Community Development
555 Israel Road SW
Tumwater, WA 98501-6515
Phone: 360-754-4180

MITIGATED DETERMINATION OF NON-SIGNIFICANCE
Velkommen Mobile Home Park Expansion
Permit No. TUM-24-0202 and TUM-24-1234
October 7, 2024

Description of Proposal: Addition of 10 modular sites, extension of sewer service to the mobile home park and abandonment of onsite septic systems.

Applicant: Tumwater 70th Ave, LLC, 12600 SE 38th Street, Ste 103, Bellevue, WA 98006.

Representative: Ross Jarvis, LDC, Inc., 321 Cleveland Ave SE, Ste 209, Tumwater, WA 98501.

Location of Proposal: 2535 70th Ave. SW, Tumwater, WA 98512. Parcel number 31560000100.

Lead agency: City of Tumwater, Community Development Department.
The lead agency for this proposal has determined that, as conditioned, 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.

This MDNS assumes that the applicant will comply with all City ordinances and development standards governing the type of development proposed, including but not limited to, street standards, storm water standards, high groundwater hazard areas ordinance standards, water and sewer utility standards, critical areas ordinance standards, tree protection standards, zoning ordinance standards, land division ordinance standards, building and fire code standards, and level of service standards relating to traffic. These ordinances and standards provide mitigation for adverse environmental impacts of the proposed development.

Condition of Approval for mitigating environmental impacts:
Findings:

1. The Tumwater Boulevard/I-5 northbound ramps intersection currently operates at LOS F during both peak periods for the northbound left-turn movement. The project is projected to add one (1) trip to this intersection. The City has recently developed a SEPA improvement project for the Tumwater Boulevard/I-5 interchange that include intersection improvements at the northbound I-5 ramps intersection, with a peak hour per trip impact fee of $4,219 for each trip entering the interchange area.

Mitigation Measures:

1. Prior to issuance of the Building Permit:
    a. Construct a roundabout at the northbound Interstate 5 On/Off Ramp and Tumwater Boulevard intersection; or
    b. Voluntarily pay a mitigation fee of $4,219 per peak trip generated by this project (76) under RCW 82.02.020 to be used as described herein:
    Tumwater Boulevard/I-5 Interchange: The City's planned transportation improvements at the Tumwater Boulevard/I-5 interchange include converting the interchange to a roundabout diamond interchange by replacing the southbound on/off ramp signal and northbound stop controlled intersections with roundabouts. If the subject development has trips to the interchange before the roundabout is constructed, a temporary signal will be required.

This MDNS is issued under WAC 197-11-350; the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted no later than October 21, 2024, by 5:00 p.m.

Date: October 7, 2024

Responsible Official:

Michael Matlock, AICP
Community Development Director

Contact person: Tami Merriman, Permit Manager
555 Israel Road SW
Tumwater, WA 98501
tmerriman@ci.tumwater.wa.us

Appeals of this MDNS must be made to the City of Tumwater Community Development Department, no later than October 28, 2024, by 5:00 p.m. All appeals shall be in writing, be signed by the appellant, be accompanied by a filing fee of $2,000.00 and set forth the specific basis for such appeal, error alleged, and relief requested.

SEC 4, TWN 17 , RGE 2 W, W.M., TUMWATER, WASHINGTON

VELKOMMEN MOBILE HOME PARK EXPANSION

FORMAL SITE PLAN REVIEW

SURVEY INFORMATION

LEGAL DESCRIPTION

TPN: 31560000100
LOT 1 OF ANDERSON P.U.D DIVISION NO. 1 MOBILE HOME PARK PUD, AS RECORDED IN VOLUME 20 OF PLATS, PAGE 45; AND LOT 2 OF ANDERSON P.U.D DIVISION NO. 2 MOBILE HOME PARK PUD, AS RECORDED IN VOLUME 21 OF PLATS, PAGE 46; EXCEPT THAT PORTION CONVEYED TO THE CITY OF TUMWATER AS RECORDED MARCH 14, 2006 UNDER AUDITOR'S FILE NO. 3815093; ALSO EXCEPT ANY MOBILE OR MANUFACTURED HOME LOCATION THEREON.

SITUATE IN THURSTON COUNTY, WASHINGTON STATE.

HORIZONTAL DATUM

HORIZTONAL – WASHINGTON STATE PLANE COORDINATES, SOUTH ZONE, NAD 83/91 BASED ON TIES TO THURSTON COUNTY MONUMENT 566A.

VERTICAL DATUM

VERTICAL – NGVD 29 BASED ON TIES TO THURSTON COUNTY MONUMENT 566A, ELEVATION = 194.494.

SURVEY NOTES

1. INSTRUMENT USED: SOKKIA IX TOTAL STATION.
2. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS OF WAC 332–130–090 AND 332–130–145.
3. SURVEY COMPLETED 07/20/2022.
4. ALL MONUMENTS SHOWN AS FOUND VISITED 06/2022 AND 07/2022.
5. PURPOSE OF TOPOGRAPHICAL MAPPING IS FOR FUTURE DEVELOPMENT OF SITE.
6. CONTOURS WERE ESTABLISHED FROM FIELD MAPPING, 1' CONTOURS SHOWN.
7. MTN2COAST (M2C) WAS RETAINED BY THOMAS ARCHITECTURAL STUDIOS TO COMPLETE A BOUNDARY AND TOPOGRAPHIC SURVEY OF THURSTON COUNTY TPN'S 31560000100 AND 12704430500.
8. SECTION SUBDIVISION PER RECORD OF SURVEY RECORDED UNDER AFN 3099273.

UTILITY NOTES

UTILITIES SHOWN HEREON ARE FROM FIELD MAPPING VISIBLE SURFACE APPURTENANCES, A UTILITY LOCATING SERVICE WAS NOT USED FOR THIS PROJECT. BURIED UTILITIES SHOULD BE VERIFIED BEFORE CONSTRUCTION.

REFERENCED SURVEYS

1. ANDERSON PUD DIVISION NO. 1 RECORDED IN VOLUME 20, PAGE 45 UNDER AUDITOR'S FILE NO. (AFN) 1047352.
2. ANDERSON PUD DIVISION NO. 2 RECORDED IN VOLUME 21, PAGE 96 UNDER AFN 1125043.
3. RECORD OF SURVEY RECORDED IN VOLUME 6, PAGE 98 UNDER AFN 995122.
4. RECORD OF SURVEY RECORDED UNDER AFN 3099273.
5. RECORD OF SURVEY RECORDED IN VOLUME 8, PAGE 157 UNDER AFN 1043880.
6. THURSTON COUNTY SHORT PLAT NO. 1682 RECORDED IN VOLUME 16, PAGE 617 UNDER AFN 8107270072.
7. THURSTON COUNTY SHORT PLAT NO. SS–2757 RECORDED IN VOLUME 2458, PAGE 50 UNDER AFN 9509250028.
8. RECORD OF SURVEY RECORDED IN VOLUME 2, PAGE 129 UNDER AFN 923382.
9. THURSTON COUNTY SHORT PLAT NO. SS–990447 RECORDED UNDER AFN 3260486.
10. STATUTORY WARRANTY DEED RECORDED UNDER AUDITOR'S FILE NO. 3830158.

EASEMENT NOTES

- ELECTRIC TRANSMISSION AND DISTRIBUTION LINE EASEMENT 10' WIDE OVER EXISTING, RELOCATED AND FUTURE POWER LINE PER AFN 981053. (BLANKET EASEMENT, NOT SHOWN ON MAP)
- POWER AND TELEPHONE EASEMENT 7' ON FRONT AND REAR AND 2.5' ON SIDES OF ANDERSON PUD DIVISION 1 AND DIVISION 2 PER PLAT EASEMENT PROVISIONS. EASEMENT SHOWN ON MAP.
- NATURAL GAS EASEMENT OVER ALL EXISTING PRIVATE ROADWAYS OF ANDERSON PUD DIVISION 1 AND DIVISION 2 PER AFN 9112270050. (BLANKET EASEMENT, NOT SHOWN ON MAP)
- BLANKET EASEMENT (COVERS ENTIRE SITE) FOR CABLE TELEVISION SYSTEM OVER ANDERSON PUD DIVISION 1 AND DIVISION 2 PER AFN 3057180.
- PUGET SOUND POWER AND LIGHT COMPANY EASEMENT UNDER AFN 913290, SHOWN ON MAP.
- PUGET SOUND ENERGY EASEMENT UNDER AFN 3851625, SHOWN ON MAP.
- RESTRICTIVE COVENANT PER AFN 4009583, SHOWN ON MAP.

CONTACT LIST

OWNER/APPLICANT:
TUMWATER 70TH AVENUE LLC
12600 SE 38TH STREET, STE 103
BELLEVUE, WASHINGTON 98006
CONTACT: GREG PIANTANIDA
EMAIL: greg@gprealty.com

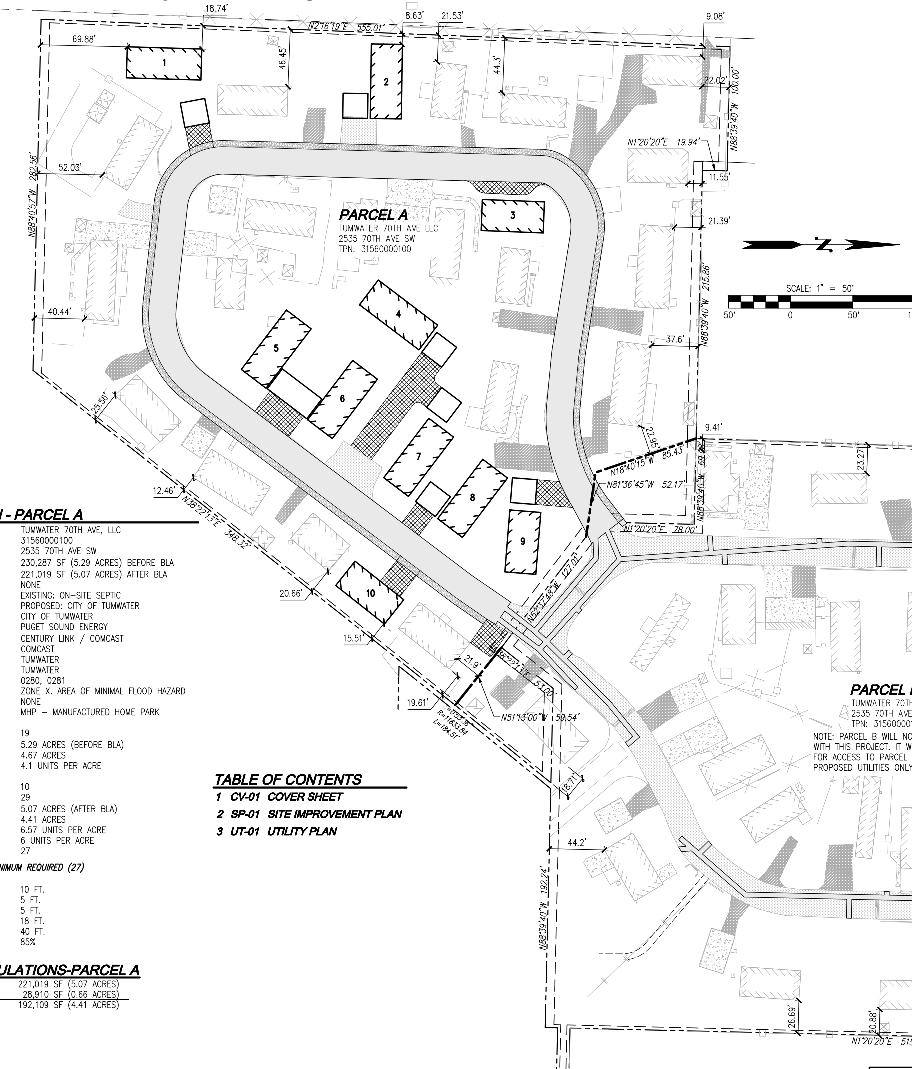
CIVIL ENGINEER:
LDC, INC.
321 CLEVELAND AVE SE, #209
TUMWATER, WASHINGTON 98501
CONTACT: ROSS JARVIS, P.E.
PHONE: (425) 806–1869
FAX: (425) 482–2893
EMAIL: rjarvis@ldccorp.com

SURVEYOR:
MTN2COAST
1520 IRVING ST SW, STE B
TUMWATER, WASHINGTON 98512
CONTACT: BRUCE E. STUDEMAN
PHONE: (360) 357–5593

EARTHWORK QUANTITIES

TOTAL DISTURBED AREA:	92,345 SF	(2.12 AC)
PARCEL A:	82,735 SF	(1.90 AC)
PACEL B:	9,610 SF	(0.22 AC)

THE ABOVE QUANTITIES ARE FOR PERMITTING PURPOSES.
CONTRACTOR TO VERIFY.



PROJECT INFORMATION - PARCEL A

OWNER/APPLICANT:	TUMWATER 70TH AVE, LLC
TPN:	31560000100
SITE ADDRESS:	2535 70TH AVE SW
PARCEL SIZE:	230,287 SF (5.29 ACRES) BEFORE BLA 221,019 SF (5.07 ACRES) AFTER BLA
STORMWATER TRACT:	NONE
SANITARY SEWER:	EXISTING: ON–SITE SEPTIC PROPOSED: CITY OF TUMWATER
WATER:	CITY OF TUMWATER
POWER/GAS:	PUGET SOUND ENERGY
TELEPHONE/FIBER:	CENTURY LINK / COMCAST
CABLE/TV:	COMCAST
FIRE DISTRICT:	TUMWATER
SCHOOL DISTRICT:	TUMWATER
FEMA PANEL NO.:	0280, 0281
FEMA DESIGNATED FLOOD HAZARD AREA:	ZONE X. AREA OF MINIMAL FLOOD HAZARD
EXISTING WELLS:	NONE
ZONING DESIGNATION:	MHP – MANUFACTURED HOME PARK
EXISTING HOMES:	19
PARCEL AREA:	5.29 ACRES (BEFORE BLA)
NET AREA:	4.67 ACRES
EXISTING DENSITY:	4.1 UNITS PER ACRE
ADDITIONAL HOMES:	10
TOTAL HOMES:	29
PARCEL AREA:	5.07 ACRES (AFTER BLA)
NET AREA:	4.41 ACRES
PROPOSED DENSITY:	6.57 UNITS PER ACRE
MIN DENSITY:	6 UNITS PER ACRE
MIN HOMES:	27

TOTAL HOMES (29) IS MORE THAN THE MINIMUM REQUIRED (27)

FRONT YARD SETBACK (FROM STREET):	10 FT.
REAR YARD SETBACK:	5 FT.
SIDE YARD SETBACK:	5 FT.
DRIVEWAY SETBACK:	18 FT.
MAXIMUM BUILDING HEIGHT:	40 FT.
MAXIMUM LOT COVERAGE:	85%

PROPOSED AREA CALCULATIONS-PARCEL A

GROSS PARCEL AREA:	221,019 SF (5.07 ACRES)
INTERNAL ROADS & SIDEWALK:	28,910 SF (0.66 ACRES)
NET PARCEL AREA:	192,109 SF (4.41 ACRES)

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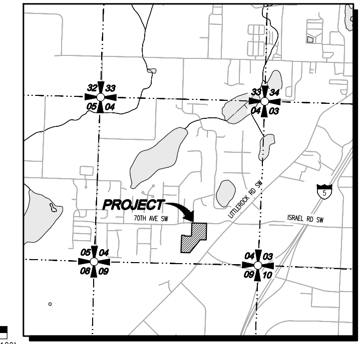


VICINITY MAP
SCALE: 1"=2000'

DISCLAIMER

TOPOGRAPHIC SURVEY INFORMATION CONTAINED ON THESE PLANS HAS BEEN PROVIDED BY MTN 2 COAST, LLC. LDC, INC. (LAND DEVELOPMENT CONSULTANTS, INC.) ASSUMES NO LIABILITY AS TO THE ACCURACY AND COMPLETENESS OF THIS DATA. ANY DISCREPANCIES FOUND BETWEEN WHAT IS SHOWN ON THE PLANS AND WHAT IS NOTED IN THE FIELD SHOULD BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.

UTILITY NOTE

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. AGENCIES INVOLVED SHALL BE NOTIFIED WITHIN A REASONABLE TIME PRIOR TO THE START OF CONSTRUCTION.

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

TUM-24-0202

REVISIONS
NO.	DATE	DESCRIPTION	BY

LDC
Surveying Engineering Planning
Woodinville | Tumwater 321 Cleveland Ave SE, #209 Tumwater, WA 98501 | Kent
T 425.806.1869 www.LDCcorp.com F 425.482.2893

TUMWATER 70TH AVENUE LLC
VELKOMMEN MOBILE HOME PARK EXPANSION
COVER SHEET

ROSS D. JARVIS STATE OF WASHINGTON 43668 REGISTERED PROFESSIONAL ENGINEER 07-09-24

JOB NUMBER:	C23157
DRAWING NAME:	C23–157–CV–01
DESIGNER:	MH
DRAFTING BY:	AW
DATE:	JULY 2024
SCALE:	AS SHOWN
JURISDICTION:	TUMWATER WA

CV-01

CITY OF TUMWATER
555 ISRAEL RD. SW, TUMWATER, WA 98501
Email: cdd@ci.tumwater.wa.us
(360) 754-4180

TUM-24-1234

08/16/24
DATE STAMP

RECEIVED BY: Kelly

Any person proposing to develop in the incorporated limits of the City of Tumwater is required to submit an environmental checklist unless the project is exempt as specified in WAC 197-11-800 (Categorical Exemptions) of the State Environmental Policy Act Rules. **SUBMITTAL REQUIREMENTS** are as follows:

1. **A COMPLETE ENVIRONMENTAL CHECKLIST.** If the project is located within the Port of Olympia property, the checklist must also be signed by a representative of the Port.
2. **FEE OF $880.00 TO BE PAID UPON SUBMITTAL.** This includes the Public Notice fee.
3. **NAME AND ADDRESS LIST OF PROPERTY OWNERS WITHIN 300 FEET OF THE SUBJECT PROPERTY.**

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 Find help answering background questions

1. Name of proposed project, if applicable:

Velkommen Mobile Home Park ~~Extension~~ Expansion with sewer extension

2. Name of applicant:

Ross Jarvis (LDC, Inc) on behalf of Tumwater 70th Ave. LLC

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

321 Cleveland Ave SE, Suite 209
Tumwater, WA
Contact: Ross Jarvis

360.634.2065

4. Date checklist prepared:

July 9, 2024

5. Agency requesting checklist:

City of Tumwater

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

Propose to begin construction in September 2024 – March 2025 (6 months).

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

Currently the park has 39 pads, plans are to add 10 pads over the next year and in the future adding another eight pads which may involve the owner buying homes and relocating them.

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

The following environmental studies have been drafted for this development proposal:

- Drainage Report
- Tree Retention Report

9. Do you know whether applications are pending for governmental approvals of

other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no known applications pending for government approvals of other proposals directly affecting the property covered by your proposal.

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

Grading, Utility, Paving, and Building Permits; SEPA Determination.

11. Give a 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 Velkommen Mobile Home Park Expansion project proposes 10 additional pad sites for mobile homes over the next year. Parking requirement is two-spaces per home. Currently this 5.29-acre site is being used as a residential mobile home park with 39 existing pad sites.

The project will extend sewer service to all units, and abandon onsite septic system.

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

The project site is located in Thurston County, City of Tumwater, the UGA of Tumwater, at 2535 70th Ave SW, Tumwater, WA 98512. The nearby intersection is Littlerock Rd. SW, approximately one-quarter of a mile east of the site.

B. Environmental Elements

1. Earth Find help answering earth questions

a. General description of the site:

The project site is relatively flat with a variety of mature trees.

Circle or highlight one: Flat, rolling, hilly, steep slopes, mountainous, other:

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

Approximately 0-10%.

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.

Per the National Resources Conservation Service (NRCS) Web Soil Survey, the on-site soils are classified as Nisqually loamy fine sand with 0 to 3 percent slopes. Per Table A.8 in Volume III of the 2022 DDECM, Nisqually soils are classified as hydrologic soil group B. The on-site soil has an infiltration rate between 1.98 inches per hour and 5.95 inches per hour.

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

There is no surface indications or history of unstable soils in the immediate vicinity.

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

The project would require roughly 1350 cubic yards of cut and 1350 cubic yards of fill for a net of 0 cubic yards of earthwork. The project site was previously cleared and has an area of approximately 5.29 acres. Fill will be sourced from an approved location.

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

During construction, the potential for increased erosion would be present. However, erosion control BMP's will be implemented. Following construction, erosion potential would decrease when drainage is controlled and cleared areas are re-vegetated.

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

The impervious surface onsite will not exceed the 85% allowed by Tumwater's Municipal Code.

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

The project will meet or exceed the Engineering Design and Development Standards for erosion control and shall apply BMP's throughout the construction of the project.

2. Air Find help answering air questions

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.

Typical air emissions are possible. During construction, there would be increased exhaust and

dust particle emissions. Objectionable odors could be caused by the paving of roads and driveways. After construction, the principal source of air pollution would be vehicular traffic exhaust.

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

There are no off-site sources of emissions or odor that may impact this proposal.

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

Should construction activities be taken during the dry season, periodic watering, if deemed necessary, could be used to control dust. Automobile emissions should be negligible because of the standards regulated by the State of Washington Department of Licensing.

3. Water Find help answering water questions

a. Surface Water: Find help answering surface water questions

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

There are no surface water bodies on the project site. Trosper Lake is located approximately 0.60 miles north of the site. The site is located within a Category 1 Critical Aquifer Recharge Area.

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.**

There is no planned work over, in, or adjacent to Trosper Lake.

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.**

There will be no fill or dredge material placed in or removed from surface water or wetlands on the site.

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

No surface water withdrawals are proposed.

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

The property is located within Zone X, per Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Panel No. 53067C0281E, which is determined to be an area of minimal flood

hazard.

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, the proposal does not involve any discharges of waste material into surface waters.

b. Ground Water: Find help answering ground water questions

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 a general description, purpose, and approximate quantities if known.**

No groundwater will be withdrawn from a well for drinking water or other purposes. Water is to be provided by the City of Tumwater.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (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.**

This project involves extending a sanitary sewer main through the existing site and converting existing mobile homes from septic to the City sewer system. This system is to serve up to 60 homes.

c. Water Runoff (including stormwater):

a) **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.**

Runoff on this site is primarily stormwater, and no significant flow is expected from any adjacent property. All runoff generated by the proposed development will be detained, filtered, and released at controlled rates.

Through the construction of roadways, the existing runoff pattern would be locally modified. Additional runoff from the proposal would be generated by building roofs, parking lots, sidewalks and roadways. This water would be collected by the storm drainage systems and directed to storm retention/detention facilities and discharged at the natural locations.

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

It is unlikely that waste material will enter ground or surface waters as a result of this project.

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

The proposal will not alter or otherwise affect the drainage patterns in the vicinity of the project site.

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

All adopted development and engineering requirements imposed by the City of Tumwater to control hydrologic impacts on adjacent properties will be incorporated into final construction plans and implemented by the proponent. Storm drainage facilities will be designed in accordance with the DOE Storm Water Manual, and the City of Tumwater's engineering standards.

4. Plants Find help answering plants questions

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

☒ deciduous tree: alder, maple, aspen, other
☒ evergreen tree: fir, cedar, pine, other
☒ shrubs
☒ 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

Tree retention of a minimum 20% or 12 trees per acre required.

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

All vegetation within the grading limits will be removed as part of this project.

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

There are no known threatened or endangered plant species known to be on or near the site per the State Department of Natural Resources Natural Heritage database.

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

All landscaping will be consistent with the city of Tumwater's landscape standards.

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

There are no noxious weeds or invasive species known to be on or near the site.

5. Animals Find help answering animal questions

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

to be on or near the site.

Songbirds and squirrels are known to be on or near the site.

Examples include:

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

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

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

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

The project site, like all sites in Western Washington, lies within the Pacific Flyway Migratory Route.

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

There are no measures to preserve or enhance wildlife.

Project site meets the Administrative Determination to not require a critical area report.

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

There are no invasive animals in or near the site to our knowledge.

6. Energy and Natural Resources Find help answering energy and natural resource questions

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

Electricity and natural gas will be the primary source of energy for the proposal and would be used for heating, lighting, and other miscellaneous household purposes. Project will meet current energy codes.

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

It is not anticipated that the project will impact any surrounding solar uses.

3. **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.**

N/A.

7. Environmental Health Find help with answering environmental health questions

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

There are no increased environmental health hazards or risks associated with the proposal.

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

There are no increased environmental health hazards or risks associated with the proposal.

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.**

There are no known existing hazardous conditions that will affect this project. According to the Utilities and Transportation Commissoin ArcGIS website, there are no underground pipelines located within the project neighborhood.

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.**

No toxic or hazardous chemicals are expected to be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

4. **Describe special emergency services that might be required**

No need for special emergency services is anticipated.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

All potentially hazardous materials used during construction would be handled and stored in accordance with state and federal hazardous materials handling requirements. If contaminated soil or groundwater are encountered during construction, a formal plan would be developed consistent with state and federal regulations for their removal and treatment or disposal. Also, if contaminants are encountered, measures would be implemented to minimize exposure to people in accordance with applicable regulations.

b. Noise

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

Typical residential neighborhood and vehicular noise from established and planned single-family communities in the vicinity of the site will be heard from the project site.

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)?**

Noise levels would be high during construction but would be intermittent and limited to code-allowed during normal waking hours. Post-development traffic noise created by vehicular trips would increase ambient noise levels to the vicinity.

3. **Proposed measures to reduce or control noise impacts, if any.**

Construction will be limited to normal waking hours as prescribed by the City of Tumwater's Ordinance so nearby residences should not experience long-lasting adverse noise impacts.

8. Land and Shoreline Use Find help answering land and shoreline use questions

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

The site is currently used as residential. Properties surrounding the project site are currently used for residential use. The proposal will not impact the uses on nearby properties.

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 because 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?**

The site has not been used as working farmland or forest land

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?**

The proposal will not be affected by surrounding working farm or forest land.

c. **Describe any structures on the site.**

Mobile homes (residential structures) and appurtenances (carports, sheds, garages).

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

No structures are anticipated to be demolished.

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

MHP – Manufactured Home Park

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

MHP – Manufactured Home Park

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

N/A, the site is not within a shoreline.

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

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

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

Currently there are 39 pad sites for mobile homes with an additional 10 proposed (49 total). Assuming 3.5 people per mobile home, approximately 172 persons are anticipated to reside in the completed project.

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

This project will not displace any residents.

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

There are no measures in place to avoid or reduce displacement as the site is already developed and development activities related to this proposal will not create a need to displace residents.

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

Compliance with existing regulatory codes and standards ensures compatibility with existing and project land uses.

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

This proposal is within an existing, developed area within the City of Tumwater's limits, there will be no impact to agricultural or forest lands.

9. Housing Find help answering housing questions

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

This project will provide an additional 10 units to the existing 39 already existing.

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

This project will not eliminate any units as the site.

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

There are no measures in place to reduce or control housing impacts as the site is currently developed.

10. Aesthetics Find help answering aesthetics questions

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

The tallest height for the proposed buildings onsite will be no greater than 40 feet tall and building materials are primarily made of pre-fabricated mobile homes.

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

No views in the immediate vicinity would be altered or obstructed.

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

The observance of building setbacks and provision on native landscaping would reduce the aesthetic impact of the project. The project will comply with the City of Tumwater's design review.

11. Light and Glare Find help answering light and glare questions

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

This proposal would produce light from automobile headlights and streetlights, primarily at night.

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

Neither artificial illumination nor glazing reflectivity associated with the proposed project is expected to pose safety hazards or to interfere with views.

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

Light from nearby residences and roadway lights may be present.

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

None proposed. Lighting from exterior of building will adhere to County code.

12. Recreation Find help answering recreation questions

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

Nearby recreation opportunities can be found at AG West Black Hills High School Track and Field, Trosper Lake, and Sky Zone Trampoline Park. AG West Black Hills High School Track and Field is located .5 miles, a 5-minute drive or 30-minute walk, to the southwest of the project site. Trosper Lake is located 1.75 miles, a 6-minute drive or a 40-minute walk, to the north of the project site. Sky Zone Trampoline Park is located 1.8 miles, a 5-minute drive or 41 minute walk, to the southeast of the project site.

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

Project requires providing on site open space or fee-in-lieu.

The proposal will not displace any existing recreational uses.

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

There are no proposed measures to reduce or control impacts on recreation. Impact fees required by the City of Tumwater will be paid.

13. Historic and Cultural Preservation Find help answering historic and cultural preservation questions

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.

There are no 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.

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.

There are no landmarks, features, or other evidence of Indigenous or historic use or occupation.

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.

The methods used to assess the potential impacts to cultural and historic resources on or near the project site include site walks and reviewing the site and surrounding area on Washington State's Department of Archeology and Historic Preservation WISAARD website.

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.

If any human remains or evidence of historic resources of any type (e.g., old bottles, charcoal, bones, shell, stone, horn or antler tools or weapons) are uncovered during the clearing and grading activities, all work in the immediate vicinity should stop, the area should be secured, and any equipment moved to a safe distance away from the location. The on-site superintendent should then follow the steps specified in the UDP.

14. Transportation Find help with answering transportation questions

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

The project site is served by 70th Ave SW.

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?

The site is not currently served by public transit. However, the closest transit stop served by InterCityTransit can be found .1 miles to the east of the project site at Littlerock Rd and Miner Dr bus stop.

c. 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).

There are no frontage improvements planned as part of this project.

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

The proposal will not use water, rail, or air transportation.

e. 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?

A vehicular generation is not needed for this project as it is not required by the City of Tumwater.

f. 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.

The proposal will not interfere with the movements of agricultural and forest products on roads or streets in the area.

Project generates one new peak hour trip to the I-5/Tumwater Blvd interchange, an identified SEPA Mitigation improvement.

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

Payment of any traffic impact fees that are required by the City of Tumwater.

15. Public Services Find help answering public service questions

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.

The proposal would result in an increase need for fire protection, police protection, public transit, health care, and schools. These services are already established and can accommodate the proposal.

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

Payment of any impact or mitigation fees that are required by the City of Tumwater.

16. Utilities Find help answering utilities questions

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.

The project proposes use of existing electricity, water, and sanitary sewer systems. Proposed improvements include converting the site septic system to sanitary sewer and connecting to the existing system provided by the City of Tumwater.

C. Signature Find help about who should sign

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.

X Ross Jarvis

Type name of signee: Ross Jarvis

Position and agency/organization: Principal Engineer, LDC Inc.

Date submitted: 7/22/2024

D. Supplemental sheet for nonproject actions Find help for the nonproject actions worksheet

IT IS NOT REQUIRED to use this section 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.**

MEMO

Date: August 30, 2024
To: Tami Merriman, Permit Manager
Alex Baruch, Senior Planner
From: Mary Heather Ames, Assistant Transportation & Engineering Director

Re: Transportation Concurrency – Velkommen Mobile Home Park Expansion

Based on the trip generation and distribution prepared for the Velkommen Mobile Home Park Expansion project, dated March 26, 2024 and the City of Tumwater Capital Facilities Plan, the City finds that the Velkommen Mobile Home Park Expansion project is concurrent in regards to Transportation conditioned as follows:

1. Shall pay Transportation Impact Fees per the Fee Resolution current at time of permit application.
2. Shall construct transportation improvements as shown on the approved site plan.
3. A recent study of the I-5 interchange at Tumwater Boulevard indicates improvements are needed in order to meet established safety and level of service standards. This project shall either:
    a. Construct a roundabout at the northbound Interstate 5 On/Off Ramp and Tumwater Boulevard intersection; or
    b. Voluntarily pay a mitigation fee of $4,219 per peak trip generated by this project under RCW 82.02.020 to be used as described herein:
    Tumwater Boulevard/I-5 Interchange: The City's planned transportation improvements at the Tumwater Boulevard/I-5 interchange include converting the interchange to a roundabout diamond interchange by replacing the southbound on/off ramp signal and northbound stop controlled intersections with roundabouts. If the subject development has trips to the interchange before the roundabout is constructed, a temporary signal will be required.

March 26, 2024

City of Tumwater
Trip Generation Memorandum

The intent of this assessment is to provide the City of Tumwater with a trip generation summary and site characteristics for the proposed project herein referred to as Velkommen Mobile Home Park. A project description is provided below.

1. PROJECT DESCRIPTION

- **Proposal**
  - Velkommen Mobile Home Park is an existing residential development comprised of 39 mobile homes (age 55+) located at 2535 70th Avenue SW. The proposal includes the construction of 10 additional mobile homes (age 55+) for a site total of 49 units.

- **Location**
  - City of Tumwater
  - Address: 2535 70th Avenue SW
  - Parcel: 31560000100 (~11.13-acres)

- **Site Access**
  - Site access is proposed to remain via the existing driveway extending south from 70th Avenue SW.

A vicinity map of the surrounding roadway network is provided on the following page with the subject site highlighted in red. A conceptual site plan is presented in Figure 2.

Preliminary Drainage Design Report

Velkommen Mobile Home Park
Tumwater, WA

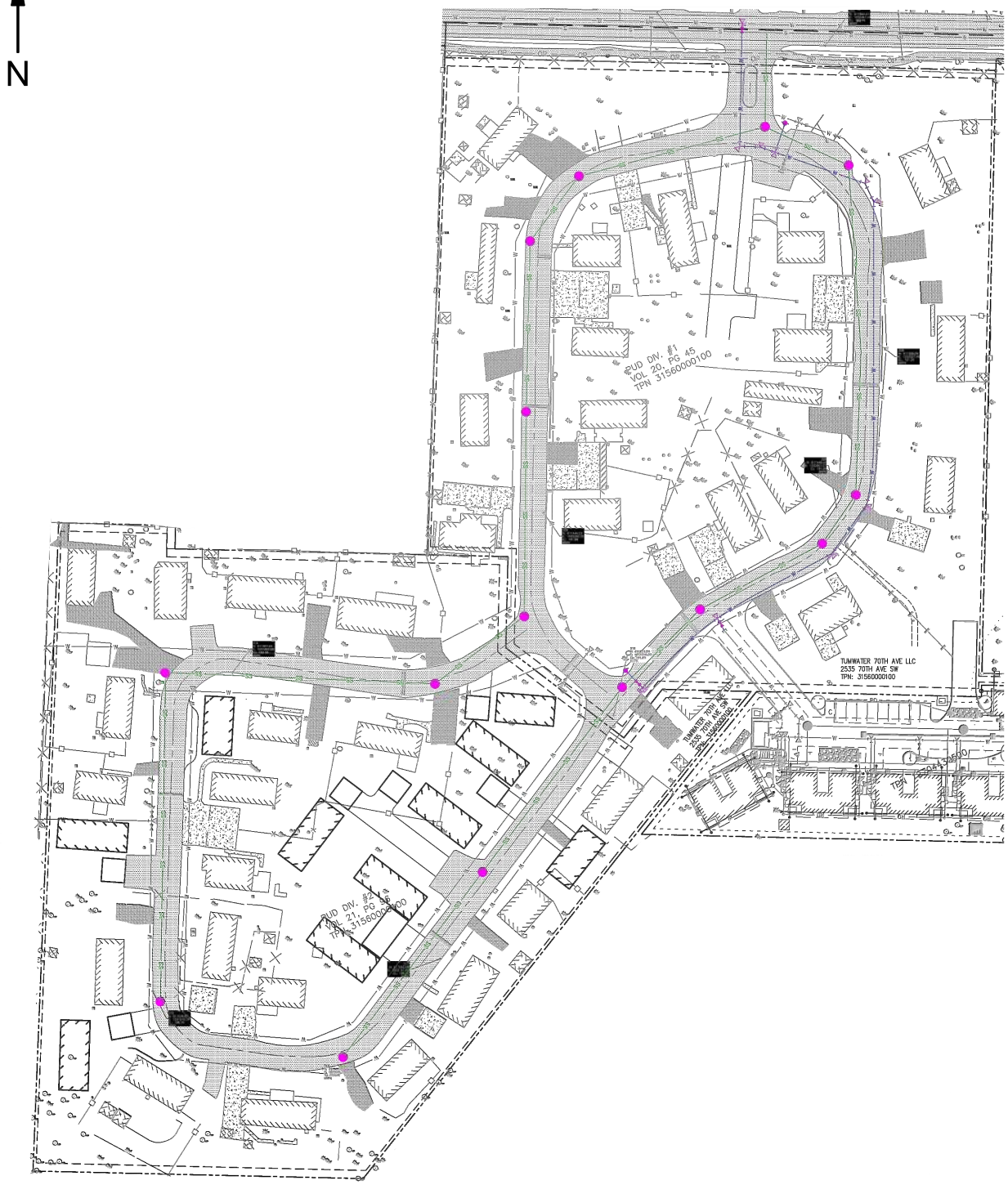
Prepared For:
Tumwater 70th Avenue, LLC
12600 SE 38th Street, Suite 103
Bellevue, WA 98006

Prepared By:
LDC, Inc.
321 Cleveland Ave. SE, Suite 209
Tumwater, WA 98501
425.806.1869

LDC | Surveying Engineering Planning

July 2024

Figure 1: Vicinity Map



HEATH&ASSOCIATES
Transportation Planning & Engineering

VELKOMMEN MOBILE HOME PARK

SITE PLAN
FIGURE 2

2. FORECAST CONDITIONS

TRIP GENERATION

The magnitude of the anticipated vehicle trip generation for the proposed project was derived from the Institute of Transportation Engineers (ITE) publication, *Trip Generation Manual,* 11th Edition. As the project is age-restricted to 55 and up, the most applicable Land Use Code (LUC) is LUC 251 – Senior Adult Housing - Single-Family. Dwelling Units were applied as the input variable with average rates to determine trip ends.

A summary of the average weekday daily trips (AWDT), AM peak hour trips, and PM peak hour trips is shown below in Table 1.

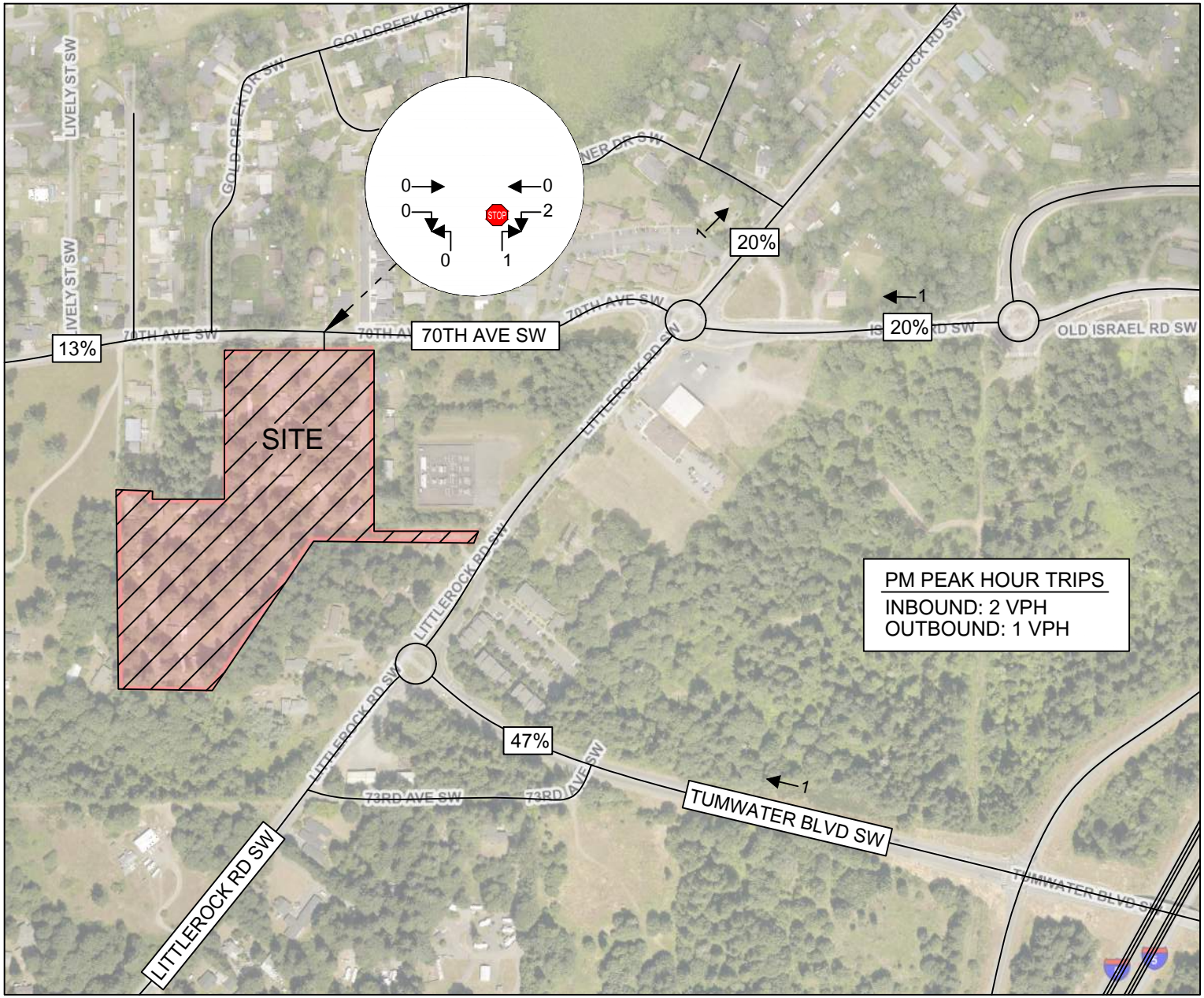
Table 1: Project Trip Generation

Land Use	Units	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Senior Adult Housing - Single-Family – LUC 251	10	43	1	1	2	2	1	3

Based on ITE data, the proposed project is estimated to generate approximately 43 daily weekday trips with 2 AM peak hour trips (1 inbound / 1 outbound) and 3 PM peak hour trips (2 inbound / 1 outbound).

TRIP ASSIGNMENT AND DISTRIBUTION

Trip distribution has been assigned via TAZ 954 provided by Thurston Regional Planning Council (TRPC). Figure 3 displays the PM peak hour trip distribution & assignment for the estimated project trips. Per TAZ 954 approximately 1 PM peak hour trip is shown to utilize the Tumwater Boulevard / I-5 interchange.



HEATH&ASSOCIATES
Transportation Planning & Engineering

VELKOMMEN MOBILE HOME PARK

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 3

CONCLUSIONS

The Velkommen Mobile Home Park project proposes for the construction of 10 new senior mobile homes (age 55+) within the city of Tumwater. The subject site, situated on 11.13-acres within tax parcel #: 31560000100, is bordered to the north by 70th Avenue SW. Access to and from the site is proposed to remain as existing with a single connection to 70th Avenue SW.

Based on ITE data, the proposed development is anticipated to generate 43 new average weekday daily trips with 2 AM peak hour trips and 3 PM peak hour trips.

The project would be subject to Transportation Impact Fees as assessed by the city of Tumwater. Additionally, the project would be subject to SEPA mitigation fees for any new trip entering the Tumwater Boulevard / I-5 interchange.

MITIGATION

1. Pay Traffic Impact Fees (TIF) as required by the city of Tumwater and per SEPA mitigation fee requirements. The city assesses trips at $914.30 per new Senior Adult Housing - Detached.

   The SEPA Mitigation Fee for new trips entering the Tumwater Boulevard / I-5 Interchange is $4,219.00 per new PM peak hour trip. Trip totals through the Tumwater Boulevard / I-5 Interchange are based on the TAZ 954 model, which estimates one project trip. Estimated impact fees are shown below.

Table 2: Estimated Tumwater TIF and SEPA Mitigation Fee

Variable	City of Tumwater TIF	Tumwater TIF Total	Tumwater Blvd PM Trips	SEPA Mitigation Fee per Trip	Total SEPA Fee
10 Senior Adult Housing - Detached	$914.30 per dwelling unit	**$9,143.00**	1 trip	$4,219.00	**$4,219.00**

   The total estimated TIF calculated for the city of Tumwater is $9,143.00 and the SEPA Mitigation Fee is calculated at $4,219.00. All fees are subject to City assessment and with rates in effect at such time.

No other mitigation is identified at this time.

Aaron Van Aken, P.E. PTOE

VELKOMMEN MOBILE HOME PARK
TRIP GENERATION MEMORANDUM

APPENDIX

Senior Adult Housing - Single-Family
(251)

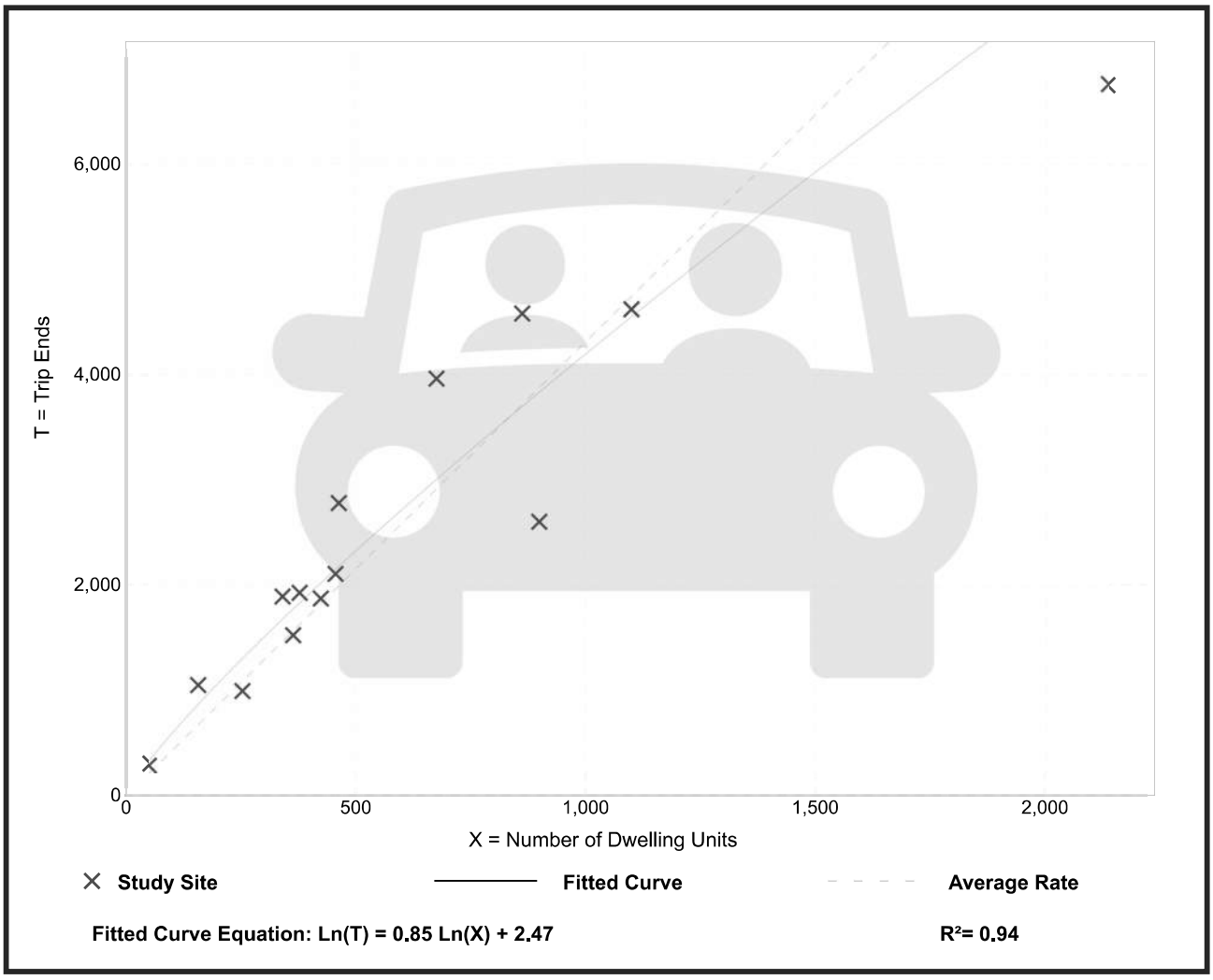
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 15
Avg. Num. of Dwelling Units: 646
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.31	2.90 - 6.66	1.07

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

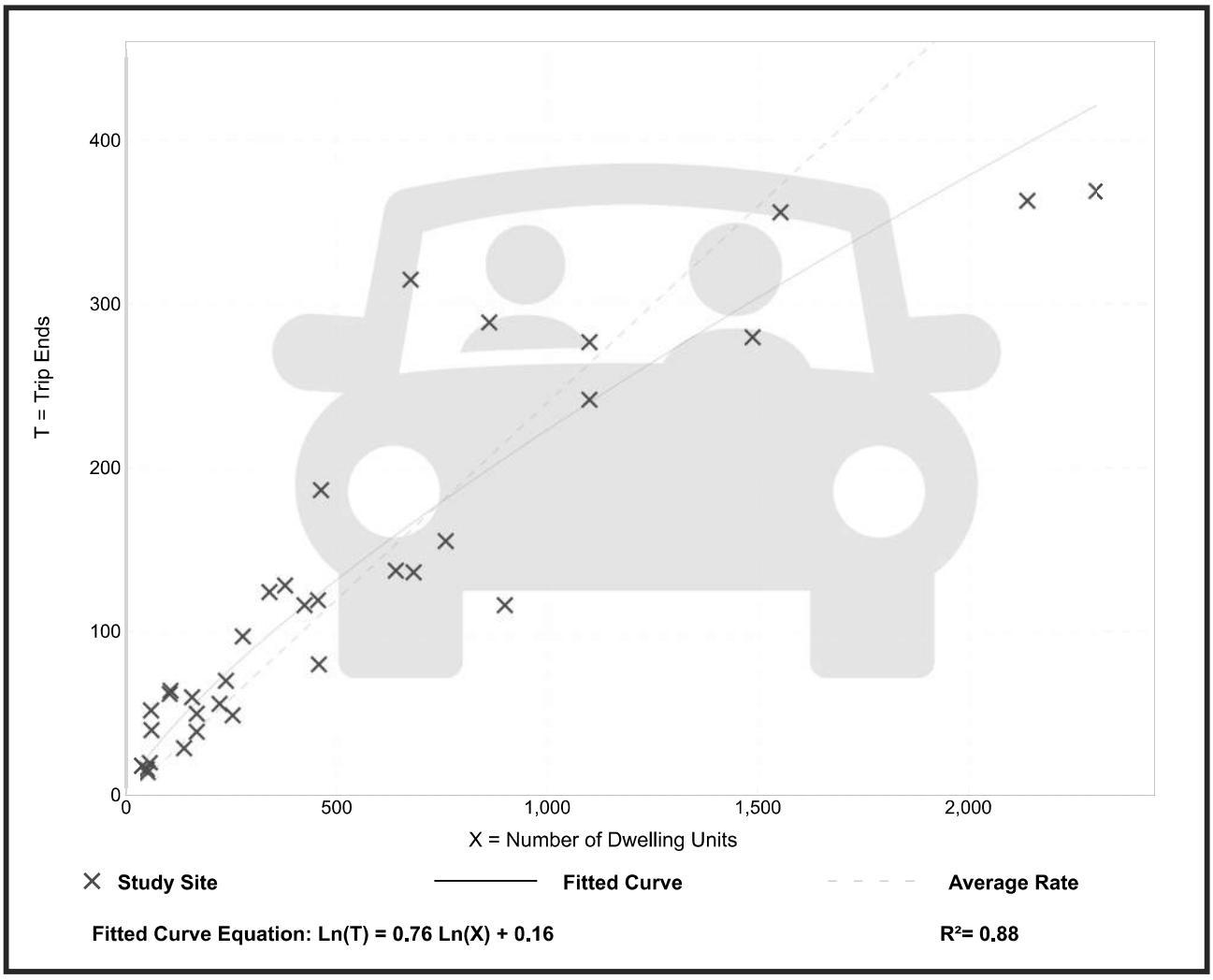
Senior Adult Housing - Single-Family
(251)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	34
Avg. Num. of Dwelling Units:	557
Directional Distribution:	33% entering, 67% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.24	0.13 - 0.84	0.10

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

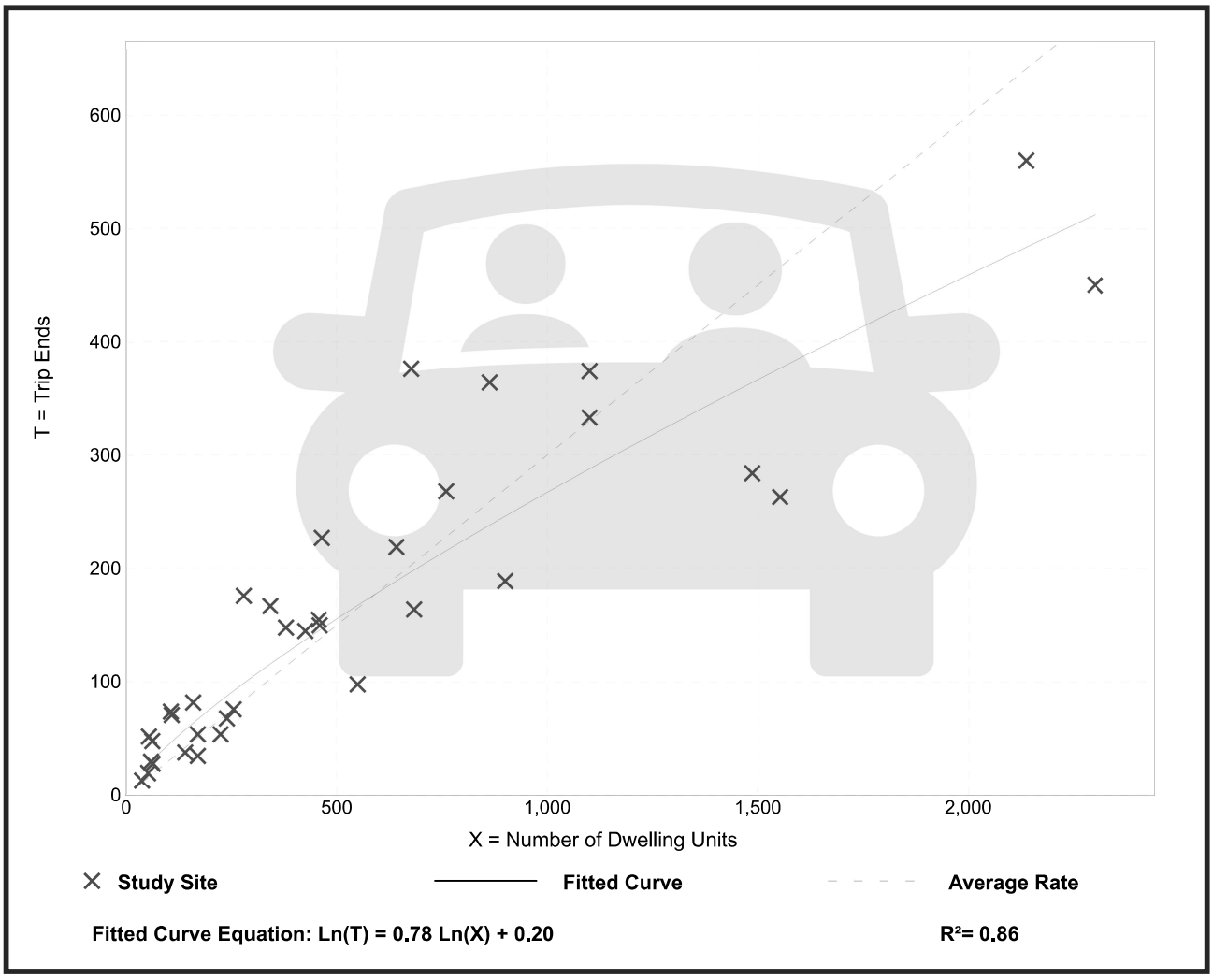
Senior Adult Housing - Single-Family
(251)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 4 and 6 p.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	35
Avg. Num. of Dwelling Units:	556
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

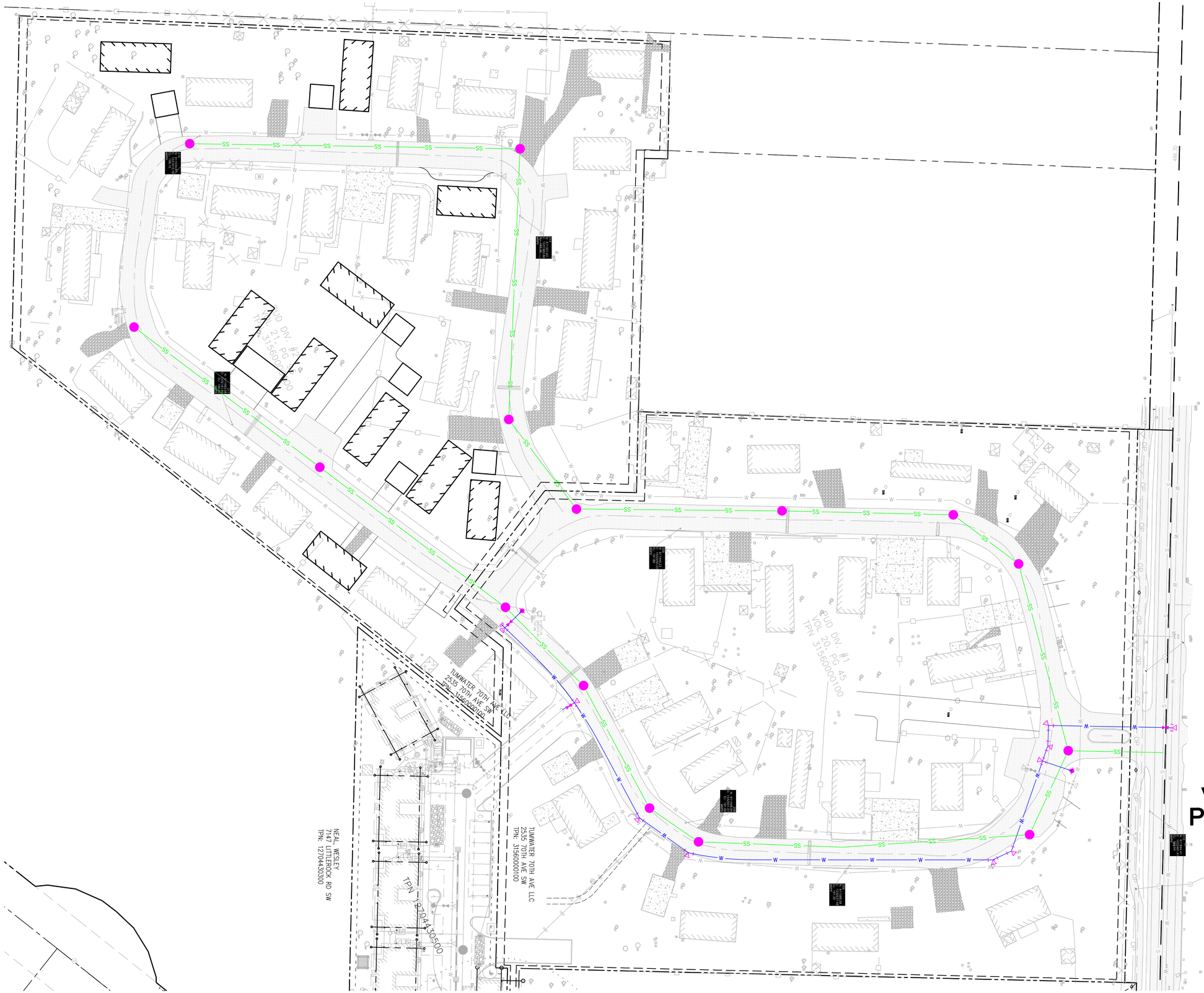
Average Rate	Range of Rates	Standard Deviation
0.30	0.17 - 0.95	0.12

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

TAZ 954 - 2018 Trip Distribution
Committed Project Network
2020-12-08



N

SCALE: 1" = 40'

40' 0 40' 80'

TUMWATER 70TH AVENUE LLC

VELKOMMEN MOBILE HOME PARK
PROPOSED WATER AND SEWER

LDC | Surveying Engineering Planning

Woodinville Tumwater Kent
321 Cleveland Ave SE, #209
Tumwater, WA 98501
T 425.806.1869 www.LDCcorp.com F 425.482.2893

ISSUE DATE: 12-28-2023

Preliminary Drainage Design Report

Project Information

Project:	**Velkommen Mobile Home Park**
Prepared for:	**Tumwater 70th Avenue, LLC** 12600 SE 38th Street, Suite 103 Contact Name: Greg Piantanida Contact Email: Greg@GpRealty.com

Reviewing Agency

Jurisdiction:	City of Tumwater

Project Representative

Prepared by:	**LDC, Inc.** 321 Cleveland Ave. SE, Suite 209 Tumwater, WA 98501 425.806.1869 ldccorp.com
Contact:	Ross Jarvis, PE RJarvis@ldccorp.com
Project Reference:	C23-157
Tumwater Project #:	TUM-24-0202

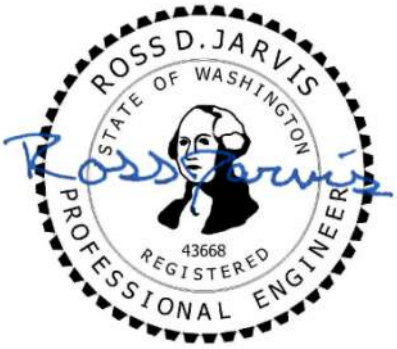
PROJECT ENGINEER'S CERTIFICATION

I hereby state that this Drainage Control Plan for the Velkommen Mobile Home Park project has been prepared by me or under my supervision and meets the minimum standard of care and expertise that is usual and customary in this community for professional engineers. I understand that the City of Tumwater does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.

Margaret G. Howsden

07/10/2024

Prepared by: Maggie Howsden, EIT Date
MHowsden@ldccorp.com
(360) 634-2074



07/10/2024

Approved by: Ross Jarvis, PE Date
RJarvis@ldccorp.com
(360) 634-2065

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DRAINAGE CONTROL PLAN ATTACHMENTS

1. PROPOSED PROJECT DESCRIPTION

The following report was prepared for the Velkommen Mobile Home Park project in Tumwater, WA. This report was prepared to comply with the minimum technical standards and requirements that are set forth in the *2022 City of Tumwater Drainage Design and Erosion Control Manual (DDECM).*

Project Proponent:	Tumwater 70th Avenue, LLC
Parcel Numbers:	31560000100
Total Parcel Area:	5.29 acres
Current Zoning:	MHP – Mobile Home Park
Required Permits:	Grading, Utility, Paving, Building, etc.
Site Address:	2535 70th Avenue SW
Section, Township, Range:	Section 4, Township 17 N, Range 2 W

The proposed Velkommen Mobile Home Park project is located on two parcels that contains a total of 11.13 acres. The proposed project is located on Parcel A which contains 5.29 acres. Parcel B will be used for access and for the utilities only. No site improvements outside of connecting existing pads to the City sanitary sewer will occur. The +/- 5.29-acre subject site is situated on Thurston County Tax Parcel 31560000100. The proposed project will disturb 1.90 acres of Parcel A and 0.22 acres of Parcel B for a total disturbed area of approximately 2.12 acres. Specifically, the proposed site improvements/construction activities for this project include the following:

- Site preparation, grading, and erosion control activities
- Construction of ten (10) mobile home pads with associated car ports and driveways
- Construction/installation of on-site stormwater management facilities
- Construction of new water main and sanitary sewer main and utility extensions to the proposed pads
- Construction of new permeable pavement sidewalk

A site vicinity map of the proposed project location is enclosed herein as **Appendix 3**. A worksheet for determining the number of Minimum Requirements for this project per the *DDECM* has been prepared and enclosed herein as **Appendix 3**. According to Figure 2.1, the proposed project is a new development that will trigger all of the minimum requirements (#1-11) for the new and replaced hard surfaces and the converted vegetation areas. It is important to note the replaced asphalt in the road is considered an underground utility project per Section 2.2.4 of Volume I of the DDECM and is only subject to minimum requirement #2.

1.1 SUMMARY OF COMPLIANCE ON-SITE

The stormwater design complies with the 11 minimum requirements as follows:

Minimum Requirement #1 – Stormwater Site Planning – The Drainage Control Plan has been completed per the *2022 City of Tumwater DDECM*.

Minimum Requirement #2 – Construction Stormwater Pollution Prevention Plan (SWPPP) – A pollution prevention plan will be completed and included within the Drainage Control Plan as **Attachment No. 2** which describes the 13 required elements at the time of civil engineering permit submittal. Further, an erosion control plan will be prepared and included as part of the engineering construction plan set in **Attachment No. 1** at the time of civil engineering permit submittal.

Minimum Requirement #3 – Source Control of Pollution – BMPs listed below are the minimum required for the site, additional BMPs not listed here may need to be implemented to meet the minimum requirements discussed in the *2022 DDECM*.

- S.1 Eliminate Illicit Storm Drain Connections
- S.2 Dispose of collected runoff and Waster Materials Properly
- S.3 Connect Process Water Discharges to a Sanitary Sewer, Holding Tank, or Wastewater Treatment System
- S.4 Cover the Activity with a Roof or Awning
- S.5 Cover the Activity with an Anchored Tarpaulin or Plastic Sheet
- S.6 Pave the Activity Area and Slope to a Sump or Holding Tank
- S.7 Surround the Activity Area with a Curb, Berm, or Dike, or Elevate the Activity
- S.8 Implement IPM Measures
- S.9 Cleaning Catch Basins
- Volume IV, Chapter 6, Section 6.1: Automobile Washing
- Volume IV, Chapter 6, Section 6.3: Storage of Solid Wastes and Yard Wastes
- Volume IV, Chapter 6, Section 6.5: Yard Maintenance and Gardening
- Volume IV, Chapter 6, Section 6.8: Pet Waste Management

Minimum Requirement #4 – Preservation of Natural Drainage Systems and Outfalls – Currently, stormwater runoff from the majority of the project parcel is assumed to fully infiltrate on-site in the pervious areas. It is assumed that the stormwater runoff from the existing road flows along the edge of pavement and infiltrates within the pervious areas of the adjacent yards. After construction, the stormwater runoff from the proposed roof areas will utilize downspout infiltration trenches. The stormwater runoff from the proposed permeable pavement driveway and sidewalk areas will fully infiltrate and pass through a treatment layer to receive basic treatment per Minimum Requirement #6. The replaced impervious surfaces such as utility trench restorations, will continue to have the same flow paths as today. It is anticipated that a portion of the stormwater runoff from the existing roadway will infiltrate within the proposed permeable sidewalks. The proposed project is not anticipated to have any adverse effects to the downstream systems.

Minimum Requirement #5 – On-site Stormwater Management – In accordance with Minimum Requirement #7, this project is not flow control exempt per Section 2.2.7. The proposed project will trigger Minimum Requirements #1-11 for the new and replaced hard surfaces and converted vegetations; therefore, the project shall employ the On-Site Stormwater Management BMPs in accordance with the Low Impact Performance Standard or List #2. The project will demonstrate compliance with List #2, see below.

Lawn and Landscaped Areas:

- **Post-construction soil quality and depth per Volume V, Chapter 6:** This BMP will be utilized to the maximum extent practicable for the project. See the site development plans in **Attachment No 1** for more details.

Roofs:

- **Full Dispersion in Volume V, Section 7.2, or Downspout Infiltration in Volume V, Section 15.3:** Full Dispersion is infeasible for this project site. Full dispersion requires that the site protects at least 65% of the site in a forest or native condition. For this reason alone, this BMP is infeasible. Downspout infiltration is feasible and will be utilized for all of the proposed roof areas. The stormwater runoff from the proposed roof areas will be collected, and directly tight lined to one of the proposed downspout infiltration trenches. See Section 4 for more details.

Other Hard Surfaces:

- **Full Dispersion in Volume V, Section 7.2:** Full dispersion is not feasible for this project site for the reasons mentioned above.
- **Permeable Pavement in Volume V, Chapter 11:** Permeable pavement is feasible for this project and will be used to the maximum extent feasible for the proposed sidewalk and driveway areas. See Section 4 of this report for more information.

Minimum Requirement #6 – Runoff Treatment – The proposed project will construct more than 5,000 S.F. of new pollution-generating hard surfaces; therefore, stormwater treatment is required. The *DDECM* does not include mobile home parks as projects that require enhanced treatment. The proposed project is not considered a high-use site; therefore, oil-control is not required. The project also does not require phosphorous treatment. Therefore, basic treatment is required for the pollution-generating impervious surfaces. Basic treatment through the use of a treatment course layer in the permeable pavement will be provided for the proposed driveways and sidewalks. See Section 4 of this report for more information.

Minimum Requirement #7 – Flow Control – The proposed project will construct over 10,000 S.F. of impervious surface and does not discharge to a flow control exempt water body, therefore flow control is required for the new hard surfaces and converted vegetation. Flow control will be provided for the on-site improvements through the use of downspout infiltration trenches and permeable pavement systems. The downspout infiltration trenches have been sized using the prescriptive method in Table 15.1 of the 2022 DDECM. The permeable pavement has been sized per this requirement using the Western Washington Hydrology Model (WWHM2012). See Section 4 of this report for more information.

Minimum Requirement #8 – Wetlands Protection – There are no known wetlands on or adjacent to the project site.

Minimum Requirement #9 – Operation and Maintenance – A Maintenance and Source Control Manual will be provided and included herein the Drainage Control Plan as **Attachment No. 4** at the time of civil engineering permit submittal.

Minimum Requirement #10 – Financial Liability – In accordance with the Tumwater Municipal Code 12.16.080, the project applicant, Tumwater 70th Ave, LLC, will provide financial guarantees to ensure that:

1. The project will operate according to the design approved by the project engineer, and
2. Operation of erosion control facilities will provide protection against siltation of surface water, erosion, damage to permanent stormwater BMPs, and damage to adjacent properties.

Minimum Requirement #11 – Off-Site Analysis and Mitigation – Currently, stormwater runoff from the majority of the project parcel is assumed to fully infiltrate on-site in the pervious areas. It is assumed that the stormwater runoff from the existing road flows along the edge of pavement and infiltrates within the

pervious areas of the adjacent yards. After construction, the stormwater runoff from the proposed roof areas will utilize downspout infiltration trenches. The stormwater runoff from the proposed permeable pavement driveway and sidewalk areas will fully infiltrate and pass through a treatment layer to receive basic treatment per Minimum Requirement #6. The replaced impervious surfaces such as utility trench restorations, will continue to have the same flow paths as today. It is anticipated that a portion of the stormwater runoff from the existing roadway will infiltrate within the proposed permeable sidewalks. The proposed project is not anticipated to have any adverse effects to the downstream systems.

2. EXISTING CONDITIONS DESCRIPTION

2.1 TOPOGRAPHY

The subject site is +/- 5.29 acres in size. Topography within the property generally slopes to the northeast with slopes between 0% to 10%.

2.2 GROUND COVER

The site has been developed as a mobile home park since at least 1990. The project site contains many mature trees. See the figures below.

Figure 1: Existing Conditions (1990)

Figure 2: Existing Conditions (2023)

2.3 DRAINAGE

The existing mobile home park infiltrates the majority of the stormwater runoff from the existing impervious surfaces on-site. A portion of the existing road on Parcel B utilizes two catch basins. There are currently no other known existing drainage structures on-site.

2.4 SOILS

Per the National Resources Conservation Service (NRCS) Web Soil Survey, the on-site soils are classified as Nisqually loamy fine sand with 0 to 3 percent slopes. Per Table A.8 in Volume III of the *2022 DDECM*, Nisqually soils are classified as hydrologic soil group B. The on-site soil has an infiltration rate between 1.98 inches per hour and 5.95 inches per hour. See **Attachment No. 3** for the NRCS report.

A full geotechnical report will be provided at the time of civil engineering permit submittal.

It is important to note that the 1999 historical high groundwater elevation ranges from 186.5 to 185.5 from the south to the north across the project site.

2.5 CRITICAL AREAS

The project parcel is located within Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 53067C0281E. According to the FIRM Map the project parcel is located within Zone X, which is determined to be an area of minimal flood hazard. See **Appendix 3** for the FIRM Map.

The project parcel is located within a Category I Critical Aquifer Recharge Area (CARA). There are no additional requirements or limitations for this project since the proposed infiltration facilities will not cause a violation of groundwater quality standards. See **Appendix 3** for the CARA map.

2.6 ADJACENT AREAS

The proposed project is located on Parcel A of the Velkommen Mobile Home Park. The site is bound to the north by Parcel B of the Velkommen Mobile home Park and 70th Avenue SW and on the remaining sides by single-family residences.

2.7 REPORTS AND STUDIES

A full geotechnical report will be provided at the time of civil engineering permit submittal.

No other reports or studies were performed or required at this time.

3. VICINITY ANALYSIS AND SUBBASIN DESCRIPTION

3.1 QUALITATIVE UPSTREAM ANALYSIS

Currently, it does not appear that there are any significant areas of upstream runoff flow onto the project site.

3.2 QUALITATIVE DOWNSTREAM ANALYSIS

The majority of the stormwater runoff from the proposed improvements will be fully infiltrated on-site via downspout infiltration or permeable pavement. Treatment will be provided as a treatment course in the permeable pavement for the proposed driveways and sidewalks. In the case of failure, the stormwater runoff will overtop the proposed facilities and infiltrate in the adjacent pervious areas.

The majority of the stormwater runoff from the replaced road will continue to infiltrate along the adjacent pervious areas. The proposed project is not anticipated to have any adverse effects to the downstream systems.

4. FLOW CONTROL AND WATER QUALITY FACILITY SIZING

4.1 IMPERVIOUS AND PERVIOUS AREA TABULATIONS

The proposed project follows the development requirements stated in the *2022 DDECM*. According to Figure 2.1 (**Appendix 3**), the proposed project is a new development that will trigger all of the minimum requirements (#1-11) for the new and replaced hard surfaces and the converted vegetation areas. The site does not have 35% or more of existing impervious coverage and the project will add more than 5,000 S.F. of new impervious surfaces. See **Attachment No. 1** for the proposed stormwater facility locations and details. Table 1 below illustrates the existing and proposed impervious and pervious areas of the project limits (See **Appendix 3** for the basin map).

Table 1. Land Type Designations Existing vs. Proposed

LAND TYPE DESIGNATIONS	AREA (ACRES)	% OF TOTAL AREA
Existing On-Site (Parcel A) Areas	**5.29**	**100**
Impervious	1.60	30.2
Pervious	3.69	69.8
Proposed On-Site (Parcel A) Areas	**5.29**	**100**
New Roof	0.40	7.6
New Permeable Concrete	0.13	2.4
New Permeable Asphalt	0.12	2.2
Replaced Asphalt[1]	0.56	10.6
Undisturbed Impervious[2]	0.94	17.8
Pervious	3.14	59.4

[1]The replaced asphalt is the area that was removed and replaced in kind for the utility construction and therefore is only subject to Minimum Requirement #2.
[2]Undisturbed impervious includes all of the existing impervious surfaces (roofs, driveways, and other associated impervious surfaces) that will not be disturbed with the proposed improvements.

It is important to note that the proposed project will disturb 0.15 acres of impervious surfaces and 0.07 acres of pervious surfaces on Parcel B for the utility construction. The disturbed surfaces will be replaced in kind. Per Section 2.2.4 of Volume I of the *DDECM*, utility projects that replace the disturbed surfaces in kind are only subject to Minimum Requirement #2.

4.2 WATER QUALITY ANALYSIS

Per Minimum Requirement #6, the proposed project requires basic treatment for the new and replaced pollution-generating hard surfaces, not including the surfaces removed and replaced in kind for the utility

improvements. Stormwater runoff from the proposed driveways and sidewalk areas will utilize a 6" treatment course per Section 11.6.9 of Volume V of the *DDECM* to provide basic treatment beneath the permeable pavement.

4.3 FLOW CONTROL ANALYSIS

Flow control is required for the proposed development and will be provided for the stormwater runoff through the use of permeable pavement and various roof downspout infiltration trenches, sized to infiltrate 100% of the runoff within them and therefore meeting the flow control requirement. The downspout infiltration facilities were sized using the prescriptive method and Table 15.1 of the DDECM using type B soils with an infiltration rate of 2 inches per hour. The permeable pavement facilities were sized using WWHM2012 and a design infiltration rate of 2 inches per hour. There are eight downspout infiltration facilities for the ten proposed mobile homes. All of the proposed sidewalks and new driveways will be constructed using permeable pavement. See Table 2 below for the new flow control basins.

Downspout Infiltration Trenches

The stormwater runoff from the proposed mobile homes and carports will utilize downspout infiltration trenches sized per Table 15.1 for type B soils with an infiltration rate of 2 inches per hour. See Table 2 for the summary of the areas and trench sizes and **Appendix 1** for the design calculations.

Table 2: Downspout Infiltration Trenches Design Information

Trench	Roof Areas Served	Area (SF)	Depth (ft)	Required SF	Dimensions (W x L x D)
1	Building 1 & carport	1,900	2.5	245.1	10′ x 25′ x 2.5′
2	Building 2 & carport	1,900	2.5	245.1	9′ x 27.25′ x 2.5′
3	Building 3	1,250	2	180	7.5′ x 24′ x 2′
4	Building 4 & carport, Buildings 5 & 6 and carport	5,700	4.5	535.8	15′ x 36′ x 4.5′
5	Building 7 & carport	1,900	2.5	245.1	8′ x 30.75′ x 2.5′
6	Building 8 & carport	1,900	2	273.6	8′ x 34.25′ x 2′
7	Building 9 & carport	1,650	2	212.85	8′ x 27′ x 2.5′
8	Building 10	1,250	2	180	7.5′ x 24′ x 2′

Per Volume V, Section 15.3.4 of the *2022 DDECM*, downspout infiltration systems must maintain a minimum of 1 foot of separation from the seasonal high groundwater elevation. The proposed systems meet the minimum required separation.

Permeable Pavement

The proposed sidewalk and driveways will consist of 3" of porous concrete or asphalt (respectively), 2" of leveling course, 12" of storage, and 6" of treatment course. Using WWHM2012 and a design infiltration rate of 2 inches per hour, the permeable pavement will fully infiltrate all of the stormwater runoff it will generate.

It is important to note that the proposed sidewalk will be flush with the existing pavement in order to maintain the existing drainage paths. The permeable pavement will intercept a portion of the roadway runoff, reducing the volume of stormwater runoff infiltrating within the pervious areas along the road. The proposed project does not require flow control for the existing impervious surfaces and therefore these areas were not included in the system sizing.

Per Volume V, Section 11.3 of the *2022 DDECM*, permeable pavement systems must maintain a minimum of 1 foot of separation from the seasonal high groundwater elevation. The proposed permeable pavement sections meet the minimum required separation.

See **Appendix 1** for the WWHM reports and downspout infiltration trench calculations. See **Appendix 3** for the basin maps. The drainage plan with the infiltration systems and conveyance layouts has been included as **Attachment No. 1**.

5. AESTHETIC CONSIDERATIONS FOR FACILITIES

All disturbed soil will be vegetated and landscaped using Best Management Practices. All of the proposed on-site flow control facilities will be underground; therefore, the only visible feature will be the lids of the proposed structures.

6. CONVEYANCE SYSTEM ANALYSIS AND DESIGN

The proposed roof drain lines will be sized to convey the peak 25-year, 24-hour storm in the pipe. The proposed roof drain lines will be a minimum 6-inch diameter with a minimum slope of 0.5% which has a maximum capacity of 0.44 cfs. The peak 25-year of the largest roof area that will utilize the roof drain lines is 0.0733 cfs while the peak 100-year flow of the largest roof area that will utilize the roof drain lines is 0.0863 cfs; therefore, the proposed roof drain lines have adequate capacity.

7. COVENANTS, DEDICATIONS, EASEMENTS

It is the City of Tumwater policy that the property owner(s) shall maintain their stormwater drainage facilities. Thus, Tumwater 70th Avenue, LLC. will be responsible for maintaining and ensuring that all installed drainage facilities are functioning in accordance with the design purpose. Tumwater 70th Avenue, LLC. will keep a copy of the maintenance plan at the project site. The Maintenance and Source Control Manual will be completed and included herein as **Attachment No. 4** at the time of civil engineering permit submittal. Additionally, the Establishment of Maintenance Covenants will be completed and included herein as **Attachment No. 5** at the time of civil engineering permit submittal.

8. AGREEMENTS AND GUARANTEES

Maintenance and/or operational bonding or other appropriate financial guarantees are required for all projects to ensure construction and functionality of drainage facilities are in compliance with applicable standards. These guarantees are to be consistent with the most recent edition of the City of Tumwater Development Guidelines and Public Works Standards.

9. OTHER PERMITS OR CONDITIONS PLACED ON THE PROJECT

No other permits or conditions have been placed on the project at this time.

END OF PRELIMINARY DRAINAGE DESIGN REPORT

APPENDIX 1
DESIGN CALCULATIONS

DOWNSPOUT INFILTRATION TRENCH SIZING CALCULATIONS

Table 15.1. Sizing Table for Downspout Infiltration Trenches and Drywells.

Trench Gravel Thickness[a] (feet)	Square Feet of Trench Bottom per 1,000 Square Feet of Roof Area for Various Soil Types and Infiltration Rates				
	Type A Soils (60 in/hr)	Type A Soils (12 in/hr)	Type A Soils (4 in/hr)	Type B Soils (2 in/hr)	Type C Soils (1 in/hr)
2.0	24	58	101	144	206
2.5	21	52	90	129	184
3.0	19	46	80	114	163
3.5	18	43	75	107	153
4.0	17	41	71	102	146
4.5	16	38	66	94	134
5.0	15	36	63	90	129

In/hr = inches per hour

[a] The "thickness" is the vertical thickness of the gravel and does not include cover depth over the trench.

Trench #1
Building 1 + Carport = 1,500 SF + 400 SF = 1,900 SF
Depth = 2.5'
Required Square Feet of Trench = 129 SF / 1000 SF of roof x 1,900 SF of roof = 245.1 SF
Dimensions: 10' x 25' x 2.5'

Trench #2
Building 2 + Carport = 1,500 SF + 400 SF = 1,900 SF
Depth = 2.5'
Required Square Feet of Trench = 129 SF / 1000 SF of roof x 1,900 SF of roof = 245.1 SF
Dimensions: 9' x 27.25' x 2.5'

Trench #3
Building 3 = 1,250 SF
Depth = 2'
Required Square Feet of Trench = 144 SF / 1000 SF of roof x 1,250 SF of roof = 180 SF
Dimensions: 7.5' x 24' x 2'

Trench #4
Building 4 + Carport + Building 5 + Building 6 + Double Carport =
1,500 SF + 400 SF + 1,500 SF + 1,500 SF + 800 SF = 5,700 SF
Depth = 4.5'
Required Square Feet of Trench = 94 SF / 1000 SF of roof x 5,700 SF of roof = 535.8 SF
Dimensions: 15' x 36' x 4.5'

Trench #5
Building 7 + Carport = 1,500 SF + 400 SF = 1,900 SF
Depth = 2.5'
Required Square Feet of Trench = 129 SF / 1000 SF of roof x 1,900 SF of roof = 245.1 SF
Dimensions: 8' x 30.75' x 2.5'

Trench #6
Building 8 + Carport = 1,500 SF + 400 SF = 1,900 SF
Depth = 2'
Required Square Feet of Trench = 144 SF / 1000 SF of roof x 1,900 SF of roof = 273.6 SF
Dimensions: 8' x 34.25' x 2'

Trench #7
Building 9 + Carport = 1,250 SF + 400 SF = 1,650 SF
Depth = 2.5'
Required Square Feet of Trench = 129 SF / 1000 SF of roof x 1,650 SF of roof = 212.85 SF
Dimensions: 8' x 27' x 2.5'

Trench #8
Building 10 = 1,250 SF
Depth = 2'
Required Square Feet of Trench = 144 SF / 1000 SF of roof x 1,250 SF of roof = 180 SF
Dimensions: 7.5' x 24' x 2'

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WWHM2012

PROJECT REPORT

FLOW CONTROL

PERMEABLE PAVEMENT

General Model Information

WWHM2012 Project Name: C23-157 Velkommen MHP Permeable Pavement
Site Name:
Site Address:
City:

Report Date:	3/27/2024
Gage:	Olympia Airport
Data Start:	1955/10/01
Data End:	2008/09/30
Timestep:	15 Minute
Precip Scale:	1.111
Version Date:	2023/01/27
Version:	4.2.19

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Forest, Flat	0.25
Pervious Total	0.25
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.25

Mitigated Routing

Permeable Pavement Driveways

Pavement Area:0.1211 acre.Pavement Length:263.75 ft.

Pavement Width:	20.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.25
Pour Space of Pavement:	0.4
Material thickness of second layer:	0.167
Pour Space of material for second layer:	0.33
Material thickness of third layer:	1
Pour Space of material for third layer:	0.33
Infiltration On	
Infiltration rate:	2
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	24.837
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	24.837
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	1.231

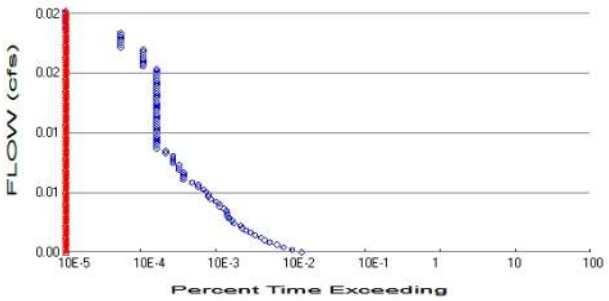
Permeable Pavement Sidewalk

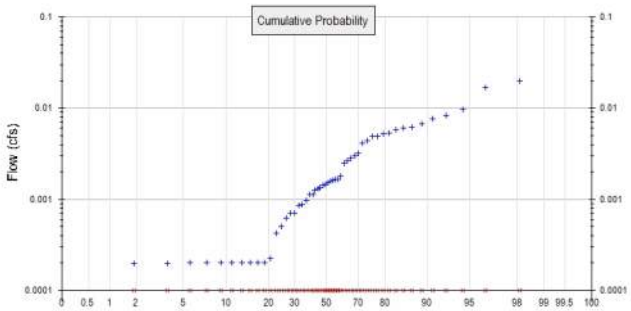
Pavement Area:0.1302 acre.Pavement Length:1134.00 ft.

Pavement Width:	5.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.25
Pour Space of Pavement:	0.4
Material thickness of second layer:	0.167
Pour Space of material for second layer:	0.33
Material thickness of third layer:	1
Pour Space of material for third layer:	0.33
Infiltration On	
Infiltration rate:	2
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	26.714
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	26.714
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	1.323

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.25
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0
Total Impervious Area: 0.251262

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.001368
5 year	0.004234
10 year	0.007642
25 year	0.014344
50 year	0.021544
100 year	0.031061

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1956	0.003	0.000
1957	0.001	0.000
1958	0.001	0.000
1959	0.001	0.000
1960	0.006	0.000
1961	0.005	0.000
1962	0.000	0.000
1963	0.008	0.000
1964	0.004	0.000
1965	0.005	0.000

1966	0.002	0.000
1967	0.002	0.000
1968	0.001	0.000
1969	0.000	0.000
1970	0.001	0.000
1971	0.002	0.000
1972	0.004	0.000
1973	0.000	0.000
1974	0.003	0.000
1975	0.002	0.000
1976	0.002	0.000
1977	0.000	0.000
1978	0.002	0.000
1979	0.001	0.000
1980	0.001	0.000
1981	0.002	0.000
1982	0.001	0.000
1983	0.001	0.000
1984	0.003	0.000
1985	0.000	0.000
1986	0.003	0.000
1987	0.017	0.000
1988	0.000	0.000
1989	0.000	0.000
1990	0.010	0.000
1991	0.008	0.000
1992	0.000	0.000
1993	0.000	0.000
1994	0.000	0.000
1995	0.001	0.000
1996	0.005	0.000
1997	0.005	0.000
1998	0.001	0.000
1999	0.006	0.000
2000	0.001	0.000
2001	0.000	0.000
2002	0.001	0.000
2003	0.000	0.000
2004	0.007	0.000
2005	0.000	0.000
2006	0.020	0.000
2007	0.006	0.000
2008	0.001	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0199	0.0000
2	0.0168	0.0000
3	0.0096	0.0000
4	0.0084	0.0000
5	0.0077	0.0000
6	0.0068	0.0000
7	0.0062	0.0000
8	0.0061	0.0000
9	0.0059	0.0000
10	0.0053	0.0000
11	0.0052	0.0000

12	0.0049	0.0000
13	0.0049	0.0000
14	0.0044	0.0000
15	0.0041	0.0000
16	0.0032	0.0000
17	0.0030	0.0000
18	0.0028	0.0000
19	0.0026	0.0000
20	0.0025	0.0000
21	0.0018	0.0000
22	0.0017	0.0000
23	0.0017	0.0000
24	0.0016	0.0000
25	0.0016	0.0000
26	0.0015	0.0000
27	0.0014	0.0000
28	0.0014	0.0000
29	0.0013	0.0000
30	0.0013	0.0000
31	0.0013	0.0000
32	0.0011	0.0000
33	0.0011	0.0000
34	0.0010	0.0000
35	0.0009	0.0000
36	0.0008	0.0000
37	0.0007	0.0000
38	0.0007	0.0000
39	0.0006	0.0000
40	0.0005	0.0000
41	0.0004	0.0000
42	0.0002	0.0000
43	0.0002	0.0000
44	0.0002	0.0000
45	0.0002	0.0000
46	0.0002	0.0000
47	0.0002	0.0000
48	0.0002	0.0000
49	0.0002	0.0000
50	0.0002	0.0000
51	0.0002	0.0000
52	0.0002	0.0000
53	0.0002	0.0000

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0007	263	0	0	Pass
0.0009	194	0	0	Pass
0.0011	149	0	0	Pass
0.0013	121	0	0	Pass
0.0015	98	0	0	Pass
0.0017	84	0	0	Pass
0.0019	75	0	0	Pass
0.0022	62	0	0	Pass
0.0024	54	0	0	Pass
0.0026	47	0	0	Pass
0.0028	42	0	0	Pass
0.0030	40	0	0	Pass
0.0032	33	0	0	Pass
0.0034	31	0	0	Pass
0.0036	28	0	0	Pass
0.0038	27	0	0	Pass
0.0041	27	0	0	Pass
0.0043	26	0	0	Pass
0.0045	24	0	0	Pass
0.0047	21	0	0	Pass
0.0049	21	0	0	Pass
0.0051	19	0	0	Pass
0.0053	16	0	0	Pass
0.0055	15	0	0	Pass
0.0057	15	0	0	Pass
0.0060	14	0	0	Pass
0.0062	13	0	0	Pass
0.0064	11	0	0	Pass
0.0066	11	0	0	Pass
0.0068	9	0	0	Pass
0.0070	7	0	0	Pass
0.0072	7	0	0	Pass
0.0074	7	0	0	Pass
0.0076	7	0	0	Pass
0.0078	6	0	0	Pass
0.0081	6	0	0	Pass
0.0083	6	0	0	Pass
0.0085	5	0	0	Pass
0.0087	5	0	0	Pass
0.0089	5	0	0	Pass
0.0091	5	0	0	Pass
0.0093	4	0	0	Pass
0.0095	4	0	0	Pass
0.0097	3	0	0	Pass
0.0100	3	0	0	Pass
0.0102	3	0	0	Pass
0.0104	3	0	0	Pass
0.0106	3	0	0	Pass
0.0108	3	0	0	Pass
0.0110	3	0	0	Pass
0.0112	3	0	0	Pass
0.0114	3	0	0	Pass
0.0116	3	0	0	Pass

0.0119	3	0	0	Pass
0.0121	3	0	0	Pass
0.0123	3	0	0	Pass
0.0125	3	0	0	Pass
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0.0144	3	0	0	Pass
0.0146	3	0	0	Pass
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0.0180	2	0	0	Pass
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0.0209	0	0	0	Pass
0.0211	0	0	0	Pass
0.0213	0	0	0	Pass
0.0215	0	0	0	Pass

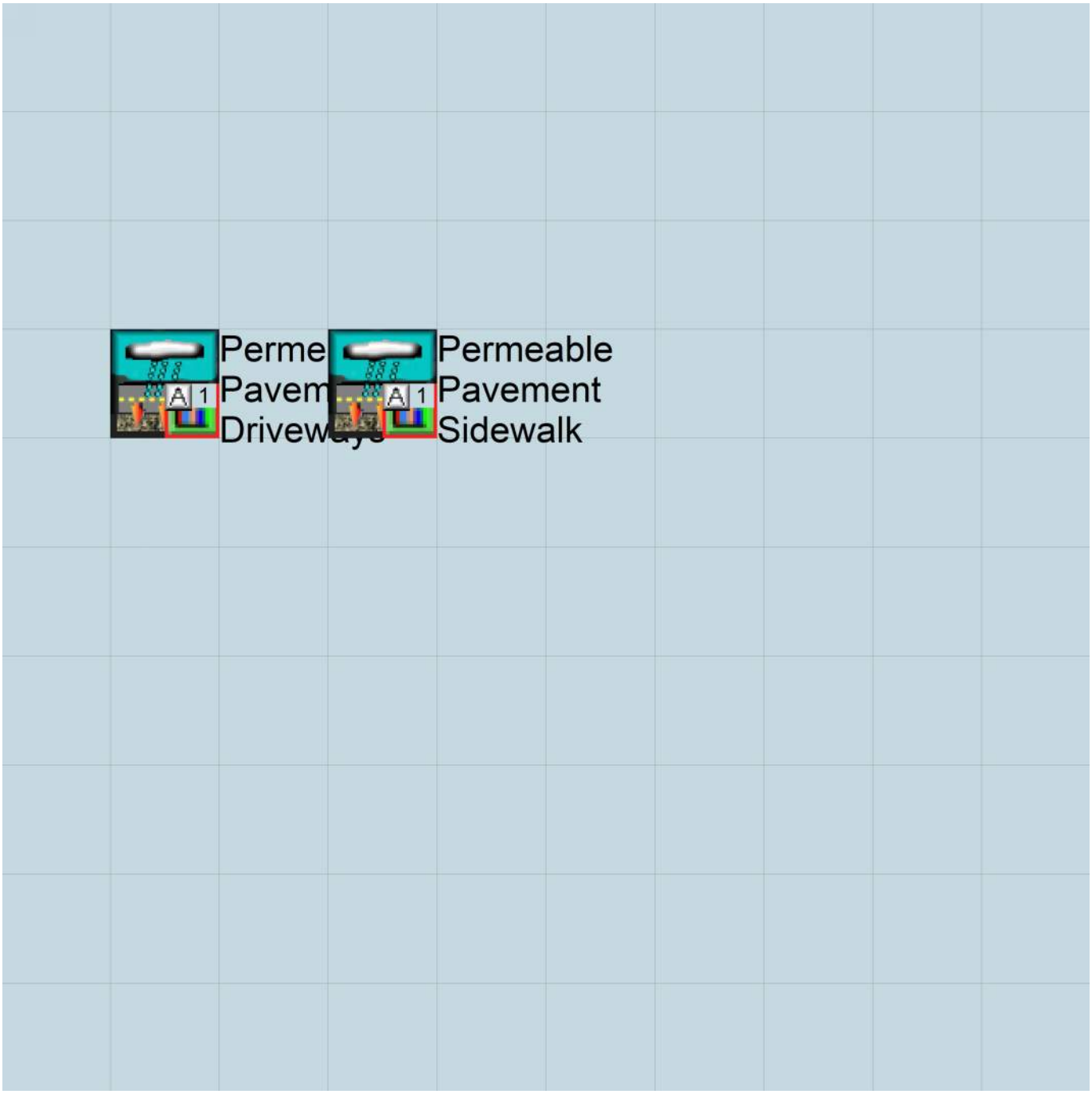
LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Permeable Pavement	☐	22.60			☐	100.00			
Permeable Pavement	☐	24.31			☐	100.00			
Total Volume Infiltrated		46.91	0.00	0.00		100.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Appendix

Predeveloped Schematic

Mitigated Schematic



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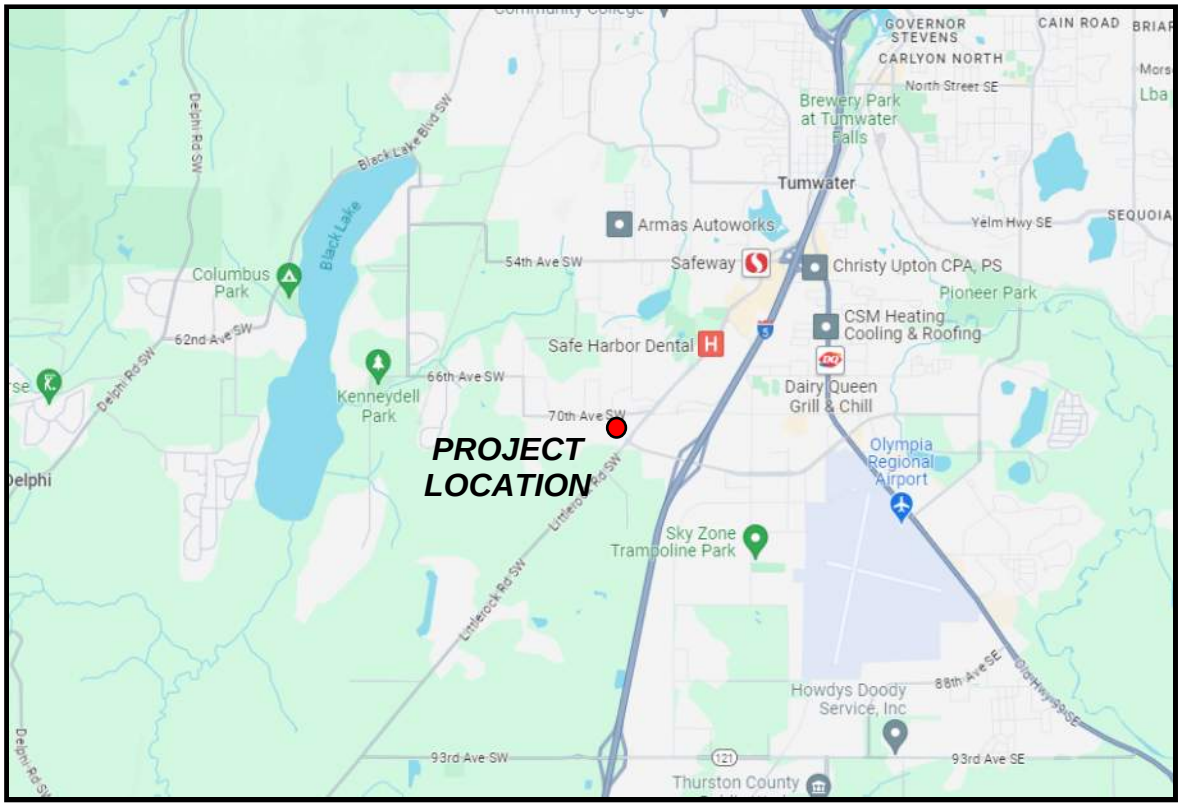
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

APPENDIX 2
SOIL MANAGEMENT PLAN

NOT INCLUDED AT THIS TIME

APPENDIX 3
SUPPLEMENTAL REPORTS AND INFORMATION



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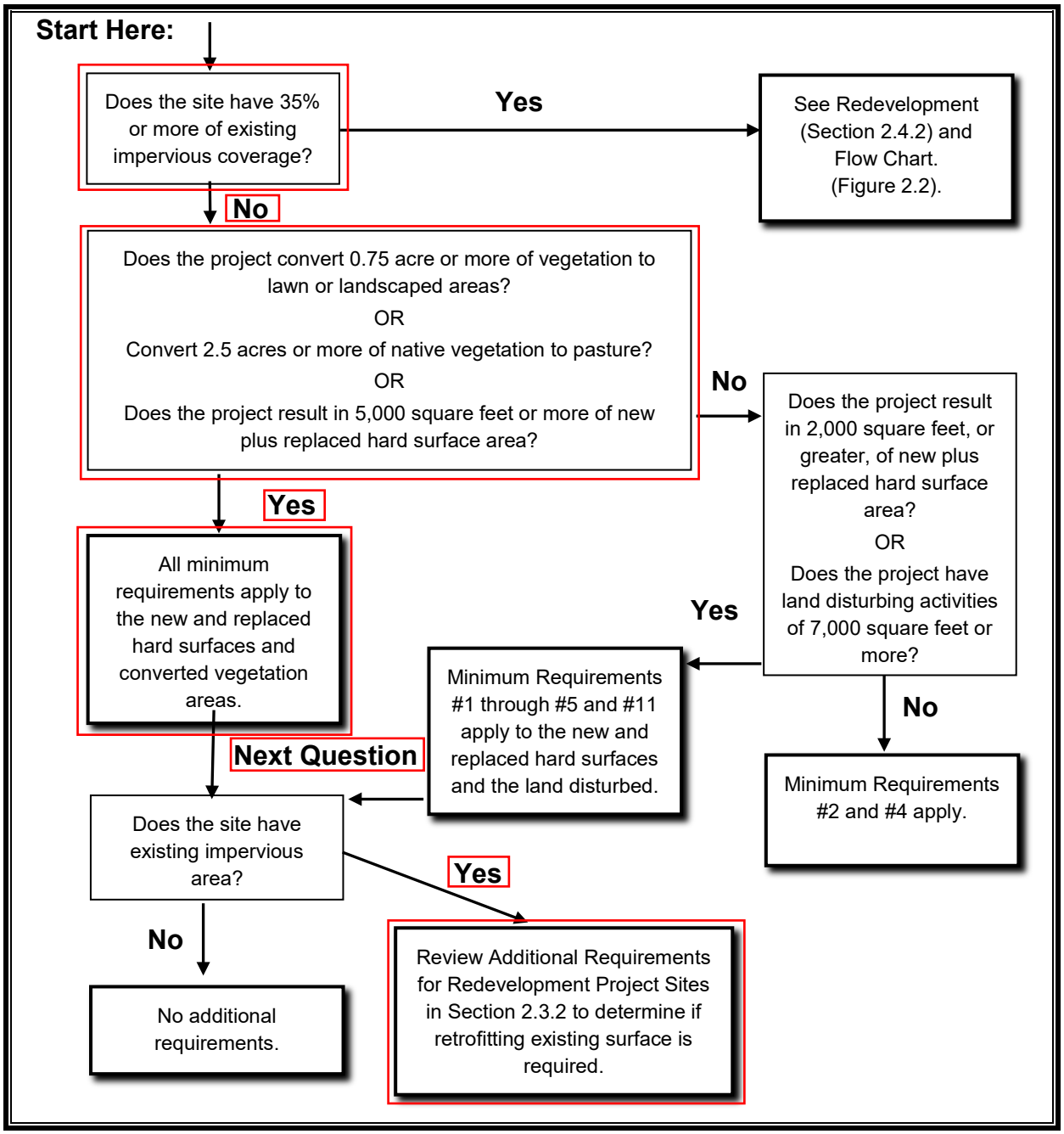


Figure 2.1. Flow Chart for Determining Requirements for New Development.

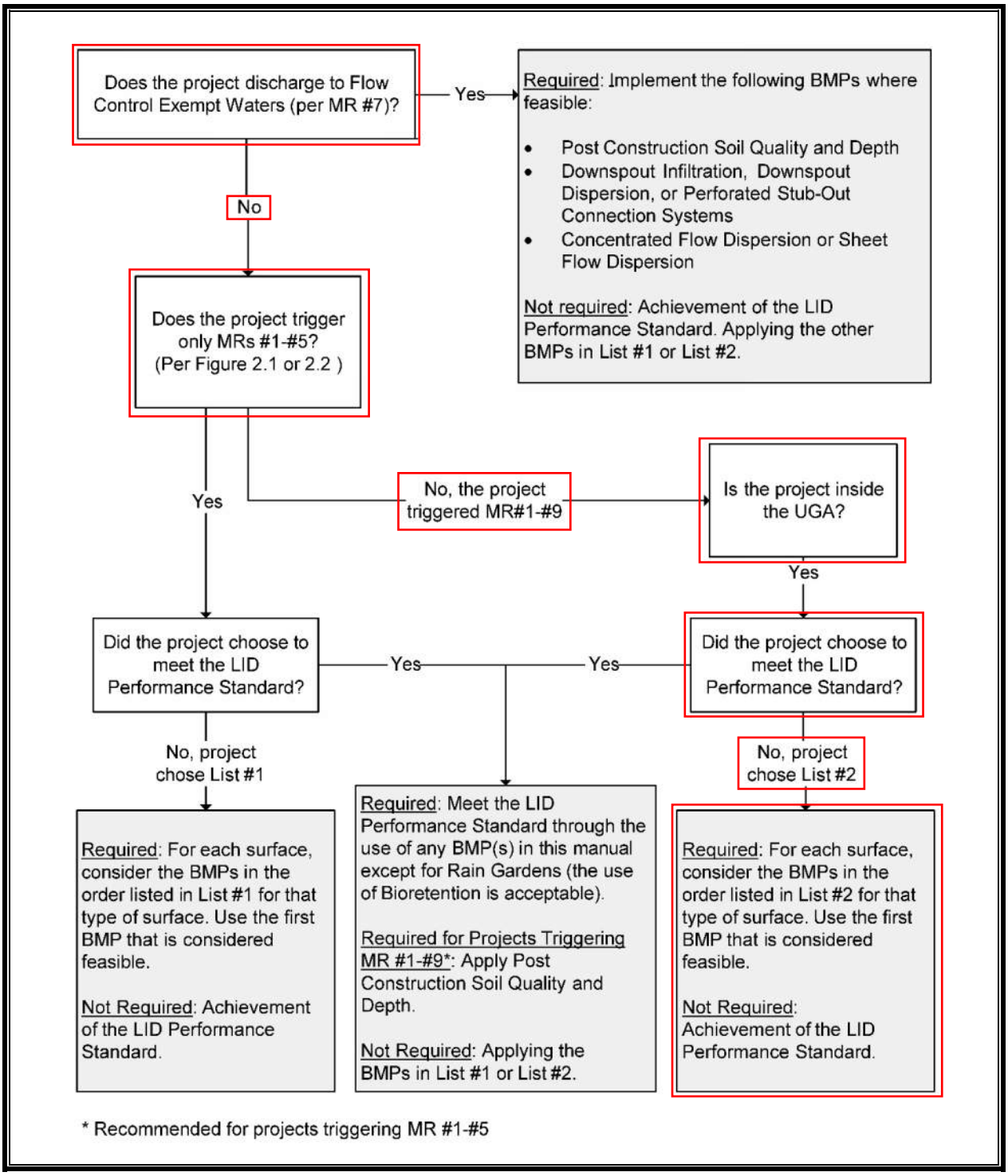
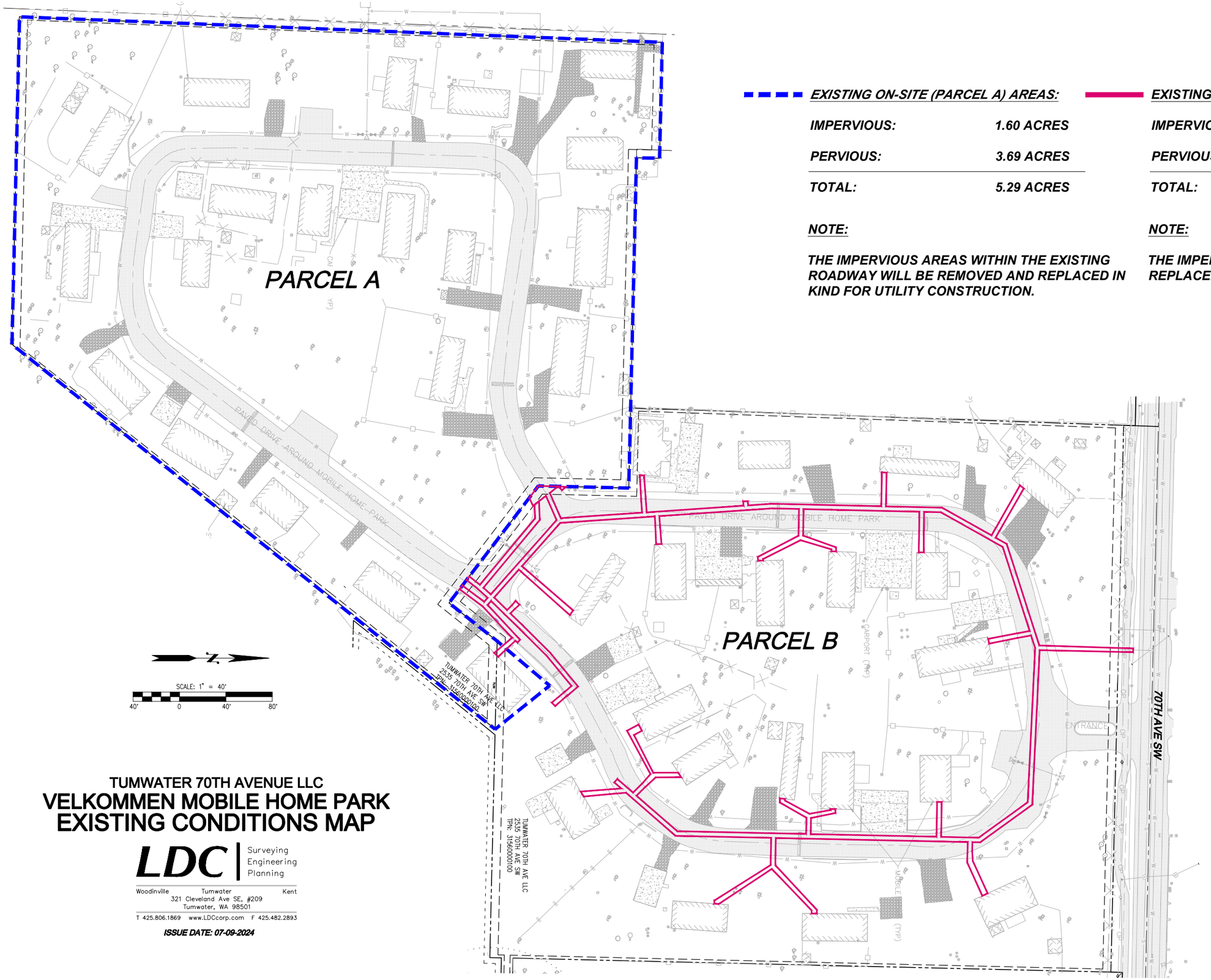


Figure 2.3. Flow Chart for Determining Minimum Requirement #5 Requirements.



EXISTING ON-SITE (PARCEL A) AREAS:

IMPERVIOUS:	***1.60 ACRES***
PERVIOUS:	***3.69 ACRES***
TOTAL:	***5.29 ACRES***

NOTE:

THE IMPERVIOUS AREAS WITHIN THE EXISTING ROADWAY WILL BE REMOVED AND REPLACED IN KIND FOR UTILITY CONSTRUCTION.

EXISTING OFF-SITE AREAS:

IMPERVIOUS:	***0.15 ACRES***
PERVIOUS:	***0.07 ACRES***
TOTAL:	***0.22 ACRES***

NOTE:

THE IMPERVIOUS AREAS WILL BE REMOVED AND REPLACED IN KIND FOR UTILITY CONSTRUCTION.

TUMWATER 70TH AVENUE LLC

VELKOMMEN MOBILE HOME PARK
EXISTING CONDITIONS MAP

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Tumwater, WA 98501
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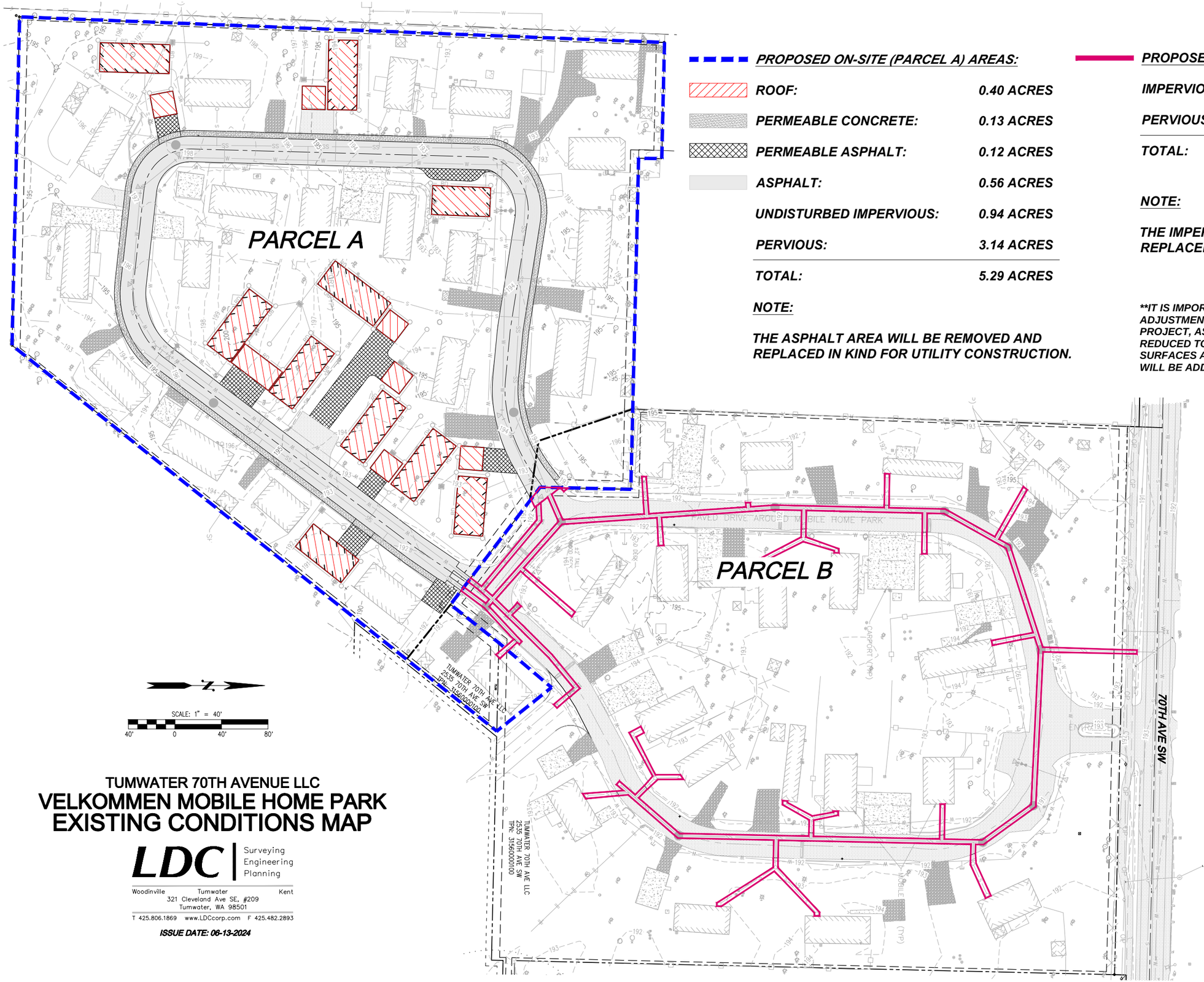
ISSUE DATE: 07-09-2024



PROPOSED ON-SITE (PARCEL A) AREAS:

ROOF:	***0.40 ACRES***
PERMEABLE CONCRETE:	***0.13 ACRES***
PERMEABLE ASPHALT:	***0.12 ACRES***
ASPHALT:	***0.56 ACRES***
UNDISTURBED IMPERVIOUS:	***0.94 ACRES***
PERVIOUS:	***3.14 ACRES***
TOTAL:	***5.29 ACRES***

NOTE:

THE ASPHALT AREA WILL BE REMOVED AND REPLACED IN KIND FOR UTILITY CONSTRUCTION.

PROPOSED OFF-SITE AREAS:

IMPERVIOUS:	***0.15 ACRES***
PERVIOUS:	***0.07 ACRES***
TOTAL:	***0.22 ACRES***

NOTE:

THE IMPERVIOUS AREAS WILL BE REMOVED AND REPLACED IN KIND FOR UTILITY CONSTRUCTION.

*****IT IS IMPORTANT TO NOTE THAT A BOUNDARY LINE ADJUSTMENT (BLA) WILL BE DONE AS PART OF THIS PROJECT, AS A RESULT OF THE BLA, PARCEL A WILL BE REDUCED TO 5.08 AC. THE 0.06 ACRES OF IMPERVIOUS SURFACES AND 0.15 ACRES OF PERVIOUS SURFACES WILL BE ADDED TO PARCEL B.***

N

SCALE: 1" = 40'

40' 0 40' 80'

TUMWATER 70TH AVENUE LLC
VELKOMMEN MOBILE HOME PARK
EXISTING CONDITIONS MAP

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ISSUE DATE: 06-13-2024

Critical Aquifer Recharge Area Map

Search...

Home | Find | Identify | Measure | Draw | Map & Layers | Crime | Tool Labels

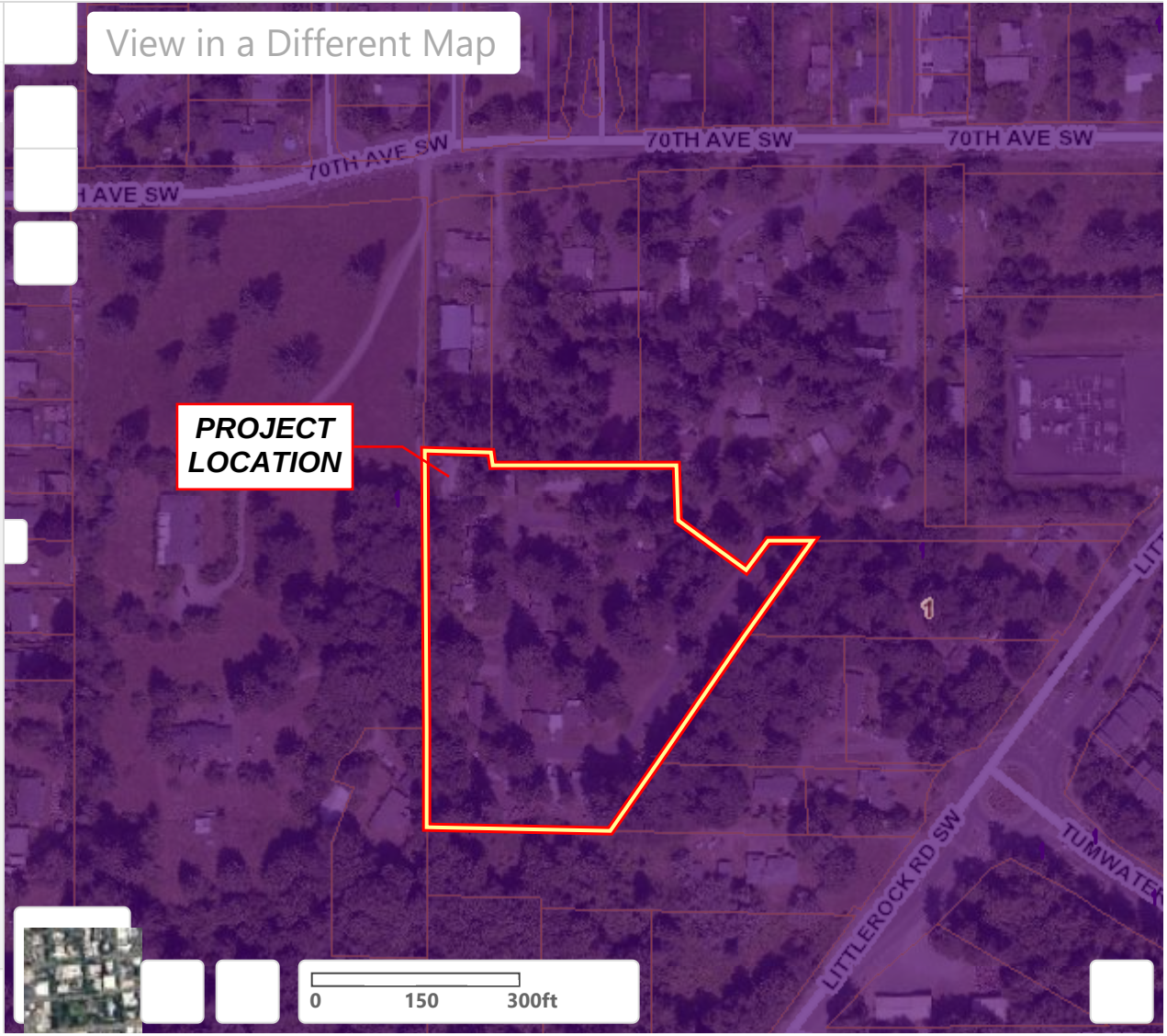
Show Layer List (Layer) | County Base Map | Aerial 2022 (Fast) | Aerials (All) | Hillshades (Basemap) | Add To Favorites | Bookmarks | Reset The Map (Map)

Layers

Filter Layers... Filter

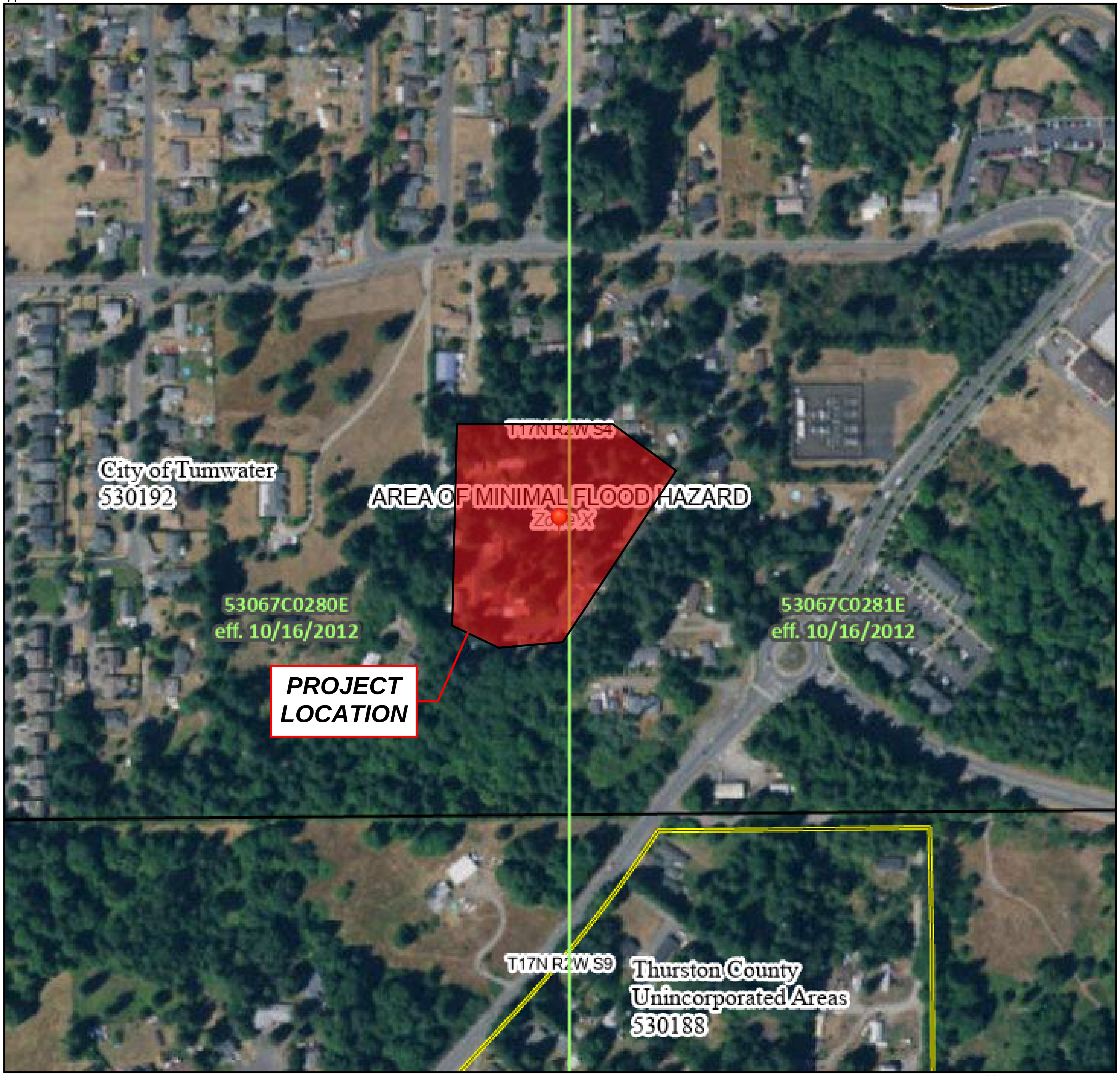
- Carlyon Landslide
- Closed Landfills
- Community Water System Boundaries
- Contaminated Sites
- Critical Aquifer Recharge Areas
  - 1
  - 2
  - 3
- Critical Aquifer Recharge Areas (Agricultural)
- Groundwater Concern Areas
- Groundwater Sensitive Areas

General Starter | Layers | Parcel Bound...



1DWLRQDO)ORRG+D]DUG/DHU)50HWWH

FEMA



/HJHQG

DRAINAGE CONTROL PLAN
ATTACHMENT NO. 1
PRELIMINARY SITE DEVELOPMENT DRAWINGS

SEC 4, TWN 17 , RGE 2 W, W.M., TUMWATER, WASHINGTON

VELKOMMEN MOBILE HOME PARK EXPANSION

FORMAL SITE PLAN REVIEW

SURVEY INFORMATION

LEGAL DESCRIPTION

TPN: 31560000100
LOT 1 OF ANDERSON P.U.D DIVISION NO. 1 MOBILE HOME PARK PUD, AS RECORDED IN VOLUME 20 OF PLATS, PAGE 45; AND LOT 2 OF ANDERSON P.U.D DIVISION NO. 2 MOBILE HOME PARK PUD, AS RECORDED IN VOLUME 21 OF PLATS, PAGE 46; EXCEPT THAT PORTION CONVEYED TO THE CITY OF TUMWATER AS RECORDED MARCH 14, 2006 UNDER AUDITOR'S FILE NO. 3815093; ALSO EXCEPT ANY MOBILE OR MANUFACTURED HOME LOCATION THEREON.

SITUATE IN THURSTON COUNTY, WASHINGTON STATE.

HORIZONTAL DATUM

HORIZTONAL – WASHINGTON STATE PLANE COORDINATES, SOUTH ZONE, NAD 83/91 BASED ON TIES TO THURSTON COUNTY MONUMENT 566A.

VERTICAL DATUM

VERTICAL – NGVD 29 BASED ON TIES TO THURSTON COUNTY MONUMENT 566A, ELEVATION = 194.494.

SURVEY NOTES

1. INSTRUMENT USED: SOKKIA IX TOTAL STATION.
2. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS OF WAC 332-130-090 AND 332-130-145.
3. SURVEY COMPLETED 07/20/2022.
4. ALL MONUMENTS SHOWN AS FOUND VISITED 06/2022 AND 07/2022.
5. PURPOSE OF TOPOGRAPHICAL MAPPING IS FOR FUTURE DEVELOPMENT OF SITE.
6. CONTOURS WERE ESTABLISHED FROM FIELD MAPPING, 1' CONTOURS SHOWN.
7. MTN2COAST (M2C) WAS RETAINED BY THOMAS ARCHITECTURAL STUDIOS TO COMPLETE A BOUNDARY AND TOPOGRAPHIC SURVEY OF THURSTON COUNTY TPN'S 31560000100 AND 12704430500.
8. SECTION SUBDIVISION PER RECORD OF SURVEY RECORDED UNDER AFN 3099273.

UTILITY NOTES

UTILITIES SHOWN HEREON ARE FROM FIELD MAPPING VISIBLE SURFACE APPURTENANCES, A UTILITY LOCATING SERVICE WAS NOT USED FOR THIS PROJECT. BURIED UTILITIES SHOULD BE VERIFIED BEFORE CONSTRUCTION.

REFERENCED SURVEYS

1. ANDERSON PUD DIVISION NO. 1 RECORDED IN VOLUME 20, PAGE 45 UNDER AUDITOR'S FILE NO. (AFN) 1047352.
2. ANDERSON PUD DIVISION NO. 2 RECORDED IN VOLUME 21, PAGE 96 UNDER AFN 1125043.
3. RECORD OF SURVEY RECORDED IN VOLUME 6, PAGE 98 UNDER AFN 995122.
4. RECORD OF SURVEY RECORDED UNDER AFN 3099273.
5. RECORD OF SURVEY RECORDED IN VOLUME 8, PAGE 157 UNDER AFN 1043880.
6. THURSTON COUNTY SHORT PLAT NO. 1682 RECORDED IN VOLUME 16, PAGE 617 UNDER AFN 8107270072.
7. THURSTON COUNTY SHORT PLAT NO. SS-2757 RECORDED IN VOLUME 2458, PAGE 50 UNDER AFN 9509250028.
8. RECORD OF SURVEY RECORDED IN VOLUME 2, PAGE 129 UNDER AFN 923382.
9. THURSTON COUNTY SHORT PLAT NO. SS-990447 RECORDED UNDER AFN 3260486.
10. STATUTORY WARRANTY DEED RECORDED UNDER AUDITOR'S FILE NO. 3830158.

EASEMENT NOTES

- ELECTRIC TRANSMISSION AND DISTRIBUTION LINE EASEMENT 10' WIDE OVER EXISTING, RELOCATED AND FUTURE POWER LINE PER AFN 981053. (BLANKET EASEMENT, NOT SHOWN ON MAP)
- POWER AND TELEPHONE EASEMENT 7' ON FRONT AND REAR AND 2.5' ON SIDES OF ANDERSON PUD DIVISION 1 AND DIVISION 2 PER PLAT EASEMENT PROVISIONS. EASEMENT SHOWN ON MAP.
- NATURAL GAS EASEMENT OVER ALL EXISTING PRIVATE ROADWAYS OF ANDERSON PUD DIVISION 1 AND DIVISION 2 PER AFN 9112270050. (BLANKET EASEMENT, NOT SHOWN ON MAP)
- BLANKET EASEMENT (COVERS ENTIRE SITE) FOR CABLE TELEVISION SYSTEM OVER ANDERSON PUD DIVISION 1 AND DIVISION 2 PER AFN 3057180.
- PUGET SOUND POWER AND LIGHT COMPANY EASEMENT UNDER AFN 913290, SHOWN ON MAP.
- PUGET SOUND ENERGY EASEMENT UNDER AFN 3851625, SHOWN ON MAP.
- RESTRICTIVE COVENANT PER AFN 4009583, SHOWN ON MAP.

CONTACT LIST

OWNER/APPLICANT:
TUMWATER 70TH AVENUE LLC
12600 SE 38TH STREET, STE 103
BELLEVUE, WASHINGTON 98006
CONTACT: GREG PIANTANIDA
EMAIL: greg@gprealty.com

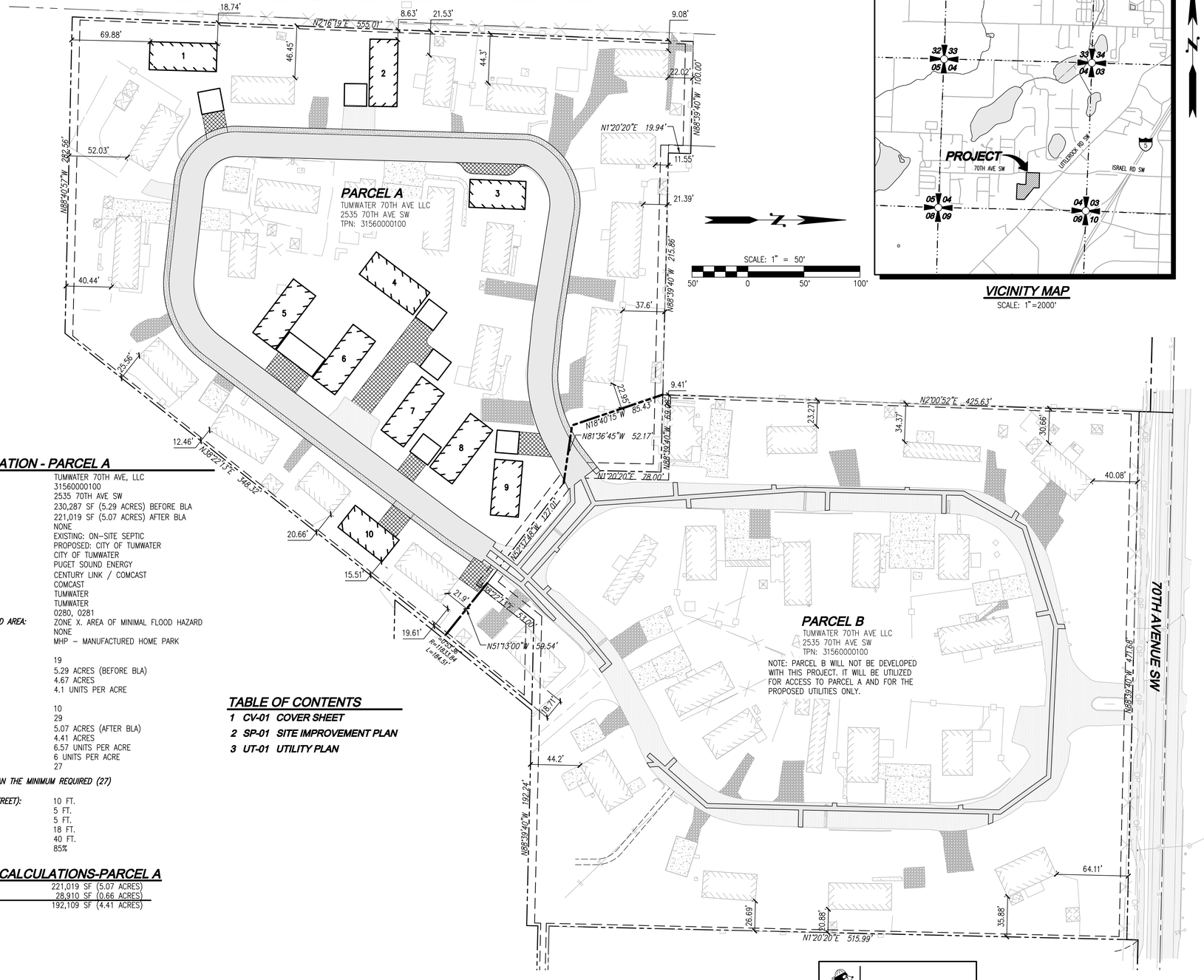
CIVIL ENGINEER:
LDC, INC.
321 CLEVELAND AVE SE, #209
TUMWATER, WASHINGTON 98501
CONTACT: ROSS JARVIS, P.E.
PHONE: (425) 806-1869
FAX: (425) 482-2893
EMAIL: rjarvis@ldccorp.com

SURVEYOR:
MTN2COAST
1520 IRVING ST SW, STE B
TUMWATER, WASHINGTON 98512
CONTACT: BRUCE E. STUDEMAN
PHONE: (360) 357-5593

EARTHWORK QUANTITIES

TOTAL DISTURBED AREA:	92,345 SF	(2.12 AC)
PARCEL A:	82,735 SF	(1.90 AC)
PACEL B:	9,610 SF	(0.22 AC)

THE ABOVE QUANTITIES ARE FOR PERMITTING PURPOSES. CONTRACTOR TO VERIFY.



PROJECT INFORMATION - PARCEL A

OWNER/APPLICANT:	TUMWATER 70TH AVE, LLC
TPN:	31560000100
SITE ADDRESS:	2535 70TH AVE SW
PARCEL SIZE:	230,287 SF (5.29 ACRES) BEFORE BLA
	221,019 SF (5.07 ACRES) AFTER BLA
STORMWATER TRACT:	NONE
SANITARY SEWER:	EXISTING: ON-SITE SEPTIC
	PROPOSED: CITY OF TUMWATER
WATER:	CITY OF TUMWATER
POWER/GAS:	PUGET SOUND ENERGY
TELEPHONE/FIBER:	CENTURY LINK / COMCAST
CABLE/TV:	COMCAST
FIRE DISTRICT:	TUMWATER
SCHOOL DISTRICT:	TUMWATER
FEMA PANEL NO.:	0280, 0281
FEMA DESIGNATED FLOOD HAZARD AREA:	ZONE X. AREA OF MINIMAL FLOOD HAZARD
EXISTING WELLS:	NONE
ZONING DESIGNATION:	MHP – MANUFACTURED HOME PARK
EXISTING HOMES:	19
PARCEL AREA:	5.29 ACRES (BEFORE BLA)
NET AREA:	4.67 ACRES
EXISTING DENSITY:	4.1 UNITS PER ACRE
ADDITIONAL HOMES:	10
TOTAL HOMES:	29
PARCEL AREA:	5.07 ACRES (AFTER BLA)
NET AREA:	4.41 ACRES
PROPOSED DENSITY:	6.57 UNITS PER ACRE
MIN DENSITY:	6 UNITS PER ACRE
MIN HOMES:	27

TOTAL HOMES (29) IS MORE THAN THE MINIMUM REQUIRED (27)

FRONT YARD SETBACK (FROM STREET):	10 FT.
REAR YARD SETBACK:	5 FT.
SIDE YARD SETBACK:	5 FT.
DRIVEWAY SETBACK:	18 FT.
MAXIMUM BUILDING HEIGHT:	40 FT.
MAXIMUM LOT COVERAGE:	85%

PROPOSED AREA CALCULATIONS-PARCEL A

GROSS PARCEL AREA:	221,019 SF (5.07 ACRES)
INTERNAL ROADS & SIDEWALK:	28,910 SF (0.66 ACRES)
NET PARCEL AREA:	192,109 SF (4.41 ACRES)

TABLE OF CONTENTS

DISCLAIMER

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UTILITY NOTE

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. AGENCIES INVOLVED SHALL BE NOTIFIED WITHIN A REASONABLE TIME PRIOR TO THE START OF CONSTRUCTION.

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NO.	DATE	DESCRIPTION	BY

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Woodinville
Tumwater
Kent
321 Cleveland Ave SE, #209
Tumwater, WA 98501
T 425.806.1869
www.LDCcorp.com
F 425.482.2893

TUMWATER 70TH AVENUE LLC

VELKOMMEN MOBILE HOME PARK EXPANSION

COVER SHEET

ROSS D. JARVIS — STATE OF WASHINGTON — 43688 — REGISTERED PROFESSIONAL ENGINEER — 07-29-24

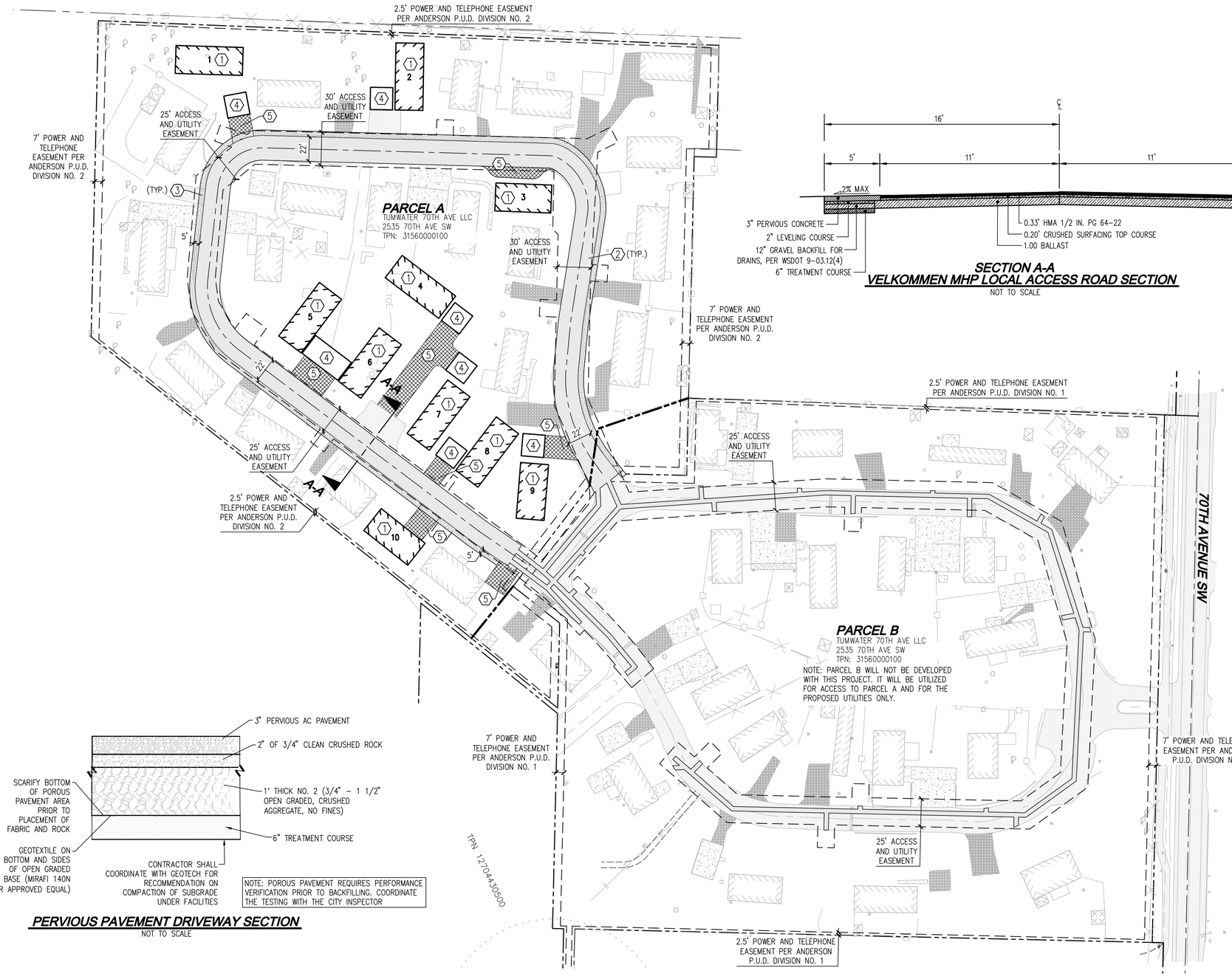
JOB NUMBER:	C23157
DRAWING NAME:	C23-157-CV-01
DESIGNER:	MH
DRAFTING BY:	AW
DATE:	JULY 2024
SCALE:	AS SHOWN
JURISDICTION:	TUMWATER WA

CV-01

SHEET 1 OF 3

Drawing: P:\Civil\2023\C23-157 Velkommen Mobile Park\Drawings\Preliminary\C23-157-CV-01.dwg Plotted: Jul 09, 2024 - 10:08am

SEC 4, TWN 17 , RGE 2 W, W.M., TUMWATER, WASHINGTON



SECTION A-A
VELKOMMEN MHP LOCAL ACCESS ROAD SECTION
NOT TO SCALE

PERVIOUS PAVEMENT DRIVEWAY SECTION
NOT TO SCALE

SCALE: 1" = 50'

50' 0 50' 100'

LEGEND

- RIGHT OF WAY
- R.O.W. CENTER LINE
- PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT LINE
- PROPOSED BUILDING
- EXISTING BUILDING
- PROPOSED PERVIOUS CONCRETE SIDEWALK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

SITE IMPROVEMENT NOTES:

1. PROPOSED MOBILE HOME
2. PROPOSED ASPHALT PAVEMENT
3. PROPOSED PERVIOUS CONCRETE SIDEWALK
4. PROPOSED CARPORT
5. PROPOSED PERVIOUS PAVEMENT DRIVEWAY

GENERAL NOTE

1. EXISTING SEPTIC TO BE ABANDONED IN PLACE UNLESS IN CONFLICT WITH PROPOSED UNITS
2. NO WELLS WITHIN 200 FEET OF PARCEL A

DISCLAIMER

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Tumwater, WA 98501
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F 425.482.2893
www.LDCcorp.com

TUMWATER 70TH AVENUE LLC
VELKOMMEN MOBILE HOME PARK EXPANSION
SITE IMPROVEMENT PLAN

ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
07-25-24

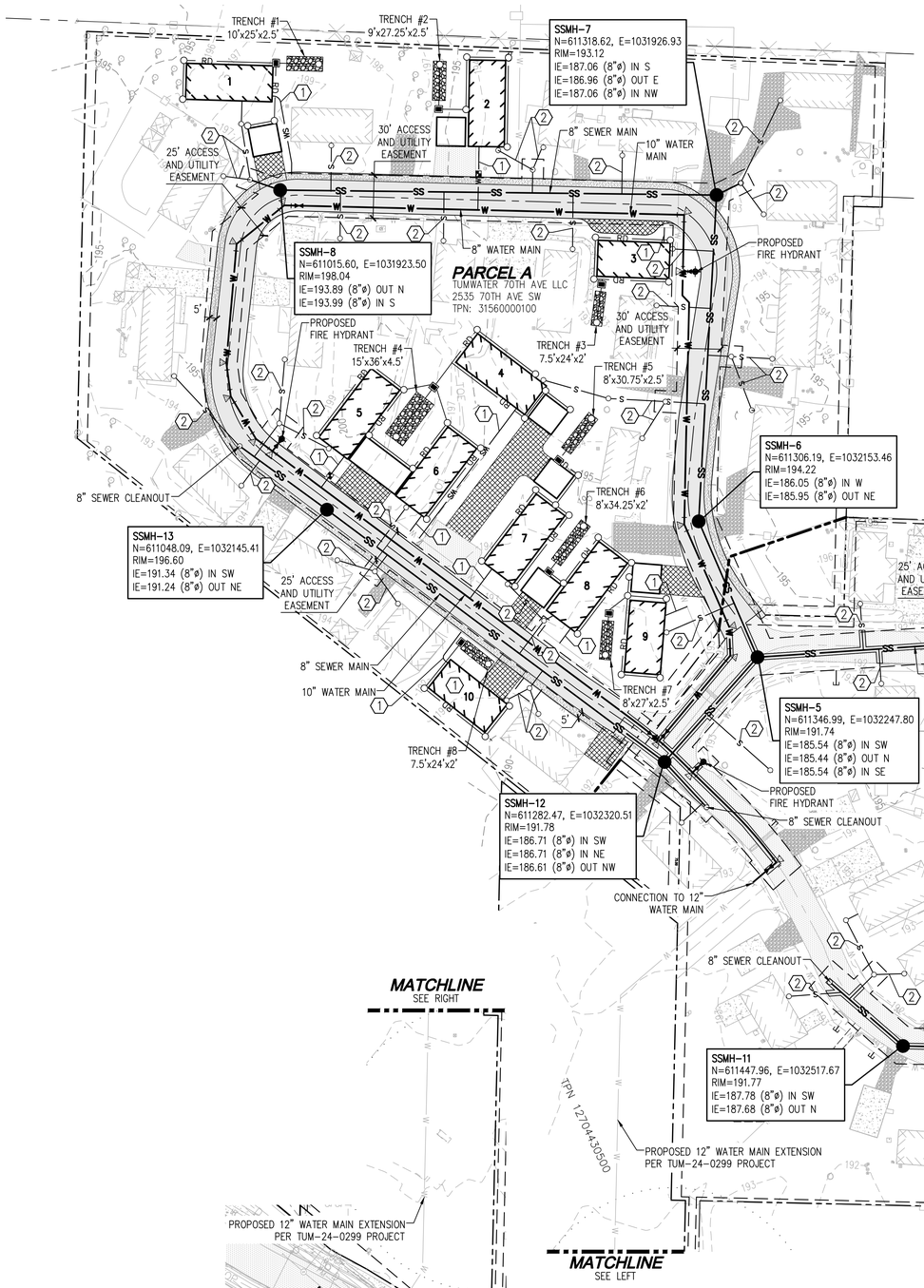
JOB NUMBER:	C23157
DRAWING NAME:	C23-157-SP-01
DESIGNER:	MH
DRAFTING BY:	AW
DATE:	JULY 2024
SCALE:	AS SHOWN
JURISDICTION:	TUMWATER WA

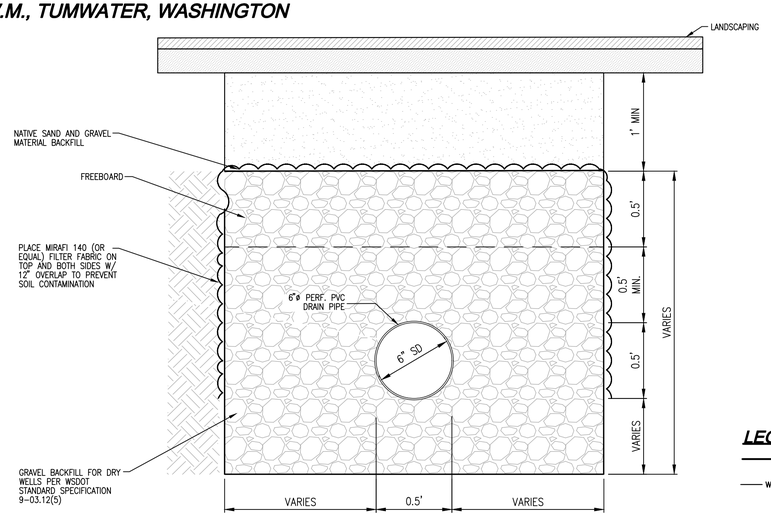
SP-01

SHEET 2 OF 3

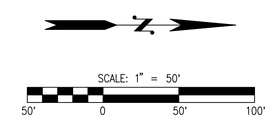
Drawing: P:\Civil\2023\C23-157 Velkommen Mobile Park\Drawings\Preliminary\C23-157-SP-01.dwg Plotted: Jul 09, 2024 - 10:08am

SEC 4, TWN 17 , RGE 2 W, W.M., TUMWATER, WASHINGTON





DOWNSPOUT INFILTRATION TRENCH SECTION
NOT TO SCALE



LEGEND

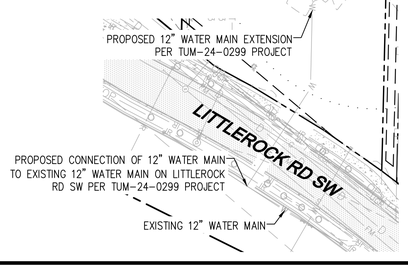
- PROPOSED AWWA C900 PVC DR14 WATER LINE
- PROPOSED WATER SERVICE LINE
- PROPOSED GATE VALVE
- PROPOSED THRUST BLOCKING
- PROPOSED FIRE HYDRANT
- PROPOSED WATER BEND FITTING
- PROPOSED WATER METER
- PROPOSED STORM/SEWER CLEANOUT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED ASTM D3034 SDR35 PVC SANITARY SEWER LINE
- PROPOSED SANITARY SEWER SERVICE LINE
- PROPOSED UTILITY EASEMENT
- PROPOSED DOWNSPOUT INFILTRATION TRENCH
- PROPOSED ASTM D3034 SDR35 PVC DRAIN LINE
- PROPOSED TYPE 1 CATCH BASIN W/SOLID LID

UTILITY NOTES:

1. PROPOSED DOMESTIC WATER CONNECTION
2. PROPOSED DOMESTIC SEWER LATERAL

GENERAL NOTE

1. EXISTING SEPTIC TO BE ABANDONED IN PLACE UNLESS IN CONFLICT WITH PROPOSED UNITS
2. NO WELLS WITHIN 200 FEET OF PARCEL A



DISCLAIMER

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UTILITY NOTE

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. AGENCIES INVOLVED SHALL BE NOTIFIED WITHIN A REASONABLE TIME PRIOR TO THE START OF CONSTRUCTION.

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

TUM-24-0202

Drawing: P:\Civil\2023\C23-157 Velkommen Mobile Park\Drawings\Preliminary\C23-157-UT-01.dwg Plotted: Jul 09, 2024 - 10:08am

REVISIONS

NO.	DATE	DESCRIPTION	BY

LDC
Surveying
Engineering
Planning
Woodinville
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Tumwater
321 Cleveland Ave SE, #209
Tumwater, WA 98501
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TUMWATER 70TH AVENUE LLC

VELKOMMEN MOBILE HOME PARK EXPANSION

UTILITY PLAN

ROSS D. JARLS
STATE OF WASHINGTON
43668
REGISTERED PROFESSIONAL ENGINEER
07-25-24

JOB NUMBER:	C23157
DRAWING NAME:	C23-157-UT-01
DESIGNER:	MH
DRAFTING BY:	AW
DATE:	JULY 2024
SCALE:	AS SHOWN
JURISDICTION:	TUMWATER WA

UT-01

SHEET 3 OF 3

DRAINAGE CONTROL PLAN
ATTACHMENT NO. 2
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

NOT INCLUDED AT THIS TIME

DRAINAGE CONTROL PLAN
ATTACHMENT NO. 3
SOILS REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Thurston County Area, Washington

March 27, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,310 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Thurston County Area, Washington
Survey Area Data: Version 17, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 26, 2023—Aug 14, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
73	Nisqually loamy fine sand, 0 to 3 percent slopes	4.9	100.0%
Totals for Area of Interest		**4.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Thurston County Area, Washington

73—Nisqually loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2ndc8
Elevation: 160 to 1,310 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 150 to 200 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nisqually and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nisqually

Setting

Landform: Terraces
Parent material: Sandy glacial outwash

Typical profile

H1 - 0 to 5 inches: loamy fine sand
H2 - 5 to 31 inches: loamy fine sand
H3 - 31 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: R002XA006WA - Puget Lowlands Prairie
Forage suitability group: Droughty Soils (G002XS401WA)
Other vegetative classification: Droughty Soils (G002XS401WA)
Hydric soil rating: No

Minor Components

Yelm

Percent of map unit: 3 percent
Hydric soil rating: No

Norma

Percent of map unit: 2 percent

Landform: Depressions
Other vegetative classification: Wet Soils (G002XS101WA)
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

DRAINAGE CONTROL PLAN
ATTACHMENT NO. 4
MAINTENANCE AND SOURCE CONTROL MANUAL

NOT INCLUDED AT THIS TIME

DRAINAGE CONTROL PLAN
ATTACHMENT NO. 5
ESTABLISHMENT OF MAINTENANCE COVENANT

NOT INCLUDED AT THIS TIME

SUF

SOUND URBAN FORESTRY
Appraisals, Planning, Urban Landscape Design and Management

Velkommen Mobile Home Park
2535 70th Ave SW, Lot 2
Tumwater, Washington 98501

Tree Retention Report

Prepared for: GP Realty Finance, Inc., Greg Piantanida, Property Owner

Prepared by: Kevin M. McFarland, SUF
Consulting Urban Forester/ISA Certified Arborist & Tree Risk Assessor Qualified

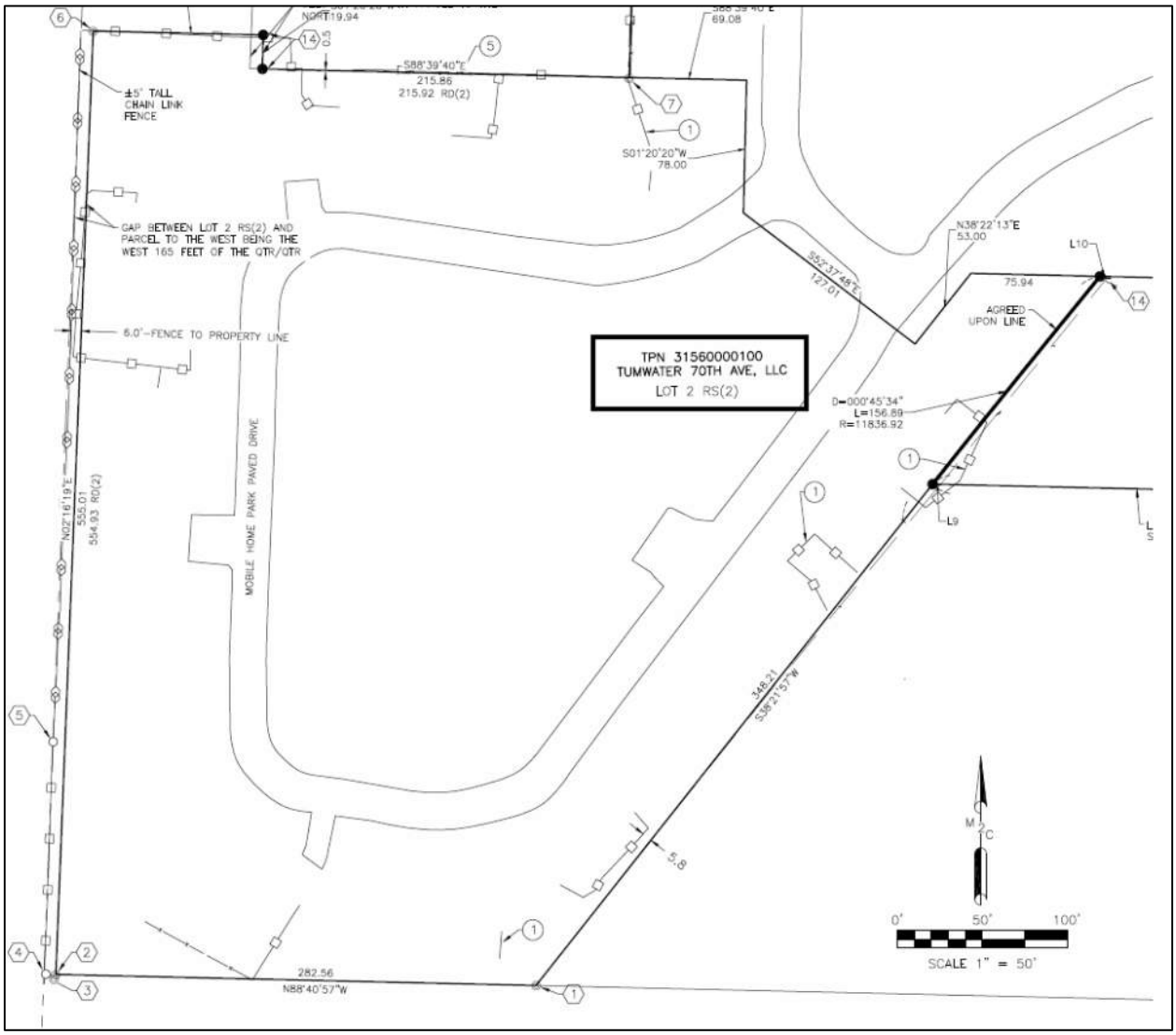
Date: 4/5/2024

This report has been developed as part of the proposed project within Lot 2 of the existing Velkommen Mobile Home Park at 2535 70th Ave SW in Tumwater, Washington. Per the requirements of the City of Tumwater Protection of Trees and Vegetation Ordinance (TMC 16.08) and Development Guidelines and Standards, an assessment of the trees within the property has been conducted with the goal of establishing the numbers of trees to be retained.

I. Overall Site & Vegetation Description

Per direction of the applicant, only trees within the area identified as Lot 2 on the provided short plat maps were assessed. This area covers a total of 5.29-acres and currently contains a total of nineteen manufactured homes.

Area of Assessment



II. Inventory of Trees

Table 1 presents a summary of my findings from my April 3, 2024 site visit. The locations and assigned ID#s can be found on the attached diagram, initially developed by Tree Solutions, Inc. in 2010. Two trees have been added, labeled "A" and "B". Trees shaded in orange are those proposed for removal.

Table 1. Inventory of Trees within Property

ID	Species	DBH	Condition	Comments
A	Douglas Fir	5"+8"	Fair	
B	Western Red Cedar	8"	Good	
**56	Douglas Fir	21"+26"	Good	
**211	Bird Cherry	26"	Fair	
**495	Douglas Fir	24"+25"	Fair	
544	Colorado Blue Spruce	4"	Fair	
**545	Coastal Redwood	50"	Good	
**546	Douglas Fir	31"	Good	
*547	Gone			
**548	Douglas Fir	28"	Good	
**549	Douglas Fir	26 "	Good	
**550	Western Red Cedar	24"	Fair	
551	Douglas Fir	20"	Fair	
*552	Douglas Fir	31"	Dead	
**553	Douglas Fir	32"	Good	
**554	Douglas Fir	26"	Fair	
555	Douglas Fir	18"	Fair	
556	Douglas Fir	22"	Good	
**557	Douglas Fir	27"	Fair	
**558	Douglas Fir	31"	Fair	
**559	Douglas Fir	28"	Good	
560	Douglas Fir	18"	Fair	
561	Douglas Fir	18"	Good	
562	Douglas Fir	22"	Good	
563	Douglas Fir	20"	Good	
564	Douglas Fir	22"	Good	
565	Douglas Fir	21"	Good	
566	English Laurel	8"	Fair	
*567	Douglas Fir	18"	Poor	90% dead.
*568	Gone			
**569	Douglas Fir	32"	Good	
*570	Gone			
*571	Gone			
572	Douglas Fir	18"	Fair	

ID	Species	DBH	Condition	Comments
573	Douglas Fir	21”	Fair	
*574	Douglas Fir	10”	Poor	
**575	Douglas Fir	18”+16”	Fair	
576	Douglas Fir	20”	Fair	
577	Douglas Fir	22”	Fair	
578	Douglas Fir	18”	Fair	
579	Douglas Fir	16”	Fair	
580	Douglas Fir	20”	Good	
581	Douglas Fir	14”	Fair	
**582	Douglas Fir	34”	Good	
**583	Douglas Fir	26”	Fair	
**584	Douglas Fir	31”	Good	
*585	Douglas Fir	27”	Poor	Split trunk at 30’, active separation. High risk tree.
**588	Douglas Fir	30”	Good	
589	Douglas Fir	18”	Good	
*590	Grand Fir	30”	Poor	Multiple leaders at 60’.
591	Noble Fir	20”	Good	
*592	Gone			
**593	Douglas Fir	28”	Fair	
970	Shore Pine	18”	Fair	
**971	Douglas Fir	40”	Fair	
972	Douglas Fir	24”	Good	
973	Douglas Fir	39”+38	Good	
974	Douglas Fir	22”	Good	
975	Douglas Fir	22”	Good	
976	Douglas Fir	20”	Good	
977	Douglas Fir	28”+12”	Good	
978	Douglas Fir	22”	Good	
979	Douglas Fir	40”	Fair	
980	Douglas Fir	17”	Good	
*981	Gone			
982	Douglas Fir	22”	Fair	
983	Douglas Fir	34”	Good	
984	Douglas Fir	29”	Good	
985	Douglas Fir	27”	Good	
986	Douglas Fir	40”	Fair	
*987	Douglas Fir	32”	Poor	Transparent canopy, in decline.
988	Douglas Fir	33”	Good	
989	Douglas Fir	38”	Good	
990	Western Hemlock	20”	Good	
991	Pacific Yew	14”	Fair	
**992	Douglas Fir	25”	Good	

ID	Species	DBH	Condition	Comments
**993	Douglas Fir	24”	Good	
**994	Douglas Fir	41”	Good	
**995	Douglas Fir	50”	Good	
996	Douglas Fir	14”	Fair	
997	Douglas Fir	32”	Good	
998	Douglas Fir	36”	Good	
999	Douglas Fir	22”	Fair	
**1000	Douglas Fir	44”	Good	

*Tree is gone, dead or in poor condition and does not count toward tree retention calculations.
**Retained tree that measures 24” and greater and counts as two trees.

Landmark Trees

I found no trees within the site that would be considered specimen or ‘Landmark’ trees.

Off-Site & Edge Trees

No offsite trees were identified with the potential of impacts.

III. Tree Retention Calculations

Table 4. Summary of Tree Retention Calculations

Gross Acreage	5.29-acres
Total Trees Within Site	72 Tree
20% Tree Retention	14 Trees
12 Trees/ Acre Retention	*64 Trees
Proposed Tree Retention	53 Trees
Extra credits from Trees 24”+	25 Trees
Adjusted Total Tree Retention	78 Trees

***This is the greater amount and therefore required by TMC**

*This property will exceed the minimum tree retention required by the City of Tumwater***.**

IV. Tree Protection

Tree protection fencing is recommended for all trees to be retained near the area to be impacted. This would include Trees #970, 971, 974-976 and 992-995. The fencing will:

- Meet the standards of the City of Tumwater;
- Be installed prior to any site work;
- Remain in place the entire duration of the project. If the fencing needs to be temporarily moved, I will be contacted at least 48 hours in advance to review with the contractor;
- No equipment, supplies or material will be allowed within the fenced areas.

Professionally Submitted,

Kevin M. McFarland, Member
ISA Certified Arborist PN-0373 & ISA Tree Risk Assessment Qualified
Sound Urban Forestry, LLC

Locations of Inventoried Trees