION
HMA	HOT MIXED ASPHALT	TYP	TYPICAL
ID	INSIDE DIAMETER	UGP	UNDERGROUND POWER
IE	INVERT ELEVATION	VC	VERTICAL CURVE
IRR	IRRIGATION	W	WATER
L	LENGTH	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
LF	LINEAR FOOT		

LEGEND

— X — X —	(E) FENCE
— X — X —	PROPOSED FENCE
---(E) WATER---	(E) WATER LINE
—NEW W—	NEW WATER SERVICE LINE
---SS---	(E) SANITARY SEWER LINE
—4" SS—	NEW SANITARY SEWER SERVICE LINE
— — — — —	(E) PARKING STRIPING
— — — — —	EDGE OF (E) PAVEMENT
— — — — —	PROPERTY LINE
—UGP---	(E) UNDERGROUND POWER
—UGP---	NEW UNDERGROUND POWER
---FO---	(E) FIBEROPTICS
⊗	(E) STREET LIGHTS
⊞	(E) PULL BOX
⊞	(E) TRANSFORMER
⊞	(E) POWER METER
⊞	(E) TELEPHONE RISER
⊞	(E) SEWER SERVICE STUB
⊞	(E) ELECTRICAL VAULT
⊞	(E) WATER SERVICE
⊞	NEW WATER METER
⊞	(E) FIRE HYDRANT

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. SPINK ENGINEERING LLC MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, WE DO NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED, ALTHOUGH WE DO CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

SHEET INDEX

SHEET 1 COVER SHEET
SHEET 2 GRADING PLAN
SHEET 3 UTILITY PLAN

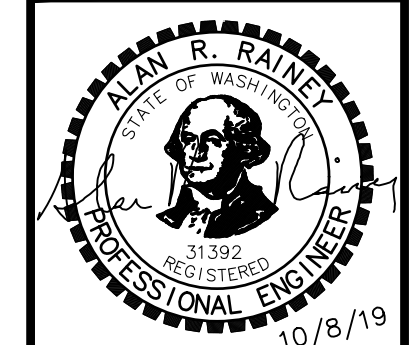


Know what's below.
Call before you dig.

48 HOURS
NOTICE REQUIRED

10-8-19

REV.	DATE	REVISION COMMENTS

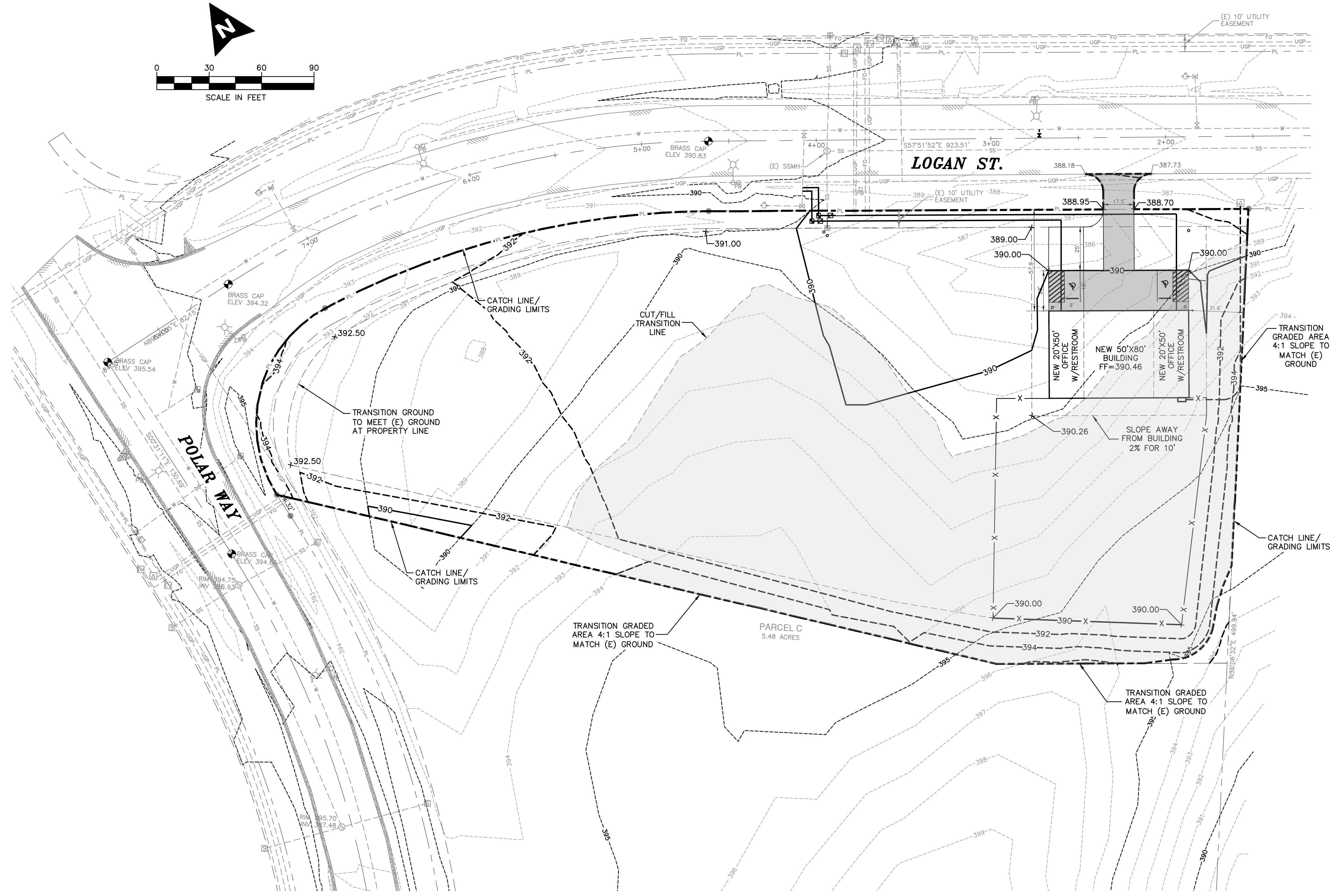
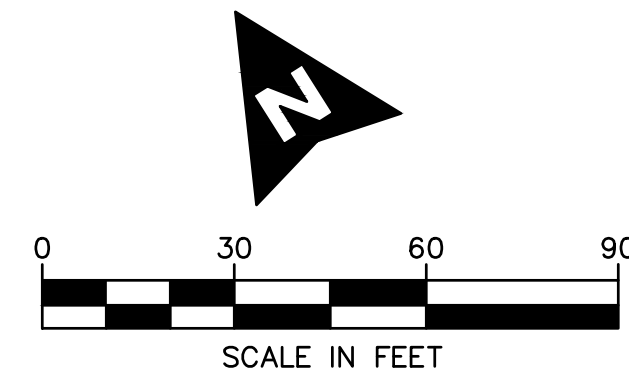


SPINK ENGINEERING
1045 Nathan Ave., Suite E., Richland, WA • 509.946.1581 • www.spinkeng.com

DRAWN BY: JJP	DESIGNED BY: JJP
APPROVED BY: ARR	FILE: 19-125.dwg

DENNIS HOLLIS
COVER SHEET
HOLLIS SITE PLAN
RICHLAND WA

SHEET 1 of 3
JOB# 19-125
DWG# 600-231



LEGEND

- X — X — (E) FENCE
- - - X - - - (E) PROPOSED FENCE
- - - (E) WATER (E) WATER LINE
- NEW W — (E) NEW WATER SERVICE LINE
- - - SS - - - (E) SANITARY SEWER LINE
- 4" SS — (E) NEW SANITARY SEWER SERVICE LINE
- - - (E) PARKING STRIPING
- - - PL - - - (E) EDGE OF (E) PAVEMENT
- - - PL - - - (E) PROPERTY LINE
- - - UGP - - - (E) UNDERGROUND POWER
- - - UGP - - - (E) NEW UNDERGROUND POWER
- - - FO - - - (E) FIBEROPTICS
- ⊙ (E) STREET LIGHTS
- ⊠ (E) PULL BOX
- ⊡ (E) TRANSFORMER
- ⊞ (E) POWER METER
- ⊞ (E) TELEPHONE RISER
- ⊞ (E) SEWER SERVICE STUB
- ⊞ (E) ELECTRICAL VAULT
- ⊞ (E) WATER SERVICE
- ⊞ (E) NEW WATER METER
- ⊞ (E) FIRE HYDRANT

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ESTIMATED EARTHWORK QUANTITIES
(FROM EXISTING GROUND TO FINISH GRADE)

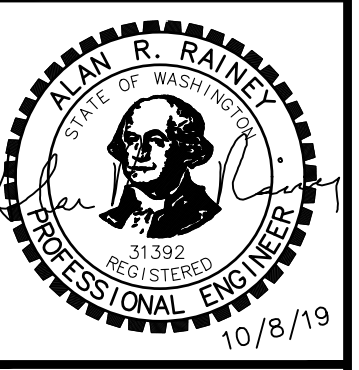
EXCAVATION	NEATLINE	EMBANKMENT
4449 CY		3752 CY



Know what's below.
Call before you dig.

48 HOURS NOTICE REQUIRED 10-8-19

REV.	DATE	REVISION COMMENTS



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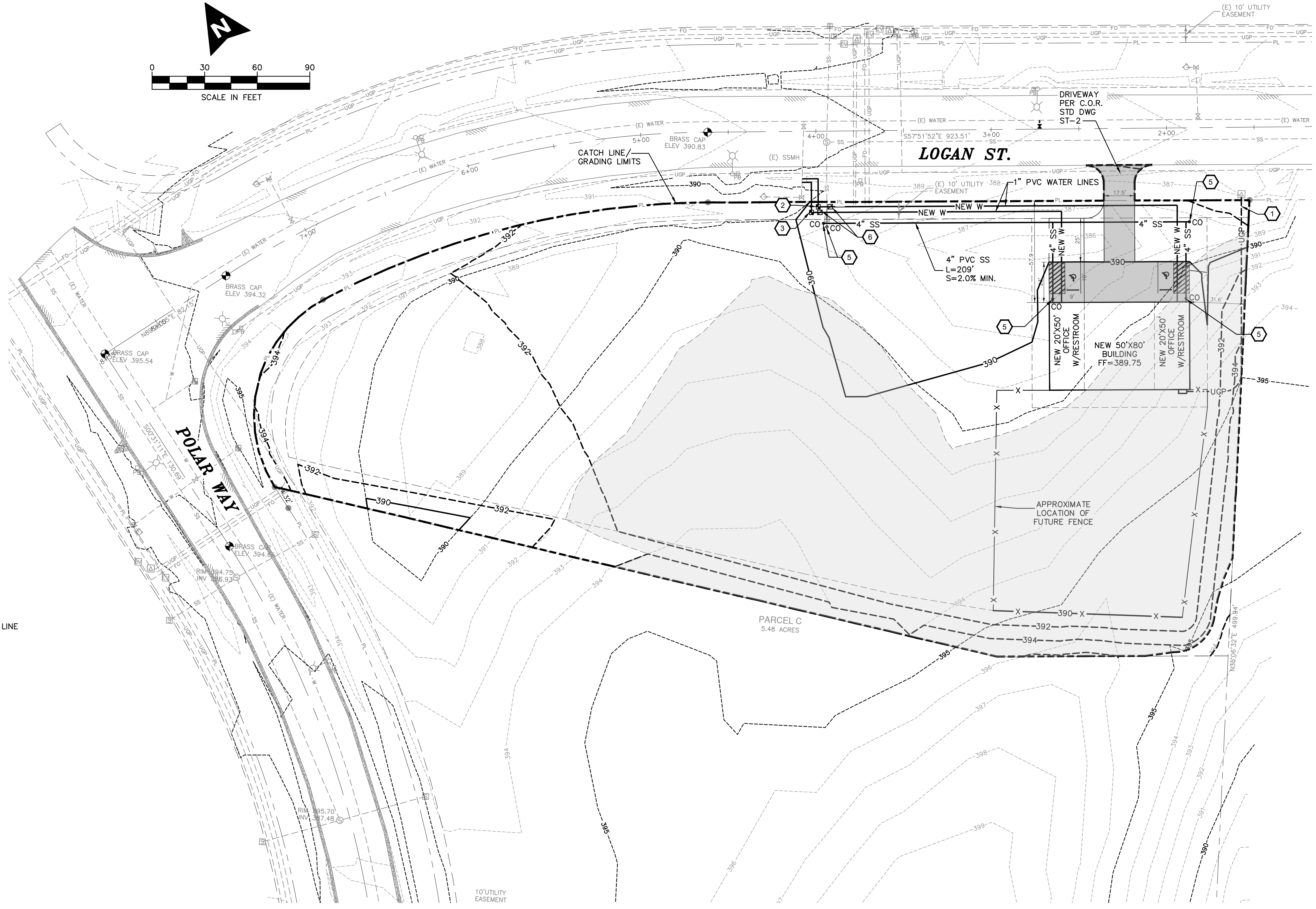
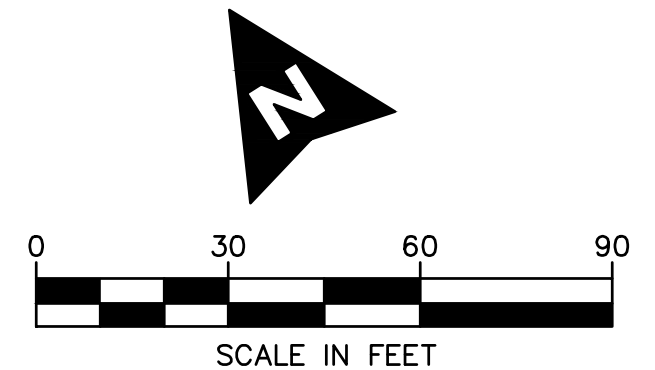
DRAWN BY: JLP	DESIGNED BY: JLP
APPROVED BY: ARR	FILE: 19-125.dwg

DENNIS HOLLIS
GRADING PLAN
HOLLIS SITE PLAN
RICHLAND, WA

SHEET 2 of 3
JOB# 19-125
DWG# 600-231

CONSTRUCTION KEYNOTES

- 1 STA: 1+57.64, 40.18 LT. UNDERGROUND POWER CONNECTION.
- 2 STA: 3+99.05, 43.12 LT. INSTALL NEW WATER METER PER C.O.R. STD DWG W-1.
- 3 STA: 4+02.92, 46.28 LT. INSTALL NEW WATER METER PER C.O.R. STD DWG W-1.
- 4 STA: 3+92.55, 52.11 LT. NEW 4" SS SERVICE LINE CONNECTION. ALLOW FOR FUTURE SERVICE CONNECTION FROM SOUTH. INSTALL (2) 4" CLEANOUTS.
- 5 INSTALL CLEANOUT PER C.O.R. STD. DWG S-9.
- 6 DCVA PER C.O.R. STD DWG W-20.
- 7 CONTRACTOR SHALL AFTER BACKFILLING AND COMPACTING THE WATER SERVICE TRENCH TO WITHIN 12" OF THE TOP OF THE FINISHED GROUND GRADE, INSTALL A CONTINUOUS 2" MINIMUM WIDTH BLUE PLASTIC COATED ALUMINUM PIPE LOCATOR RIBBON OVER THE TOP OF THE PIPELINE, WHICH SHALL BE CLEARLY MARKED "CAUTION BURIED WATER LINE" CONTINUOUSLY ALONG THE LENGTH OF THE RIBBON.
- 8 CONTRACTOR SHALL INSTALL TRACER WIRE, IN ADDITION TO THE LOCATION RIBBON, OVER THE WATER SERVICE LINE. THE TRACER WIRE SHALL BE 14 GAUGE COPPER WIRE WITH BLUE CODED UP INSULATION. THE TRACER WIRE SHALL BE FASTENED TO THE SERVICE PIPE AT A MAXIMUM OF 6" INTERVALS WITH DUCT TAPE. BARE WIRE CONTACT POINTS SHALL BE PROVIDED AT THE BACKFLOW PREVENTION DEVICE.
- 9 SEWER SERVICE PIPE SHALL MEET ASTM D3034, SDR 35.
- 10 CONTRACTOR SHALL, AFTER BACKFILLING AND COMPACTING THE SANITARY SEWER TRENCH TO WITHIN 12" OF THE TOP FINISHED GROUND GRADE, INSTALL A CONTINUOUS 2" MINIMUM WIDTH GREEN PLASTIC COATED ALUMINUM PIPE LOCATOR RIBBON OVER THE TOP OF THE PIPELINE, WHICH SHALL BE CLEARLY MARKED "CAUTION BURIED SEWER LINE" CONTINUOUSLY ALONG THE LENGTH OF THE RIBBON.



LEGEND

- X-X- (E) FENCE
- X-X- PROPOSED FENCE
- (E) WATER--- (E) WATER LINE
- NEW W--- NEW WATER SERVICE LINE
- SS--- (E) SANITARY SEWER LINE
- 4" SS--- NEW SANITARY SEWER SERVICE LINE
- (E) PARKING STRIPING
- EDGE OF (E) PAVEMENT
- PL--- PROPERTY LINE
- UGP--- (E) UNDERGROUND POWER
- UGP--- NEW UNDERGROUND POWER
- FO--- (E) FIBEROPTICS
- (E) STREET LIGHTS
- (E) PULL BOX
- (E) TRANSFORMER
- (E) POWER METER
- (E) TELEPHONE RISER
- (E) SEWER SERVICE STUB
- (E) ELECTRICAL VAULT
- (E) WATER SERVICE
- (E) NEW WATER METER
- (E) FIRE HYDRANT

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. SPINK ENGINEERING LLC MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, WE DO NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED, ALTHOUGH WE DO CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

ESTIMATED EARTHWORK QUANTITIES (FROM EXISTING GROUND TO FINISH GRADE)	
EXCAVATION	EMBANKMENT
4449 CY	3752 CY

CONTRACTOR TO FIELD VERIFY LOCATION, ELEVATION, SIZE & MATERIAL OF WATER & SEWER STUBS PRIOR TO CONSTRUCTION



Know what's below.
Call before you dig.
48 HOURS NOTICE REQUIRED

REV.	DATE	REVISION COMMENTS



SPINK ENGINEERING
1045 Nathan Ave., Suite E, Richland, WA • 509.946.1581 • www.spinkeng.com

DRAWN BY: JLP	DESIGNED BY: JLP
APPROVED BY: ARR	FILE: 19-125.dwg

DENNIS HOLLIS
UTILITY PLAN
HOLLIS SITE PLAN
RICHLAND, WA

SHEET 3 of 3
JOB# 19-125
DWG# 600-231



February 13, 2020
File: TC19063A

Mr. Dennis Hollis, President
Northwest Construction Services, Inc.
28004 South 887 PR SE
Kennewick, Washington 99338
Email: dennis@nwcs-inc.com

RE: **GEOTECHNICAL ENGINEERING
EVALUATION**
Polar Way Storage and Office Facilities
Near Polar Way and Logan Street
Richland, Washington

Greetings Dennis:

STRATA is pleased to present this geotechnical engineering evaluation for the proposed Polar Way Storage and Office Facilities, located near Polar Way and Logan Street in Richland, Washington. The purpose of this geotechnical engineering evaluation was to explore the subsurface conditions within the development area and provide geotechnical opinions and recommendations to assist project planning, design, and construction. We accomplished our geotechnical services referencing our authorized proposal dated January 9, 2020.

The following evaluation provides geotechnical recommendations for earthwork activities, shallow foundation design, concrete slab-on-grade floors, and to assist in the design of stormwater, based on the conditions we encountered and observed.

The geotechnical recommendations presented herein must be read and implemented in their entirety. Portions of this evaluation cannot be relied upon individually without the supporting text or other pertinent sections and associated attachments or appendices. Construction success will depend on the design team and contractor adhering to the evaluation recommendations, the contractor executing good construction practices, and the owner and contractor providing the necessary construction monitoring, testing, and geotechnical consultation to verify the work is completed as recommended herein. We suggest that STRATA be retained to provide monitoring, testing, and geotechnical consultation to verify that the evaluation recommendations are followed during final design and construction. If STRATA is not retained to provide geotechnical continuity, STRATA cannot be responsible for designer or contractor errors, omissions, or evaluation misinterpretations; and your selected firm shall become the engineer-of-record for administering these recommendations.

We appreciate the opportunity to continue to work with Northwest Construction Services, Inc. and the design team on this project. Please do not hesitate to contact us if you have any questions or comments.

Sincerely,
STRATA

Jerry Weed, EI-OR
Staff Engineer

Paxton K. Anderson, P.E.
Chief Operations Officer



JW/PKA/kh

Geotechnical Engineering Evaluation
Polar Way Storage and Office Facilities
Near Polar Way and Logan Street
Richland, Washington

PREPARED FOR:

Mr. Dennis Hollis, President
Northwest Construction Services, Inc.
28004 South 887 PR SE
Kennewick, Washington 99338



PREPARED BY:

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February 13, 2020



TABLE OF CONTENTS

	Page
INTRODUCTION	1
PROJECT UNDERSTANDING	2
Proposed Construction	2
FIELD AND LABORATORY EVALUATION	2
Site Exploration.....	2
Subsurface Conditions	3
Laboratory Testing.....	4
GEOTECHNICAL OPINIONS AND RECOMMENDATIONS	4
General Project Considerations Discussion	4
Earthwork	5
Site Preparation.....	5
<i>Site Stripping</i>	5
<i>Test Pit Remediation</i>	5
<i>Establishing Subgrades</i>	5
Excavation Characteristics	6
Soil Product Specifications	7
Required Compaction.....	8
Wet Weather, Wet Soil Construction and Over-Excavations.....	9
Shallow Foundation Design	9
Design Parameters.....	10
Seismicity	10
Concrete Slab-On-Grade Floors	11
Moisture Protection	11
Frost Protection.....	13
Bio-Infiltration Swale Design.....	14
Site Grading Considerations.....	15
ADDITIONAL RECOMMENDED SERVICES	15
Geotechnical Design Continuity	15
Plan and Specification Review.....	16
Geotechnical Observation During Construction	16
EVALUATION LIMITATIONS	16



EVALUATION TABLES & FIGURES

Table 1. Soil Fill Specifications and Allowable Use 7
Table 2. Required Soil Products for Designated Project Areas 8
Table 3. Seismic Response Criteria 11
Figure 1: Vapor Retarder Flowchart..... 12
Table 4. Bio-Infiltration Swale Area Summary of Fines Content..... 14

EVALUATION PLATES AND APPENDICES

Plate 1: Exploration Site Plan
Appendix A: Unified Soil Classification System (USCS) & Subsurface Exploration



Geotechnical Engineering Evaluation
Polar Way Storage and Office Facilities
Near Polar Way and Logan Street
Richland, Washington

INTRODUCTION

The purpose of this geotechnical engineering evaluation was to assess subsurface soil conditions within the proposed project area and to prepare geotechnical recommendations to assist final design and construction document development. This evaluation represents the deliverable associated with the authorized proposal dated January 9, 2020. The following summary describes the authorized scope of service:

1. Coordinated exploration with Northwest Construction Services, Inc. to delineate exploration schedules, locations, utility issues, cleanup expectations, site access issues, and other exploration-specific considerations.
2. Performed a site visit to stake and paint exploration locations.
3. Coordinated exploration with the Washington Utility Notification Center to help reduce the potential for damage to existing utilities.
4. Performed subsurface exploration at the site by observing a backhoe and operator excavate ten exploratory test pits at the site extending to a maximum of 12.0-feet beneath the existing ground surface and loosely backfilled each test pit approximately level with the ground surface following exploration. Refer to this evaluation's *Test Pit Remediation* section for recommendations regarding test pit remediation during construction.
5. Performed Dynamic Cone Penetrometer (DCP) testing in select locations to help delineate in-situ soil strength parameters.
6. Visually described and classified the soil encountered, referencing the *American Society for Testing and Materials International* (ASTM) Test Designation D2488 *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)*, and obtained select soil samples for laboratory testing.
7. Performed laboratory testing on select soil samples obtained during exploration, referencing ASTM test standards.
8. Reviewed subsurface conditions, laboratory test results, the proposed construction, conducted geotechnical analyses, and provided geotechnical recommendations to assist project design and construction for the following:
 - Earthwork;
 - Shallow foundation design;
 - Concrete slab-on-grade floors; and
 - Stormwater disposal.
9. Prepared and provided this geotechnical evaluation deliverable for the project design team including exploration logs, laboratory test results, and a site plan illustrating exploration locations.

Throughout this evaluation test pits are abbreviated TP and hyphenated with a numbering system that corresponds to the Plate 1: *Exploration Site Plan*.



PROJECT UNDERSTANDING

The project understanding for this evaluation is based on discussions with Mr. Dennis Hollis, with Northwest Construction Services, Inc. and a review of the following documents:

- Three plan sheets titled: *Hollis Site Plan*, dated October 8, 2019, and produced by Spink Engineering; and
- Our telephone and electronic mail conversations with you to date.

The site is shown on Plate 1, *Exploration Site Plan*. The Polar Way Storage and Office Facilities will be constructed on an undeveloped parcel. The site is located in the southeast quadrant of the intersection of Logan and Polar Way. Presently, the parcel is uncultivated land covered with sagebrush. No previous site developments or conditions that may affect our proposed scope of services were evident from our review of the historical imagery available on Google Earth®. From the east to west, the development area has approximately 10.0-feet of elevation drop in a horizontal distance of 350.0-feet from data available in Google Earth®.

Proposed Construction

The project consists of constructing two office spaces adjoining a storage building. The type of construction will likely comprise a single-story, steel-framed metal building occupying a plan area of approximately 6,000 square-feet. The building foundations will consist of typical shallow spread-footings (perimeter strip footings and isolated column pad footings). Earth-supported concrete floors are likely and will be placed at or slightly above existing grade, and no below-grade features (basements or mechanical areas) are planned. Although presently unavailable, we assume structural loads are expected to be light, with continuous footings and isolated column footing load on the order of 2.0- to 3.0-kips per lineal foot and 50.0- to 75.0-kips, respectively.

Stormwater disposal will likely consist of new infiltration swales. Drywells are not planned at this time. At the time of this evaluation the stormwater facility locations and/or specific design details have not been provided.

FIELD AND LABORATORY EVALUATION

Site Exploration

Subsurface conditions were evaluated within the proposed project area by observing ten exploratory test pits on January 24, 2020. Test pits were advanced to depths extending 12.0-feet below the existing ground surface. Test pits were advanced using a CAT 308 excavator equipped with a 3.0-foot-wide bucket. Select soil samples were obtained within test pits for laboratory testing and to assist



soil classification. Test pits were loosely backfilled and smoothed approximately level with the surrounding ground surface elevation. Test pits were staked to allow for surveying and remediation during construction, as further discussed in this evaluation's *Site Preparation* section. Test pits are recommended to be located and reviewed by STRATA during site grading to determine whether additional remediation (i.e., removing backfill and replacing with *Structural Fill*) is necessary as further discussed in this evaluation's *Test Pit Remediation* section.

Plate 1 illustrates approximate exploration locations documented in the field. A STRATA Field Professional visually described, classified, and logged the subsurface conditions encountered during exploration referencing ASTM D2488 *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)*. Appendix A presents exploratory test pit logs and a *Unified Soil Classification System (USCS)* explanation, which should be used to help interpret soil terms used throughout this evaluation and on the exploratory logs.

Subsurface Conditions

Silty sand topsoil, was encountered at the ground surface in all exploratory test pits; containing moderate vegetation and organics to depths extending 12.0-inches beneath the ground surface. The soil was generally brown, loose, and moist.

One primary subsurface unit was encountered below the topsoil layer:

- **Alluvial Deposits – Silty Sand (SM) Poorly-Graded Sand with Silt (SP-SM), Poorly-Graded Sand (SP)**– Encountered in all exploratory test pits beneath the topsoil, extending to test pit termination depths ranging between 8.0- and 12.0-feet beneath the ground surface; generally light brown, loose to medium dense, and dry to moist. The fines content (percent passing a No. 200 sieve) of the soil generally decreased with depth.

Groundwater was not encountered in any of the exploratory test pit locations. Based on a review of Washington State Ecology well logs, and local exploration experience in Richland, Washington, depth groundwater and bedrock are anticipated to be greater than 12.0- and 100.0-feet below ground surface, respectively.

Soil conditions encountered in locations explored were moderately uniform across the site. However, exploratory excavations only allow observation of a relatively small sample of the subsurface conditions at the site. Variations in the subsurface will not be apparent until construction, and may impact project schedules and costs. Where such variations exist, it may affect the opinions and recommendations presented in this evaluation as well as construction timing and costs, and STRATA must be contacted to review the encountered conditions and recommendations to make any necessary revisions. See *General Project Considerations Discussion* section of this evaluation for further discussion on variability and risk assessment.



Laboratory Testing

Laboratory testing was performed on select soil samples collected in the field referencing ASTM procedures. Laboratory test results were used to verify soil classification and to estimate soil engineering properties. Exploration logs in Appendix A include index laboratory test results; Appendix B provides graphical and analytical laboratory test results. Laboratory tests included:

- ASTM D1140 – *Standard Test Methods for Amount of Material in Soils Finer Than the No. 200 Sieve*; and
- Add moisture content here.

GEOTECHNICAL OPINIONS AND RECOMMENDATIONS

General Project Considerations Discussion

As summarized herein, several subsurface conditions and considerations have been identified which will impact project construction and should be considered by the project team during final design and also prospective bidding contractors:

- The fines content of the soil decreases with depth. The poorly-graded sand that was encountered ranging from 4.0- to 10.0-feet beneath the ground surface will have a higher infiltration rate than the surficial silty sand and should be utilized for swale bases.
- Loose to medium dense sand was encountered in all DCP tests conducted across the site. Loose to medium dense soil can consolidate when loaded, causing settlement of structures supported above. To reduce the risk of settlement, we recommend scarification and recompaction of the upper 12.0- to 24.0-inches (pending area) below bottom-of-footing, slab, and/or exterior slab elevations per recommendations provided later in this report. See the *Required Compaction* section of this report for details specific to corrective earthwork and recommended compaction criteria.

The following geotechnical recommendations are presented to assist final design and construction document development for Polar Way Storage and Office Facilities to be constructed near Polar Way and Logan Street in Richland, Washington. Geotechnical recommendations are based on experience with similar soil and geologic conditions, findings from field and laboratory evaluation, and understanding of the proposed construction. If development plans change, STRATA recommends to be contacted to review any project modifications relative to recommendations, and if necessary, provide any necessary revisions or modifications. Additionally, if subsurface conditions exposed during construction are different than what was encountered during exploration, STRATA should be contacted to review the recommendations and provide any necessary revisions or modifications.



Earthwork

Site Preparation

Site Stripping

Stripping must extend laterally at least 5.0-feet outside of planned improvement areas. All topsoil containing vegetation and organics must be removed from beneath any planned buildings, hardscapes and structural fill areas. Approximately 12.0-inches of topsoil was encountered and should be removed from the site. However, varying thicknesses of vegetation and organic deposits should be expected. Soil containing vegetation and organics should be disposed off-site or may be reused on-site for landscaping, but may not be re-used as *Structural Fill*.

Test Pit Remediation

All test pits located beneath the planned building and asphalt areas are recommended to be remediated during earthwork construction. Test pits shall be backfilled with either on-site native sand or imported *Structural Fill* meeting the requirements stated in this evaluation's *Soil Product Specifications and Required Compaction* section. STRATA requires all test pits within the proposed construction areas to be reviewed by STRATA and the contractor, following site stripping, to determine whether full-depth remediation is necessary based on conditions observed during construction and planned improvements overlying test pit areas.

Establishing Subgrades

Following site stripping, excavating to achieve site grades, and prior to fill placement; prepare subgrades to receive fill, concrete, asphalt, or other site improvements as outlined below:

- Building and foundation subgrades:
 - Prior to placing embankment fill for site grading (if necessary), concrete for foundations, or aggregate support sections beneath slabs, scarify and recompact the exposed native subgrade soil to a depth of 24.0-inches and compact to at least 95.0-percent of the soil's maximum dry density, referencing ASTM D1557. To accomplish subgrade compaction, moisture conditioning (i.e., wetting or drying the soil) is expected to reach near-optimum moisture content will be required.
- All other subgrades (i.e. exterior hardscapes and landscape areas):
 - Prior to placing *Structural Fill* or *Crushed Surfacing* hardscape footprints, prepare subgrades by scarifying, moisture-conditioning, and recompacting the exposed native subgrade soil to a depth of 12.0-inches to at least 95.0-percent of the soil's maximum dry density, referencing ASTM D1557. To maintain landscape drainage slopes, it is recommended that the soil is compacted to 85.0-percent of the soil's maximum dry density, referencing ASTM D1557 in landscape areas. To accomplish subgrade compaction, moisture conditioning (i.e. wetting or drying the soil) is expected to near optimum moisture content will be required.



After preparing subgrades, it is the contractor's sole responsibility to protect subgrades from degradation, freezing, saturation, or other disturbance. Careful construction and earthwork procedures will be critical to achieving adequate subgrade preparation and reducing over-excavation. Specifically, these procedures could include, but are not limited to, carefully staging equipment and/or stockpiles, routing construction equipment away from subgrades, and implementing aggressive site drainage procedures to help reduce saturating subgrades during wet weather conditions. As stated above, it is the contractor's responsibility to protect subgrades throughout construction. If a subgrade freezes, it must be recompacted and retested prior to acceptance. Subgrade disturbance that occurs due to the contractor's means and methods must be repaired at no cost to the owner. STRATA will remain available to consult with the owner, the project team, and the contractor as the project moves forward regarding subgrade preparation procedures.

Excavation Characteristics

The on-site soil is anticipated to be excavated using conventional soil excavation techniques. In general, slopes and excavations must be excavated, shored, or braced in accordance with the *Washington Industrial Safety and Health Act (WISHA)* regulations and local codes. The near-surface on-site soil is classified as a Type "C" soil according to WISHA requirements. Type "C" soil can be benched 1.5H:1.0V. Ultimately, the selected contractor is responsible for site safety and determining appropriate excavations for the conditions and soil types encountered during construction. STRATA accepts no responsibility for temporary excavation stability.

Exploration and laboratory classification indicates the on-site native soil is low to moderately moisture-sensitive and susceptible to disturbance when moist or wet. Soil disturbance will negatively impact the soil's performance below slabs, and foundations. **Uncompacted and/or loose soil shall not be allowed beneath any structure.** Equipment with large tracks, lugs, or having toothed buckets has a significant potential to disturb the site soil prior to, or following compaction. Rubber-tired transport vehicles should not access prepared subgrades unless the subgrade is sufficiently stiff to allow construction traffic without disturbance. Project earthwork specifications specifically outline that the contractor is required to maintain the subgrade in a compacted condition and protect subgrades from construction traffic disturbance after they have been prepared and meet compaction requirements. Further information can be found in this evaluation's *Wet Weather, Wet Soil Construction and Over-Excavation*.



Soil Product Specifications

All fill placed beneath anticipated structures (foundations or slabs) is recommended to consist of *Structural Fill* meeting the requirements presented in Table 1. The on-site native soil (well-graded gravel with silt and sand) is expected to be suitable for re-use as *Structural Fill*, but will require moisture-conditioning prior to placement. Undocumented fill, if encountered, cannot be re-used as *Structural Fill* unless approved by the geotechnical engineer of record.

Table 1. Soil Fill Specifications and Allowable Use

Soil Fill Product	Allowable Use	Material Specifications
Structural Fill¹	<ul style="list-style-type: none"> • Site grading and fill placement • Foundation wall backfill • Over-excavations • Utility trench backfill 	<p>Soil must be classified as GP, GM, GW, SP, SM or SW according to the USCS.</p> <p>Soil may not contain particles larger than 6.0-inches in median diameter.</p> <p>Soil must contain less than 3.0-percent (by weight) of organics, vegetation, wood, metal, plastic or other deleterious substances.</p>
Crushed Surfacing²	<ul style="list-style-type: none"> • Structural fill uses • Slab support aggregate 	<p>Soil meeting requirements stated in <i>Section 9-03.9(3) – Crushed Surfacing</i> of WSDOT Standards.</p>
Utility Trench Backfill	<ul style="list-style-type: none"> • Pipe zone bedding 	<p>Soil meeting requirements stated in <i>Section 9-03.12(3) – Gravel Backfill for Pipe Zone Bedding</i> of WSDOT Standards.</p>
Unsatisfactory Soil	<ul style="list-style-type: none"> • NONE 	<p>Soil classified as CH, MH, OH, OL or PT may not be used at the project site.</p> <p>Any soil type not maintaining moisture contents within 5.0-percent of optimum during compaction.</p> <p>Any soil containing more than 3.0-percent (by weight) of organics, vegetation, wood, metal, plastic or other deleterious substances.</p>

1. The on-site native silty and poorly-graded sand generally meet the intent of our recommendations for *Structural Fill*.
2. *Crushed Surfacing* includes both “top course” and “base course” according to WSDOT Standards.



Required Compaction

Table 2 summarizes soil product compaction requirements.

Table 2. Required Soil Products for Designated Project Areas

Project Area	Required Soil Product	ASTM D1557 Compaction Requirement
Recompacted native subgrades below footings, floor slabs, and exterior slabs.	Native Soil	95%
Structural fill placed for site grading (if required) below structures (foundations and slabs), undocumented fill removal (if encountered), fill within the bio-infiltration swale	<i>Structural Fill</i>	95%

Place *Soil Fill Products* over approved subgrades. Never place *Soil Fill Products* over frozen, saturated, or soft subgrades. All *Soil Fill Products* should be moisture-conditioned to near optimum moisture content and be placed in a maximum of 12.0-inch-thick loose lifts. If site access precludes the use of large (10.0 ton or greater) compaction equipment and smaller or lighter equipment is used, a reduction in fill lift thickness and adjustment in compaction effort must be used. The contractor is responsible for selecting compaction equipment suitable for achieving compaction. Recompaction of the native sand will be challenging. The selected contractor shall be prepared to employ alternate compaction techniques and equipment such as static rolling, the placing of sacrificial lifts above the specified lift, large vibratory rollers for initial compaction and heavy static rolling for final compaction, and/or other techniques to achieve the specified compaction. As previously stated, moisture conditioning will also be required and obtaining a moisture content near optimum will significantly improve compaction efficiency.

Imported *Structural Fill* may be too coarse for conventional Proctor testing if it contains more than 30.0-percent particles retained on the No. ¾ sieve (i.e., oversize material). If excessive oversize material is present within the imported *Structural Fill*, oversize material is recommended to be compacted using method specification. Method compaction should occur by applying at least five complete passes over the soil using vibratory compaction equipment with a drum energy rating of at least 10.0 tons. Smaller compaction equipment is not recommended for method compaction. Method compaction should be observed on a full-time basis by STRATA and should achieve a firm/dense, unyielding and interlocking *Structural Fill* surface. Observations and laboratory testing indicate that the native soil will not be classified as oversize material.



Wet Weather, Wet Soil Construction and Over-Excavations

Earthwork construction is strongly recommended to take place during dry weather conditions. In soft or wet soil areas and during wet weather conditions, earthwork contractors must be familiar with the hazards of using rubber-tired equipment, which exerts a point load on the subgrade. Staggering wheel paths, using tracked equipment to traverse exposed subgrades and other techniques are important processes that reduce the potential for subgrade pumping, rutting, and contractor rework. Construction traffic is strongly recommended to be controlled in a manner that reduces traffic directly on the sensitive soil subgrade.

Earthwork should not be performed immediately after rainfall, or until the soil can dry sufficiently to allow construction traffic without disturbing the subgrade. Potential soil disturbance and the moderately moisture-sensitive soil (silty sand) at the project site will likely require isolated removal and replacement during construction. Any soil exhibiting pumping, rutting, weaving, or otherwise exhibiting unstable performance is recommended to be moisture-conditioned (typically drying) and recompacted to *Structural Fill* requirements, or removed. Moisture-conditioning the on-site soil could be difficult. If moisture-conditioning is impractical or may create project delays, the soil should be removed to undisturbed native soil using smooth-blade equipment and *Structural Fill* placed to desired grades.

The “over-excavation” process is recommended to occur as follows:

1. STRATA and/or the selected contractor should identify and delineate unstable subgrade soil conditions. STRATA must review the affected area and provide feedback to help facilitate the over-excavation process.
2. After attempting proper moisture conditioning, remove unstable areas using smooth-blade equipment to a minimum depth of 1.0-foot below the subgrade surface. Extend the over-excavation a minimum of 2.0-feet laterally beyond the delineated unstable area.
3. STRATA shall verify the resulting subgrade following consists of suitable, undisturbed native soil.
4. Place *Structural Fill* in the over-excavation to desired grades in accordance with the *Soil Product Specifications* and *Required Compaction* evaluation sections.

In some instances, a 1.0-foot deep over-excavation may not be sufficient to expose suitable native soil; additional over-excavation depth may be needed. STRATA recommends to be present to observe all over-excavations to verify they have been constructed according to the above criteria, but also to provide immediate on-site feedback and discussion with the project team regarding soft or unsuitable soil conditions to help facilitate the construction schedule.

Shallow Foundation Design

If recommendations are followed, the foundation design criteria presented herein can be applied to project building foundations, assuming the loading conditions stated in the *Project Understanding*



evaluation section are current and accurate. Any foundation for the Polar Way Storage and Office Facilities is recommended to bear on compacted native soil, or *Structural Fill* placed over compacted native soil prepared per the *Earthwork* evaluation section. Foundation subgrades are recommended to remain in a compacted condition during foundation preparations, construction of concrete formwork, and reinforcing steel placement. All foundation bearing surfaces should be free of loose soil and debris and be compacted to requirements presented in the *Required Compaction* evaluation section.

Design Parameters

Based on preparing the foundation bearing soil units as described herein, the following items provide the recommended shallow foundation design parameters:

- Maximum allowable bearing pressure: 3,000 psf:
 - The allowable bearing capacity may be increased by 1/3 if the loading is transient in nature. The increase in bearing capacity may not be combined with a load factor that reduces the load.
- Estimated foundation vertical settlement:
 - Total settlement: Less than 1.0-inch; and
 - Differential settlement: Less than 0.50-inches in a 30.0-foot horizontal span or between adjacent, differently loaded footings.
- Lateral load resistance:
 - Foundation base friction coefficient:
 - 0.50 for foundations cast directly on prepared native gravel or *Structural Fill* soil.
 - Passive soil resistance on foundation sides:
 - Equivalent fluid pressure: 300 pounds per cubic feet (pcf) (requires ¾-inch lateral movement to mobilize full resistance); and
 - Neglect upper 24.0-inches of wall backfill due to frost action.
- Footing embedment:
 - Exterior footings (or footings in non-heated areas) must extend at least 2.0-feet below the final, exterior ground surface to help protect against frost action.

Seismicity

Section 1613 in the 2015 *International Building Code* (IBC) and Chapter 20 in the *American Society of Civil Engineers* (ASCE) 7-10 outline procedures for evaluating site ground motions and design spectral response accelerations. Based on available soil and geologic data, exploration beneath the site and the project location, a **Site Class D** is recommended to be utilized as a basis for structural seismic design. The *Maximum Considered Earthquake* (MCE) maps from the IBC, the *National Earthquake Hazards Reduction Program* (NEHRP), and the *U.S. Geological Survey* (USGS) seismic hazard data (2009) was referenced to develop individual seismic response criteria as presented in Table 3.



Table 3. Seismic Response Criteria
(N 46.326406°, W -119.307060°)

Parameter	Value (g)
S _S - 0.2 Second MCE Spectral Response Acceleration	0.406
S ₁ - 1.0 Second MCE Spectral Response Acceleration	0.157
S _{DS} - 0.2 Second Design Spectral Response Acceleration (S _{DS} = S _{MS} x 0.667)	0.339
S _{D1} - 1.0 Second Design Spectral Response Acceleration (S _{D1} = S _{M1} x 0.667)	0.228
PGA _M - Design Peak Ground Acceleration	0.251

1. Values from 2015 IBC, and 2009 USGS seismic hazard maps, Risk Category I, II, III (low hazard, other, substantial hazard).

Concrete Slab-On-Grade Floors

Concrete slab-on-grade floors are supported by a minimum of 6.0-inches of *Crushed Surfacing* meeting the requirements shown in Table 1. The recommendations provided in this section assume compacted Native or *Structural Fill* subgrades will be prepared per the Earthwork evaluation section. *Crushed Surfacing* below slab support should be placed directly over compacted subgrade observed and approved by STRATA, and meeting the requirements specified in this evaluation’s *Establishing Subgrades* and *Soil Product Specifications* sections.

Slabs must be structurally designed for the anticipated use and equipment or storage loading conditions, as applicable. STRATA has not provided slab design as part of the scope of service. Based on correlations to field and laboratory test results, concrete slab design is recommended to utilize an allowable modulus of subgrade reaction (k) of 200 pci. To realize the estimated subgrade modulus, drained conditions and a minimum of 6.0-inches of *Crushed Surfacing* must be provided.

Moisture Protection

Interior floor slabs may be susceptible to moisture migration caused by subsurface capillary action and vapor pressure. Moisture migration through floor slabs can break down a floor covering, its adhesive, or cause various other floor covering performance problems. Specifically, STRATA has participated in numerous projects where inadequate vapor protection caused significant damage to moisture-susceptible flooring systems. Often, these moisture problems were associated with either no moisture protection below the slab or, alternatively, with improperly sealed sub-slab penetrations that allowed vapor migration and damage to the flooring system. Plumbing penetrations are notoriously problematic for under-slab vapor protection.



Vapor retarders must consist of thick, puncture-resistant polyethylene sheeting placed immediately below the floor slab. An example of this material is Stego Wrap™, a 15-mil retarder. Alternatively, the vapor barrier may be covered with an additional 2-inch-thick layer of clean, coarse sand placed between the aggregate base course and the concrete slab-on-grade floors, if the base material and slabs are placed with a waterproofing system in-place. Vapor barrier installation options are outlined in Figure 1, following.

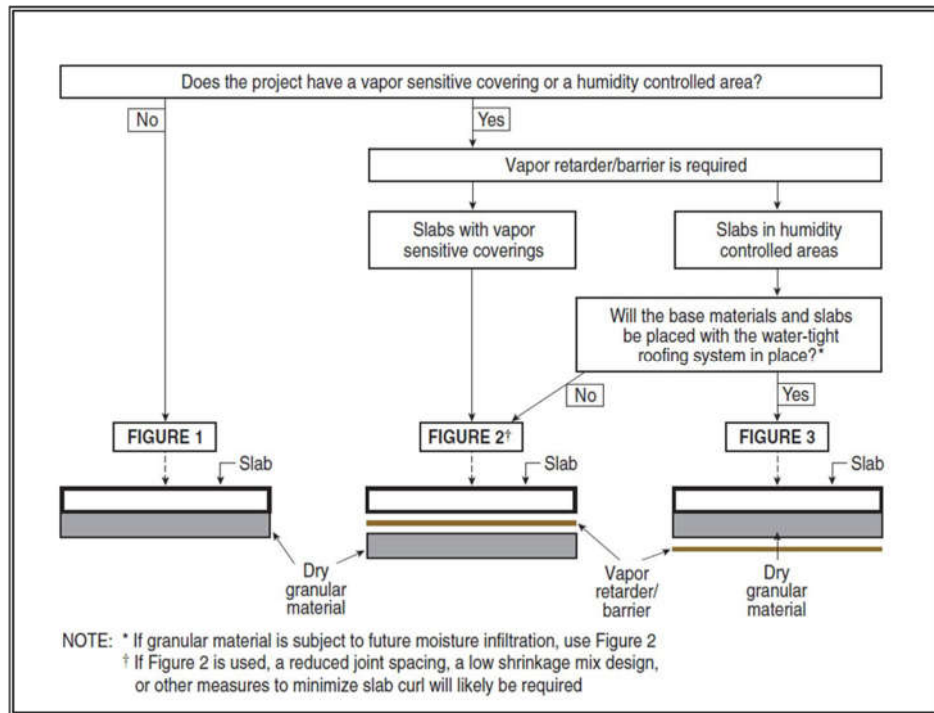


Figure 1: Vapor Retarder Flowchart
(Adapted from Figure 3-1 of ACI 302.1R-04)

Form stakes, piping, or other sub-slab penetrations must never penetrate the vapor retarder. Carefully design and construct any vapor retarder penetrations to reduce vapor transport through such penetrations. Even if these recommendations are used, water vapor migration through the concrete floor slab is still possible. Floor covering should be selected accordingly. The manufacturer's recommendations should be strictly followed. Where vapor retarders are utilized, the flooring and concrete slab contractors, as well as the plastic sheeting manufacturer, should be consulted regarding additional slab cure time requirements and/or the potential for slab curling.

Northwest Construction Services, Inc. may desire to reduce the project budget by omitting a vapor retarder system below the concrete slab-on-grade floors. However, buildings and associated utilities



can act as conduits for moisture and water vapor that exists in the soil to migrate vertically. STRATA recommends you strongly consider the risks of excluding a vapor barrier prior to omitting such a system. Where floor coverings or equipment must be protected from damage by moist floor conditions, the installation of a vapor retarder is strongly suggested.

Ultimately, the location of the vapor retarder (if specified) should be carefully considered by the Owner and the design team. ASTM E1643 and American Concrete Institute (ACI) Committee 302 are 2 publications that provide considerations for vapor retarder locations. Studies have shown that decreased water cement ratios, higher strength concrete, and good construction finishing practices significantly decrease any negative impacts associated with the above options for vapor retarder locations.

Frost Protection

The native silty sand is a highly frost-susceptible soil. If silty sand becomes wet and freezes, several inches of frost heave may occur. The heaving of slabs, including the interior and non-heated storage unit slabs, during the winter can be a nuisance or hazard where doors open outward and at other critical grade areas.

One way to reduce this heave is to remove the frost-susceptible soils down to the bottom-of-footing level and replace them with clean (non-frost-susceptible) sand or sandy gravel. Sand or sandy gravel with less than 5.0-percent of their particles by weight passing a No. 200 sieve is generally considered non-frost susceptible. The on-site poorly graded sand encountered across the site is suitable for replacing frost-susceptible soils near areas where heaving conditions are not desirable.

Another method of reducing frost heave is to place a minimum of 2.0-inches of extruded polystyrene foam insulation beneath the slabs and extending approximately 4.0-feet beyond the slabs. Insulation will reduce frost penetration into the underlying subgrade and thereby reduce heave. A leveling course of sand is generally required to seat the insulation panels. There should be 8.0- to 12.0-inches of Crushed Surfacing Top Course material placed over the panels to protect them during construction.

Consideration can also be given to supporting the slabs on frost-depth footings. A void space of at least 4.0-inches should be provided between the bottoms of the slabs and the frost-susceptible subgrade to allow them to heave without affecting the slabs. The stem walls should be tied to the footings with sufficient reinforcing to prevent frost from heaving the walls off of the footings.

Stormwater disposal is feasible provided the recommendations presented herein are followed and stormwater facilities are designed and constructed in accordance with the most recent version of the *Spokane Regional Stormwater Manual* (SRSM). If the proposed stormwater disposal plan changes



from what have described and assumed herein, STRATA must be contacted to review the planned changes and provide revised recommendations, as necessary. The following sections detail stormwater disposal recommendations.

Bio-Infiltration Swale Design

The bio-infiltration swale locations are currently unknown. Based on our exploration and laboratory information across the site, percent fines, and estimated infiltration rates of near surface native soil and our communications with the local jurisdictions, we understand Equations 6-1a and 6-1c from the Spokane County Regional Stormwater Manual (SRSM) can be used to design the proposed bio-infiltration swale areas below a depth of 2.0-feet below existing site grades. Further, the native SM subgrade below the proposed swale depths is anticipated to have an infiltration rate of greater than 0.15 in/hr. Table 4 below provides the results of the sieve analyses performed on samples collected at depth.

Table 4. Bio-Infiltration Swale Area Summary of Fines Content

Sample Location	Sample Depth (ft)	USCS Classification	Percent Passing No. 200
TP-3	3.0	SP	2.6%
TP-9	1.5	SP-SM	6.9%
TP-8	3.0	SP	1.9%

Based on exploration and Washington State Department of Ecology water well logs in the project vicinity, groundwater will not be encountered. If shallow groundwater is encountered, STRATA must be retained to verify the clearance between the drywell invert and the limiting layer. Channelized flooding, slope instability, or negative impacts to downgradient properties associated with stormwater discharge is not expected.

Regardless of which product is used for treatment soil drainage swales during construction, STRATA recommends to be retained to confirm compliance with material recommendations, but also to confirm the infiltration characteristics of the as-placed material meets stormwater design and Stormwater Management Manual of Eastern Washington (SMMEW) requirements. This would include fines content and single-ring infiltrometer testing of the compacted material to verify the infiltration rate is greater than 0.15 in/hr., and, if Equations 6-1a and 6-1c are used for swale design, confirming the material contains less than 12.0-percent fines as discussed in the SRSM. Infiltrometer and fines



content testing should occur at the base of the constructed swale prior to the treatment soil (topsoil) placement. As specified by the SMMEW, the treatment soil used for bio-infiltration swales should be greater than 6.0-inches thick and have a cation exchange capacity of 5.0 (meq)/100 grams (g) dry soil or greater. The organic content of the treatment soil zone should be greater 1.0-percent or greater, by weight. The maximum infiltration rate for the treatment zone should be less than 3.0 in/hr.

Site Grading Considerations

Runoff from precipitation or snowmelt must be routed away from structures to the maximum extent practical and must not be allowed to infiltrate, or be diverted towards slopes, foundations, exterior flatwork, or slab subgrades. Runoff or water migrating along the ground surface must be conveyed away from slopes and structures by an appropriately designed series of ditches, swales, or other surface water management procedures.

The ground surface outside any structure is recommended to be sloped at least 5.0-percent away for a minimum of 10.0-feet to rapidly convey surface water or roof runoff away from foundations. Site grades beyond 10.0-feet from structures should slope at least 2.0-percent away and toward acceptable areas, as determined via recommendations and site grading design. *Americans with Disabilities Act* (ADA) hardscapes may not meet the above site grading recommendations adjacent to structures. ADA-pertinent hardscapes are recommended to be sloped away from structures to the maximum extent practical. An elastomeric sealant is recommended to be considered between hardscapes and foundation walls to reduce moisture infiltration at joints near building structures. Well-designed site drainage and careful final grading will help limit moisture infiltration near the buildings which will help reduce impacts from frost heave, vapor intrusion to interior spaces, and help improve the long-term performance of such structures.

Stormwater should be routed away from disturbed soil areas and should be disposed of in a suitable location as determined by site grading design. Bio-infiltration swales or other infiltration facilities are recommended to be located at least 25.0-feet from any structure or the overflow invert be established a minimum of 1.0-foot below the bottom of the exterior foundation footings.

ADDITIONAL RECOMMENDED SERVICES

Geotechnical Design Continuity

The information contained in this evaluation is based on current development plans provided by Mr. Dennis Hollis and STRATA's assumed structural loads. Conditions encountered following design of the final floor elevation, floor configuration, loading conditions, as well as site geometry, can significantly alter opinions and design recommendations. Specifically, changes in structural design



loads and planned site grading may require additional foundation and earthwork evaluations specific to the actual anticipated construction conditions. STRATA should be contacted if additional exploration is preferred prior to design completion, to observe conditions following demolition, and once final designs are completed to review opinions and design recommendations contained herein.

Plan and Specification Review

STRATA recommends being retained to review geotechnical-related plan and specification sections prior to issuance of the construction documents for bidding. It has been STRATA's experience that having the geotechnical consultants from the design team review the construction documents reduces the potential for errors and reduces costly changes to the contract during construction.

To maintain STRATA as the engineer of record through construction, retain STRATA to verify design parameters and provide construction monitoring that documents site soil conditions and gives you the confidence that evaluation recommendations are incorporated into the grading and foundation construction. Such observation is a critical part of the geotechnical design process and can help reduce the potential for soil engineering or construction-related errors or omissions. Further, materials testing and special inspection services are required by local building departments, the IBC, and project specifications. STRATA is available to provide these services.

Geotechnical Observation During Construction

STRATA should be retained to provide construction observation and testing to document the evaluation recommendations have been followed. STRATA cannot be responsible for soil engineering-related construction errors or omissions if STRATA is not retained to provide the recommended construction observation services. Providing these services during construction will help to identify potential earthwork and foundation construction issues, thus allowing the contractor to proactively remedy problems and reduce the potential for errors and omissions.

EVALUATION LIMITATIONS

This geotechnical engineering evaluation has been prepared to assist in planning, design, and construction for the Polar Way Storage and Office Facilities to be constructed near Polar Way and Logan Street in Richland, Washington. The scope does not include an engineering evaluation for deep foundations retaining walls or landscaping. Variation in subsurface conditions may exist between or beyond explorations, which can necessitate changes to the geotechnical recommendations in this evaluation. Also, changes to the planned development can drastically affect provided recommendations. If the improvement plans change from those described herein, STRATA must be notified so that modifications to recommendations may be made with respect to the modified improvements. If unforeseen conditions are encountered during earthwork, STRATA must be afforded



the opportunity to review recommendations and provide necessary consultation, revision, or modifications to the information contained herein. STRATA recommends being retained to review the final project plans and specifications, to provide geotechnical continuity throughout construction, and to identify any soil variations which could impact provided recommendations.

This evaluation was prepared for the exclusive use of Northwest Construction Services, Inc. and their project design team, for the specific project referenced herein. STRATA cannot be held responsible for unauthorized duplication or reliance upon this evaluation or its contents without written authorization. The geotechnical recommendations provided herein are based on the premise that an adequate program of tests and observations will be conducted by STRATA during construction in order to verify compliance with provided recommendations and to confirm conditions between exploration locations. Subsurface conditions may vary from the locations explored and the extent of variation may only be known at the time of construction. Where variations occur, it is critical STRATA be afforded the opportunity to modify this evaluation to reflect the site conditions exposed. This acknowledgment is in lieu of all warranties either express or implied.





APPENDIX A

Subsurface Exploration Logs

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL NAMES
COARSE GRAINED SOIL	GRAVEL	CLEAN GRAVEL		GW	Well-Graded Gravel, Gravel-Sand Mixtures.
		GRAVEL WITH FINES		GP	Poorly-Graded Gravel, Gravel-Sand Mixtures.
		GRAVEL WITH FINES		GM	Silty Gravel, Gravel-Sand-Silt Mixtures.
		GRAVEL WITH FINES		GC	Clayey Gravel, Gravel-Sand-Clay Mixtures.
	SAND	CLEAN SAND		SW	Well-Graded Sand, Gravelly Sand.
		SAND WITH FINES		SP	Poorly-Graded Sand, Gravelly Sand.
FINE GRAINED SOIL	SILT AND CLAY LIQUID LIMIT LESS THAN 50%			ML	Inorganic Silt, Sandy or Clayey Silt.
	SILT AND CLAY LIQUID LIMIT LESS THAN 50%			CL	Inorganic Clay of Low to Medium Plasticity, Sandy or Silty Clay.
	SILT AND CLAY LIQUID LIMIT LESS THAN 50%			OL	Organic Silt and Clay of Low Plasticity.
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			MH	Inorganic Silt, Mica-ceous Silt, Plastic Silt.
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			CH	Inorganic Clay of High Plasticity, Fat Clay.
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			OH	Organic Clay of Medium to High Plasticity.
	SILT AND CLAY LIQUID LIMIT GREATER THAN 50%			PT	Peat, Muck and Other Highly Organic Soil

BORING LOG SYMBOLS

GROUNDWATER SYMBOLS

TEST PIT LOG SYMBOLS



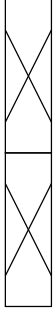


Standard 2-Inch OD Split-Spoon Sample California Modified 3-Inch OD Split-Spoon Sample Rock Core Shelby Tube 3-Inch OD Undisturbed Sample	Groundwater After 24 Hours (7-3-07) Indicates Date of Reading Groundwater at Time of Drilling	<div style="border: 1px solid black; padding: 2px; width: 30px; display: inline-block;">BG</div> Baggie Sample <div style="border: 1px solid black; padding: 2px; width: 30px; display: inline-block;">BK</div> Bulk Sample <div style="border: 1px solid black; padding: 2px; width: 30px; display: inline-block;">RG</div> Ring Sample
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Shorthand Notation:

BGS = Below Existing Ground Surface

N.E. = None Encountered

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) <u>TOPSOIL</u> SILTY SAND, dark brown, moist.	0.0	SM								
(SM) <u>ALLUVIUM</u> SILTY SAND, brown, loose to medium dense, dry to moist.	2.5	SM				13.8		3.1		SPT densities correlated from DCP testing.
(SP) <u>ALLUVIUM</u> POORLY-GRADED SAND, brown to black and white, medium dense, dry to moist.	7.5	SP				2.0		2.8		

Test Pit Terminated at 12.0 Feet.

Client: Northwest Construction Services	Test Pit Number: TP-1
Project: TC19063A	Date Excavated: 01-24-2020
Backhoe: CAT 308	Bucket Width: 36"
Depth to Groundwater: N.E.	Logged By: CK/DB



EXPLORATORY TEST PIT LOG

Sheet 1 Of 1

STRATABH / TP / WELL - STRATA.GPJ - 2/13/20 14:15 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\TC19063A - POLAR WAY STORAGE AND OFFICE FACILITIES.GPJ

USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) <u>TOPSOIL</u> SILTY SAND, dark brown, moist.	0.0	SM								
(SM) <u>ALLUVIUM</u> SILTY SAND, brown, loose to medium dense, dry to moist.	2.5	SM								
(SP) <u>ALLUVIUM</u> POORLY-GRADED SAND, brown to black and white, medium dense, dry to moist.	5.0	SP								
	7.5									
	10.0									

Test Pit Terminated at 10.0 Feet.

Client: Northwest Construction Services	Test Pit Number: TP-2		EXPLORATORY TEST PIT LOG
Project: TC19063A	Date Excavated: 01-24-2020		
Backhoe: CAT 308	Bucket Width: 36"		
Depth to Groundwater: N.E.	Logged By: CK/DB		
			Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) TOPSOIL SILTY SAND, dark brown, moist.	0.0	SM								SPT densities correlated from DCP testing.
(SP) ALLUVIUM POORLY-GRADED SAND, brown, medium dense, dry to moist.	2.5	SP				2.6	3.3			
(SM) ALLUVIUM SILTY SAND, brown, medium dense, dry to moist.	7.5	SM				12.3	5.3			

Test Pit Terminated at 11.0 Feet.






Client: Northwest Construction Services	Test Pit Number: TP-3
Project: TC19063A	Date Excavated: 01-24-2020
Backhoe: CAT 308	Bucket Width: 36"
Depth to Groundwater: N.E.	Logged By: CK/DB




EXPLORATORY TEST PIT LOG

Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) <u>TOPSOIL</u> SILTY SAND, dark brown, moist.	0.0	SM								
(SP) <u>ALLUVIUM</u> POORLY-GRADED SAND, brown, loose to medium dense, dry to moist.	2.5	SP								
(SM) <u>ALLUVIUM</u> SILTY SAND, brown, loose to medium dense, dry to moist.	5.0	SM								
	7.5	SM								
	10.0									

Test Pit Terminated at 11.0 Feet.

Client: Northwest Construction Services	Test Pit Number: TP-4		EXPLORATORY TEST PIT LOG
Project: TC19063A	Date Excavated: 01-24-2020		
Backhoe: CAT 308	Bucket Width: 36"		
Depth to Groundwater: N.E.	Logged By: CK/DB		
			Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) <u>TOPSOIL</u> SILTY SAND, dark brown, moist.	0.0	SM								
(SM) <u>ALLUVIUM</u> SILTY SAND, brown, loose to medium dense, dry to moist.	2.5									
	5.0	SM								SPT densities correlated from DCP testing.
	7.5									
	10.0									

Test Pit Terminated at 12.0 Feet.



Client: Northwest Construction Services	Test Pit Number: TP-5
Project: TC19063A	Date Excavated: 01-24-2020
Backhoe: CAT 308	Bucket Width: 36"
Depth to Groundwater: N.E.	Logged By: CK/DB



EXPLORATORY TEST PIT LOG

Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) TOPSOIL, SILTY SAND, dark brown, moist.	0.0	SM								
(SP) ALLUVIUM POORLY-GRADED SAND, brown, loose to medium dense, dry to moist.	2.5	SP								
	5.0									
	7.5									Terminated due to caving conditions.

Test Pit Terminated at 8.0 Feet.




Client: Northwest Construction Services	Test Pit Number: TP-6
Project: TC19063A	Date Excavated: 01-24-2020
Backhoe: CAT 308	Bucket Width: 36"
Depth to Groundwater: N.E.	Logged By: CK/DB



EXPLORATORY TEST PIT LOG

Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) TOPSOIL SILTY SAND, dark brown, moist.	0.0	SM								
(SP) ALLUVIUM POORLY-GRADED SAND, gray, loose to medium dense, dry to moist.	0.0 - 7.5	SP								
(SM) ALLUVIUM SILTY SAND, brown, loose to medium dense, dry to moist.	7.5 - 11.0	SM								

Test Pit Terminated at 11.0 Feet.



Client: Northwest Construction Services
Project: TC19063A
Backhoe: CAT 308
Depth to Groundwater: N.E.

Test Pit Number: TP-7
Date Excavated: 01-24-2020
Bucket Width: 36"
Logged By: CK/DB




EXPLORATORY TEST PIT LOG



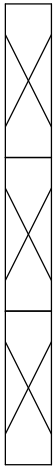
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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) TOPSOIL, SILTY SAND, dark brown, moist.	0.0	SM								
(SP) ALLUVIUM POORLY-GRADED SAND, brown, loose to medium dense, dry to moist.	2.5	SP				1.9		2.8		
	5.0									
	7.5									
	10.0									
						1.4		3.4		

Test Pit Terminated at 11.0 Feet.

Client: Northwest Construction Services	Test Pit Number: TP-8		EXPLORATORY TEST PIT LOG
Project: TC19063A	Date Excavated: 01-24-2020		
Backhoe: CAT 308	Bucket Width: 36"		
Depth to Groundwater: N.E.	Logged By: CK/DB		
			Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) TOPSOIL SILTY SAND, dark brown, moist.	0.0	SM								
(SP-SM) ALLUVIUM POORLY-GRADED SAND with SILT, brown, loose to medium dense, dry to moist.	2.5	SP-SM				6.9		2.8		SPT densities correlated from DCP testing.
	5.0									
	7.5									
	10.0					8.5		4.5		

Test Pit Terminated at 11.0 Feet.

Client: Northwest Construction Services	Test Pit Number: TP-9
Project: TC19063A	Date Excavated: 01-24-2020
Backhoe: CAT 308	Bucket Width: 36"
Depth to Groundwater: N.E.	Logged By: CK/DB



**EXPLORATORY
TEST PIT LOG**

Sheet 1 Of 1

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USCS Description	DEPTH (ft)	U.S.C.S. CLASS	SYMBOL	Sample Type	USDA SOIL Textural Classification	% Passing No. 200 Sieve	Dry Density (pcf)	Moisture Content (%)	Pocket Pen. (tsf)	REMARKS Note: BGS = Below Ground Surface
(SM) <u>TOPSOIL</u> SILTY SAND, dark brown, moist.	0.0	SM								SPT densities correlated from DCP testing.
(SM) <u>ALLUVIUM</u> SILTY SAND, brown, medium dense, dry to moist.	2.5	SM								
(SP) <u>ALLUVIUM</u> POORLY-GRADED SAND, brown, medium dense, dry to moist.	5.0	SP								
	7.5									
	10.0	SP								

Test Pit Terminated at 11.0 Feet.

Client: Northwest Construction Services

Test Pit Number: TP-10

Project: TC19063A

Date Excavated: 01-24-2020

Backhoe: CAT 308

Bucket Width: 36"

Depth to Groundwater: N.E.

Logged By: CK/DB



EXPLORATORY TEST PIT LOG