City of Tualatin
www.tualatinoregon.gov

"NECESSARY PARTIES" MARKED BELOW

NOTICE OF APPLICATION SUBMITTAL

☐ ANNEXATION ☐ CONDITIONAL USE PERMIT ☐ PLAN TEXT AMENDMENT
☒ ARCHITECTURAL REVIEW ☐ PLAN MAP AMENDMENT ☐ OTHER:

CASE/FILE: AR-15-0027 (Community Development Dept.: Planning Division)

PROPOSAL	
	To construct an industrial building of 25,500 square feet (sq ft) and related improvements. The site is along the north side of SW Herman Road between SW 118th and 124th Avenues and had an old single-family house, now demolished, that was one of the few ones remaining within the western industrial area. Aside from the house, most of the 1.66-acre site is disturbed yet undeveloped.

PROPERTY					
☐ n/a	**Name of Application**	RUTH T. LLC BLDG 6 / SUBURBAN DOOR			
	Street Address	12171 SW Herman Rd			
	Tax Map and Lot No(s).	2S1 22C 000602 & 606			
	Planning District	General Manufacturing (MG)	**Overlays** ☐	**NRPO** ☐	**Flood Plain** ☐
	Previous Applications	AR-98-14	**Additional Applications:** none		**CIO** COMMERCIAL

DATES				CONTACT	
Receipt of application	10/26/2015	**Deemed Complete**	11/13/2015		**Name:** Colin Cortes
Notice of application submittal			11/17/2015		**Title:** Assistant Planner
Project Status / Development Review meeting			11/19/2015		**E-mail:** ccortes@ci.tualatin.or.us
Comments due for staff report			12/1/2015		**Phone:** 503-691-3024
Public meeting: ☐ **ARB** ☐ **TPC** ☒ **n/a**					**Notes: You may view the application materials through this City web page: www.tualatinoregon.gov/projects**
City Council (CC) ☒ **n/a**					

City Staff
- ☒ City Manager
- ☒ Building Official
- ☒ Chief of Police
- ☒ City Attorney
- ☒ City Engineer
- ☒ Community Dev. Director
- ☒ Community Services Director
- ☒ Economic Dev. liaison
- ☒ Engineering Associate*
- ☒ Finance Director
- ☒ GIS technician(s)
- ☒ IS Manager
- ☒ Operations Director*
- ☒ Parks and Recreation Coordinator
- ☒ Planning Manager
- ☒ Street/Sewer Supervisor
- ☒ Water Supervisor

Neighboring Cities
- ☐ Durham
- ☐ King City Planning Commission
- ☐ Lake Oswego
- ☐ Rivergrove PC
- ☐ Sherwood Planning Dept.
- ☐ Tigard Community Dev. Dept.
- ☐ Wilsonville Planning Div.

***Paper Copies**

Counties
- ☐ Clackamas County Dept. of Transportation and Dev.
- ☒ Washington County Dept. of Land Use and Transportation (AR's)
- ☐ Washington County LRP (Annexations)

Regional Government
- ☐ Metro

School Districts
- ☐ Lake Oswego School Dist. 7J
- ☒ Sherwood SD 88J
- ☐ Tigard-Tualatin SD 23J (TTSD)
- ☐ West Linn-Wilsonville SD 3J

State Agencies
- ☐ Oregon Dept. of Aviation
- ☐ Oregon Dept. of Land Conservation and Development (DLCD) (via proprietary notice)
- ☐ Oregon Dept. of State Lands: Wetlands Program
- ☒ Oregon Dept. of Transportation (ODOT) Region 1
- ☐ ODOT Maintenance Dist. 2A
- ☐ ODOT Rail Div.

Utilities
- ☒ Republic Services
- ☒ Clean Water Services (CWS)
- ☒ Comcast [cable]*
- ☒ Frontier Communications [phone]
- ☒ Northwest Natural [gas]
- ☒ Portland General Electric (PGE)
- ☒ TriMet
- ☒ Tualatin Valley Fire & Rescue (TVF&R)
- ☒ United States Postal Service (USPS) (Washington; 18850 SW Teton Ave)
- ☐ USPS (Clackamas)
- ☒ Washington County Consolidated Communications Agency (WCCCA)

Additional Parties
- ☒ Tualatin Citizen Involvement Organization (CIO)
- ☐

☐ *1.032: Burden of Proof*

☐ *31.071 Architectural Review Procedure*

☐ *31.074 Architectural Review Application Review Process*

☐ *31.077 Quasi-Judicial Evidentiary Hearing Procedures*

☐ *Metro Code 3.09.045 Annexation Review Criteria*

☐ *32.030 Criteria for Review of Conditional Uses*

☐ *33.020 Conditions for Granting a Variance that is not a Sign or a Wireless Communication Facility*

☐ *33.022 Criteria for Granting a Sign Variance*

☐ *33.024 Criteria for Granting a Minor Variance*

☐ *33.025 Criteria for Granting a Variance*

☐ *34.200 Tree Cutting on Private Property without Architectural Review, Subdivision or Partition Approval, or Tree Removal Permit Prohibited*

☐ *34.210 Application for Architectural Review, Subdivision or Partition Review, or Permit*

☐ *34.230 Criteria (tree removal)*

☐ *35.060 Conditions for Granting Reinstatement of Nonconforming Use*

☐ *36.160 Subdivision Plan Approval*

☐ *36.230 Review Process (partitioning)*

☐ *36.330 Review Process (property line adjustment)*

☐ *37.030 Criteria for Review (IMP)*

☐ *40.030 Conditional Uses Permitted (RL)*

☐ *40.060 Lot Size for Conditional Uses (RL)*

☐ *40.080 Setback Requirements for Conditional Uses (RL)*

☐ *41.030 Conditional Uses Permitted (RML)*

☐ *41.050 Lot Size for Conditional Uses (RML)*

☐ *41.070 Setback Requirements for Conditional Uses (RML)*

☐ *42.030 Conditional Uses Permitted (RMH)*

☐ *42.050 Lot Size for Conditional Uses (RMH)*

☐ *42.070 Setback Requirements for Conditional Uses (RMH)*

☐ *43.030 Conditional Uses Permitted (RH)*

☐ *43.060 Lot Size for Conditional Uses (RH)*

☐ *43.090 Setback Requirements for Conditional Uses (RH)*

☐ *44.030 Conditional Uses Permitted (RH-HR)*

☐ *44.050 Lot Size for Conditional Uses (RH-HR)*

☐ *44.070 Setback Requirements for Conditional Uses (RH-HR)*

☐ *49.030 Conditional Uses (IN)*

☐ *49.040 Lot Size for Permitted and Conditional Uses (IN)*

☐ *49.060 Setback Requirements for Conditional Uses (IN)*

☐ *50.020 Permitted Uses (CO)*

☐ *50.030 Central Urban Renewal Plan – Additional Permitted Uses and Conditional Uses (CO)*

☐ *50.040 Conditional Uses (CO)*

☐ *52.030 Conditional Uses (CR)*

☐ *53.050 Conditional Uses (CC)*

☐ *53.055 Central Urban Renewal Area – Conditional Uses (CC)*

☐ *54.030 Conditional Uses (CG)*

☐ *56.030 Conditional Uses (MC)*

☐ *56.045 Lot Size for Conditional Uses (MC)*

☐ *57.030 Conditional Uses (MUCOD)*

☐ *60.040 Conditional Uses (ML)*

☐ *60.041 Restrictions on Conditional Uses (ML)*

☐ *61.030 Conditional Uses (MG)*

☐ *61.031 Restrictions on Conditional Uses (MG)*

☐ *62.030 Conditional Uses (MP)*

☐ *62.031 Restrictions on Conditional Uses (MP)*

☐ *64.030 Conditional Uses (MBP)*

☐ *64.050 Lot Size for Permitted and Conditional Uses (MBP)*

☐ *64.065 Setback Requirements for Conditional Uses (MBP)*

☐ *68.030 Criteria for Designation of a Landmark*

☐ *68.060 Demolition Criteria*

☐ *68.070 Relocation Criteria*

☐ *68.100 Alteration and New Construction Criteria*

☐ *68.110 Alteration and New Construction Approval Process*

☐ *73.130 Standards*

☒ *73.160 Standards*

☐ *73.190 Standards – Single-Family and Multi-Family Uses*

☐ *73.220 Standards*

☐ *73.227 Standards*

☒ *73.230 Landscaping Standards*

☐ *73.300 Landscape Standards – Multi-Family Uses*

☒ *73.310 Landscape Standards – Commercial, Industrial, Public and Semi-Public Uses*

☐ *73.320 Off-Street Parking Lot Landscaping Standards*

☐ *73.470 Standards*

☐ *73.500 Standards*

City of Tualatin

www.tualatinoregon.gov

APPLICATION FOR ARCHITECTURAL REVIEW

Direct Communication to:			
Name: Rory Antis		Title: Project Manager	
Company Name: Silco Commercial Construction Inc.			
Current address: 8316 N. Lombard #451			
City: Portland	State: Oregon		ZIP Code: 97203
Phone: 503-286-8691	Fax: 503-289-2582	Email: rantis@silco.info	

Applicant			
Name: Rory Antis		Company Name: Silco Commercial Const. Inc	
Address: 8316 N. Lombard #451			
City: Portland	State: Oregon		ZIP Code: 97203
Phone: 503-286-8691	Fax: 503-289-2582	Email: rantis@silco.info	
Applicant's Signature:		Date:	

Property Owner			
Name: Ruth T. LLC			
Address: PO Box 205			
City: Tualatin	State: Oregon		ZIP Code: 97062
Phone: 503-692-0180	Fax: 503-691-2323	Email: davesilvey@msn.com	
Property Owner's Signature:		Date	
(Note: Letter of authorization is required if not signed by owner)			

Architect			
Name: N/A SEE ENGINEER			
Address:			
City:	State:		ZIP Code:
Phone:	Fax:	Email:	

Landscape Architect			
Name: Darrell Mulch			
Address: 1907 N.E. 66th Ave. #168			
City: Portland	State: Oregon		ZIP Code: 97213
Phone: 503-222-7416	Fax:	Email: mulch.darrell@gmail.com	

Engineer			
Name: Gaby Massaad M-Group			
Address: 820 North River St.	Suite 204		
City: Portland	State: Oregon		ZIP Code: 97229
Phone: 503-486-5387	Fax: 503-486-5097	Email: gaby@mgroupengineering.com	

Project			
Project Title: Ruth T. LLC Building #6			
Address: Pending			
City: Tualatin	State: Oregon		ZIP Code: 97062
Brief Project Description: New Concrete Tilt-Up			
Proposed Use: Painting			

Value of Improvements:
$1,500,000.00

AS THE PERSON RESPONSIBLE FOR THIS APPLICATION, I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE INFORMATION ABOVE, ON THE FACT SHEET, AND THE SURROUNDING PERTY OWNER MAILING LIST IS CORRECT. I AGREE TO COMPLY WITH ALL APPLICABLE CITY AND COUNTY ORDINANCES AND STATE LAWS REGARDING BUILDING CONSTRUCTION AND LAND USE.

Applicant's Signature:	Date: 10/7/2015

Office Use		
Case No:	Date Received:	Received by:
Fee: Complete Review :	Receipt No:	
Application Complete as of:	ARB hearing date (if applicable):	
Posting Verification:	6 copies of drawings (folded)	
1 reproducible 8 ½" X 11" vicinity map	1 reproducible 8 ½" X 11" site, grading, LS, Public Facilities plan	
Neighborhood/Developer meeting materials		

CITY OF TUALATIN FACT SHEET

General

Proposed use: Manufacturing/Warehouse					
Site area:	1.68	acres	Building footprint:	25,000	sq. ft.
Development area:	1.68	acres	Paved area:		sq. ft.
		Sq. ft.	Development area coverage:		%

Parking

Spaces required (see TDC 73.400)		Spaces provided:	
(example: warehouse @ 0.3/1000 GFA)		Total parking provided:	48 spaces
Manuf. @ 1.6 /1000 GFA =	36	Standard =	45
Office @ 2.7 /1000 GFA =	7	Handicapped accessible =	2
_____ @ _____ /1000 GFA =	_____ Total	Van pool =	1
parking required:	43 spaces	Compact =	0
Handicapped accessible =	2	Loading berths =	2
Van pool =	2		
Compact = *(max. 35% allowed)* =			
Loading berths =	Ø		

Bicycles

Covered spaces required: 2	Covered spaces provided: 2 inside bldg.

Landscaping

Landscaping required: 15 % of dvpt. area 11,741 Square feet	Landscaping provided: 21 % of dvpt. area 16,401 Square feet
Landscaped parking island area required: 1225sf.	Landscaped parking island area provided: 4253 sf.

Trash and recycling facility

Minimum standard method: 160 square feet	
Other method:	200 square feet

For commercial/industrial projects only

Total building area:	25,000	sq. ft.	2nd floor:	sq. ft.
Main floor:	25,000	sq. ft.	3rd floor:	sq. ft.
Mezzanine:		sq. ft.	4th floor:	sq. ft.

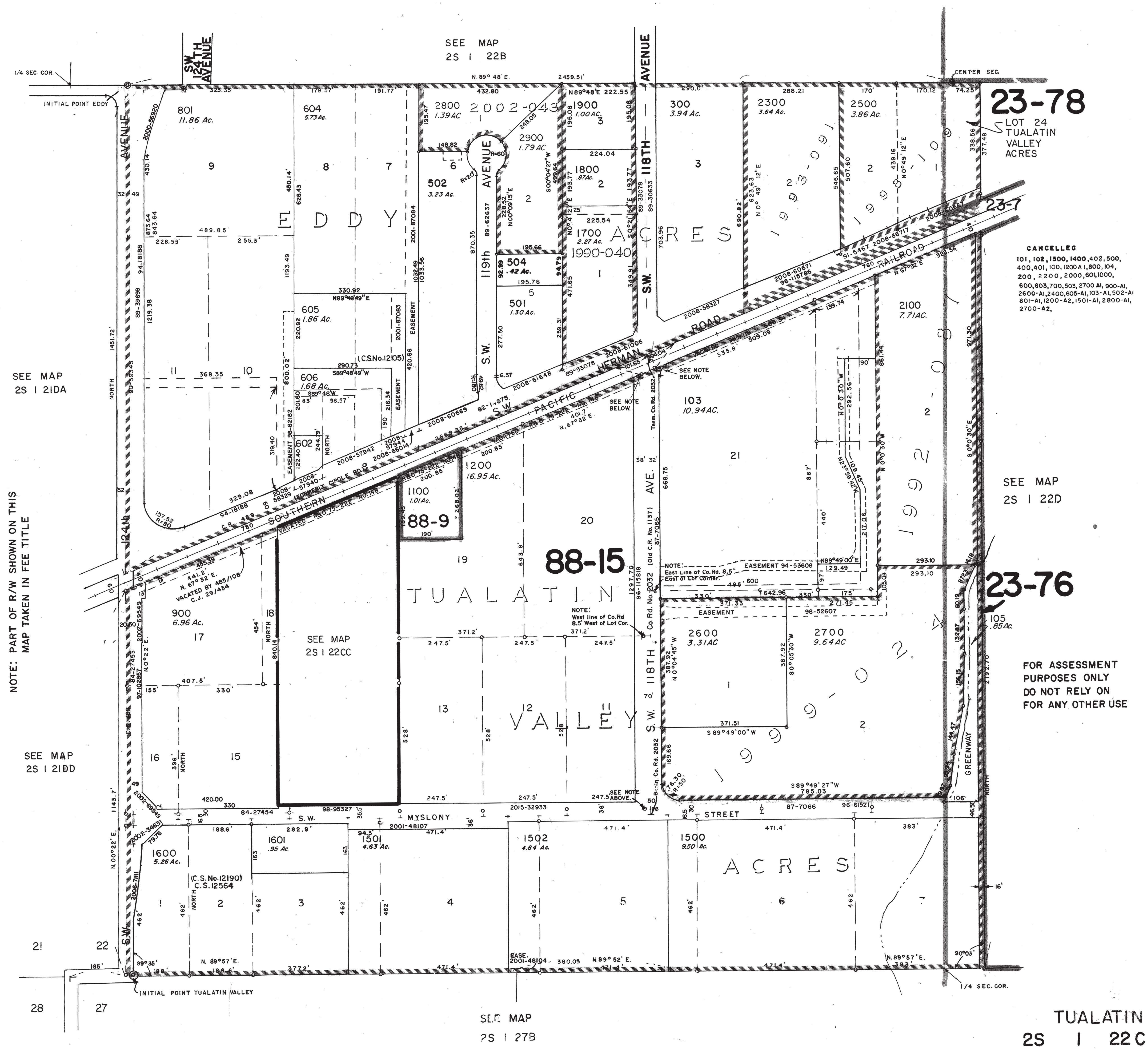
For residential projects only

Number of buildings:	Total sq. ft. of buildings: sq. ft.
Building stories:	

SW1/4 SECTION 22 T2S R1W W.M.

WASHINGTON COUNTY OREGON

SCALE 1"=200'



SW Herman Road Development

Transportation Impact Study

Tualatin, Oregon

DATE:
October 7, 2015

PREPARED FOR:
Don Silvey
Silco Commercial Construction, Inc.

PREPARED BY:
Daniel Stumpf, EI
Michael Ard, PE

LANCASTER
ENGINEERING

321 SW 4th Ave., Suite 400 | Portland, OR 97204 | 503.248.0313 | lancasterengineering.com

Table of Contents

Executive Summary

1. The proposed development will construct a 25,000 square foot warehouse on a currently vacant property. The project site is located directly north of SW Herman Road, east of SW 124th Avenue, and west of SW 119th Avenue at 12171 SW Herman Road in Tualatin, Oregon.

2. The trip generation calculations show that the proposed development is projected to generate a total of 23 trips during the morning peak hour and 24 trips during the evening peak hour.

3. Based on the analysis, the study intersections operate within Washington County and City of Tualatin performance standards through year 2017 with full build-out of the proposed development. Accordingly, no mitigation is necessary or recommended as a part of this project.

4. Based on the queuing analysis, the projected 95th percentile queues at the study area intersections are provided adequate vehicle storage space and queues are not projected to back up to adjacent intersections. Therefore, no queuing-related mitigations are recommended.

5. Due to insufficient traffic volumes, traffic signal warrants will not be met for any of the unsignalized intersections under any of the analysis scenarios. No new installation of traffic signals are recommended.

6. Based on the review of the detailed crash data as well as our observations of the study area intersections, no crash patterns and no significant design concerns were identified. No specific safety mitigations are recommended in conjunction with the proposed development.

Project Description

Introduction

The proposed development will construct a 25,000 square foot warehouse on a currently vacant property. The project site is located directly north of SW Herman Road, east of SW 124th Avenue, and west of SW 119th Avenue at 12171 SW Herman Road in Tualatin, Oregon.

This report addresses the impacts of the proposed development on the nearby street system. The report includes safety and capacity / level-of-service analyses at the following five intersections:

1. SW Herman Road at SW 125th Court
2. SW Herman Road at SW 124th Avenue
3. Site access at SW Herman Road
4. SW Herman Road at SW 119th Avenue
5. SW Herman Road at SW 118th Avenue

The purpose of the study is to determine whether the transportation system in the vicinity of the site is capable of safely and efficiently supporting the existing and proposed land uses, and to determine any mitigation that might be necessary to do so.

Location Description

The project site is located directly north of SW Herman Road, east of SW 124th Avenue, and west of SW 119th Avenue at 12171 SW Herman Road in Tualatin, Oregon.

The subject site is located in a predominately industrial area zoned as General Manufacturing with various manufacturing and industrial uses surrounding the site in all directions.

Vicinity Streets

SW Herman Road is classified as a Minor Arterial and a Major Collector west and east of SW Teton Avenue, respectively, by the City of Tualatin, and is classified as a Collector by Washington County. In the vicinity of the subject site the roadway has a three-lane cross-section, with one standard travel lane in each direction and a center two-way left-turn lane, east of SW 125th Court and a two-lane cross-section west of SW 125th Court. The roadway has a posted speed of 45 mph. Bicycle lanes are provided along both sides of the roadway. Curbs are provided along both sides of the roadway while sidewalks are provided along the north side of the roadway east of SW 125th Court.

SW 125th Court is classified as a Local Street by the City of Tualatin. The roadway has a two-lane cross-section without centerline striping delineating directional travel lanes and has a posted speed of 25 mph. On-street parking is permitted along both sides of the roadway. Curbs and sidewalks are provided along both sides of the roadway.

SW 124th Avenue is classified as a Major Arterial by the City of Tualatin. The roadway has two standard travel lanes in each direction with a raised center median and has a posted speed of 45 mph. Curbs, sidewalks, and bicycle lanes are provided along both sides of the roadway.

SW 119th Avenue is classified as a Local Street by the City of Tualatin. The roadway has a two-lane cross-section without centerline striping delineating directional travel lanes. It does not have a posted speed sign; therefore a basic rule speed of 25 mph is applied to the roadway. On-street parking is permitted along both sides of the roadway. Curbs and sidewalks are provided along both sides of the roadway.

SW 118th Avenue is classified as a Minor Collector by the City of Tualatin. The roadway has a two-lane cross-section and has a posted speed of 40 mph. Curbs, sidewalks, and bicycle lanes are provided along both sides of the roadway.

Study Area Intersections

The intersection of SW Herman Road at SW 125th Court is a three-legged intersection that is stop-controlled for the southbound approach of SW 125th Court. The southbound approach has one shared left-turn/right-turn lane. The eastbound approach has one shared left-turn/through lane and a bicycle lane to the right of the standard travel lane. The westbound approach has one shared through/right-turn lane with a bicycle lane to the right of the standard travel lane. All intersection crosswalks are unmarked.

The intersection of SW Herman Road at SW 124th Avenue is a four-legged intersection controlled by a traffic signal. The north- and southbound approaches of SW 124th Avenue have one left-turn lane served by permitted phasing, one through lane, and one shared through/right-turn lane. The east- and westbound approaches of SW Herman Road have one left-turn lane served by permitted/protected phasing, one through lane, one channelized right-turn lane controlled by a yield sign, and a bicycle lane to the right of the through lane. A railroad runs approximately 25 feet south of and parallel to SW Herman Road across the southern intersection leg. Crosswalks are marked across the northern, southern, and eastern intersection legs. The crosswalk across the western intersection leg is closed.

The intersection of the site access at SW Herman Road is a three-legged intersection. Vehicle operators departing from the existing site access must stop before proceeding past the sidewalk and onto SW Herman Road per ORS 811.505. The southbound site access approach has one shared left-turn/right-turn lane. The eastbound approach allows left-turns from the two-way left-turn lane, and has one through lane and a bicycle lane to the right of the standard travel lane. The westbound approach has one shared through/right-turn lane with a bicycle lane to the right of the standard travel lane. A sidewalk is provided across the site access.

The intersection of SW Herman Road at SW 119th Avenue is a three-legged intersection that is stop-controlled for the southbound approach of SW 119th Avenue. The southbound approach has one shared left-turn/right-turn lane. The eastbound approach allows left-turns from the two-way left-turn lane, and

has one through lane and a bicycle lane to the right of the standard travel lane. The westbound approach has one shared through/right-turn lane with a bicycle lane to the right of the standard travel lane. The crosswalk on the northern intersection leg is marked. All other crosswalks are unmarked. By year 2017 an in-process development, Southwest Industrial Park, will take access to the intersection from the south adding a fourth intersection leg.

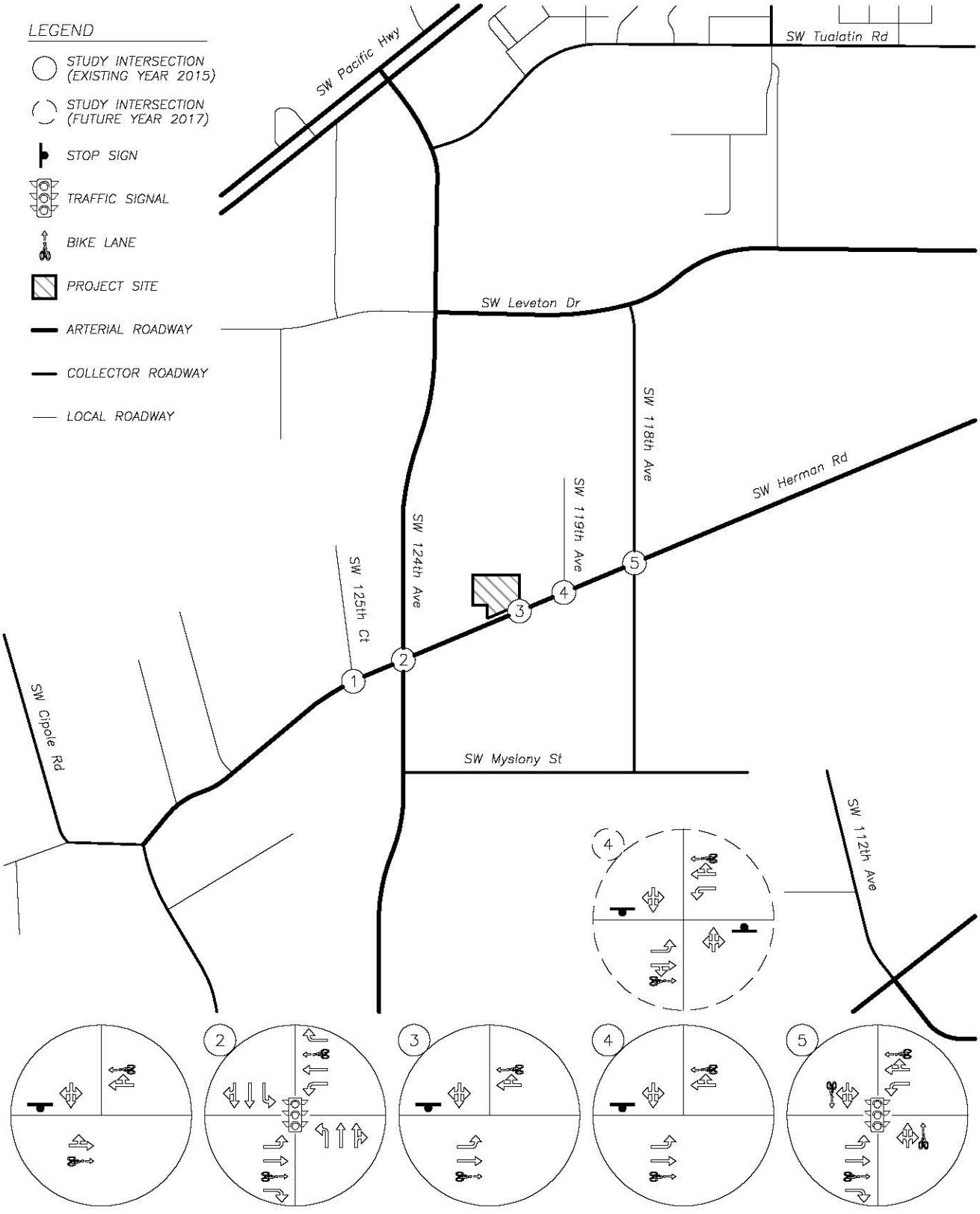
The intersection of SW Herman Road at SW 118th Avenue is a four-legged intersection controlled by a traffic signal. The north- and southbound approaches of SW 118th Avenue have one shared left-turn/through/right-turn lane and a bicycle lane to the right of the standard travel lane. The eastbound approach has one left-turn lane served by permitted/protected phasing, one through lane, one channelized right-turn lane, and a bicycle lane to the right of the through lane. The westbound approach has one left-turn lane, one shared through/right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. A railroad runs approximately 25 feet south of and parallel to SW Herman Road across the southern intersection leg. The crosswalks on the northern, southern, and eastern intersection legs are marked. The crosswalk across the western intersection leg is closed.

A vicinity map displaying the project site, vicinity streets, and the study area intersections with their associated lane configurations is shown in Figure 1 on page 7.

Traffic Volumes

Traffic counts were conducted at study area intersections on Thursday, September 10th, 2015 and Wednesday, 16th, 2015 from 7:00 AM to 9:00 AM and on Wednesday, September 9th, 2015 and Tuesday, September 15th, 2015 from 4:00 PM to 6:00 PM. Data used from the morning and evening peak hours reflect each intersection peak hour.

Figure 2 on page 8 shows the existing morning and evening peak hour traffic volumes for the study intersections.

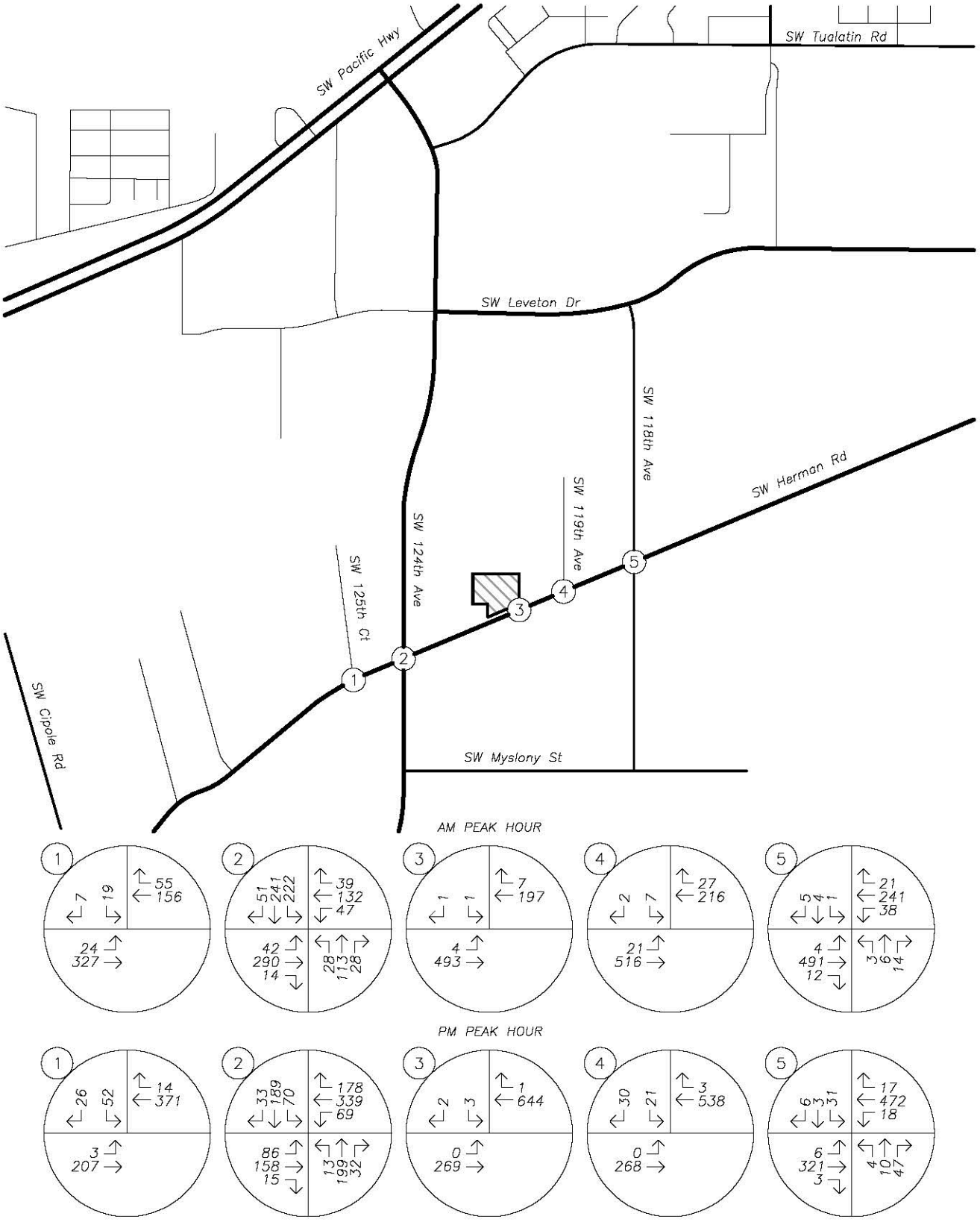


VICINITY MAP

no scale

FIGURE 1

PAGE 7



TRAFFIC VOLUMES
Existing Conditions
AM & PM Peak Hours

no scale

FIGURE 2

Site Trips

Trip Generation

The proposed development will construct a 25,000 square foot warehouse. To estimate the number of trips that will be generated by the proposed development, trip rates from the *TRIP GENERATION MANUAL*[1] were used. Data from land-use code 110, *General Light Industrial*, were used to estimate the proposed development's trip generation based on square footage. Data from land-use code 110 was used instead of data from land-use code 150, *Warehouse*, since the City of Tualatin requires the highest allowable trip generating land-use be used for analysis.

The trip generation calculations show that the proposed building could generate a total of 23 trips during the morning peak hour and 24 trips during the evening peak hour. The trip generation estimates are summarized in Table 1 and detailed trip generation calculations are included in the technical appendix to this report.

Table 1 - Trip Generation Summary

	ITE Code	Size (sq. ft.)	Morning Peak Hour			Evening Peak Hour		
			In	Out	Total	In	Out	Total
General Light Industrial	110	25,000	20	3	23	3	21	24

Trip Distribution

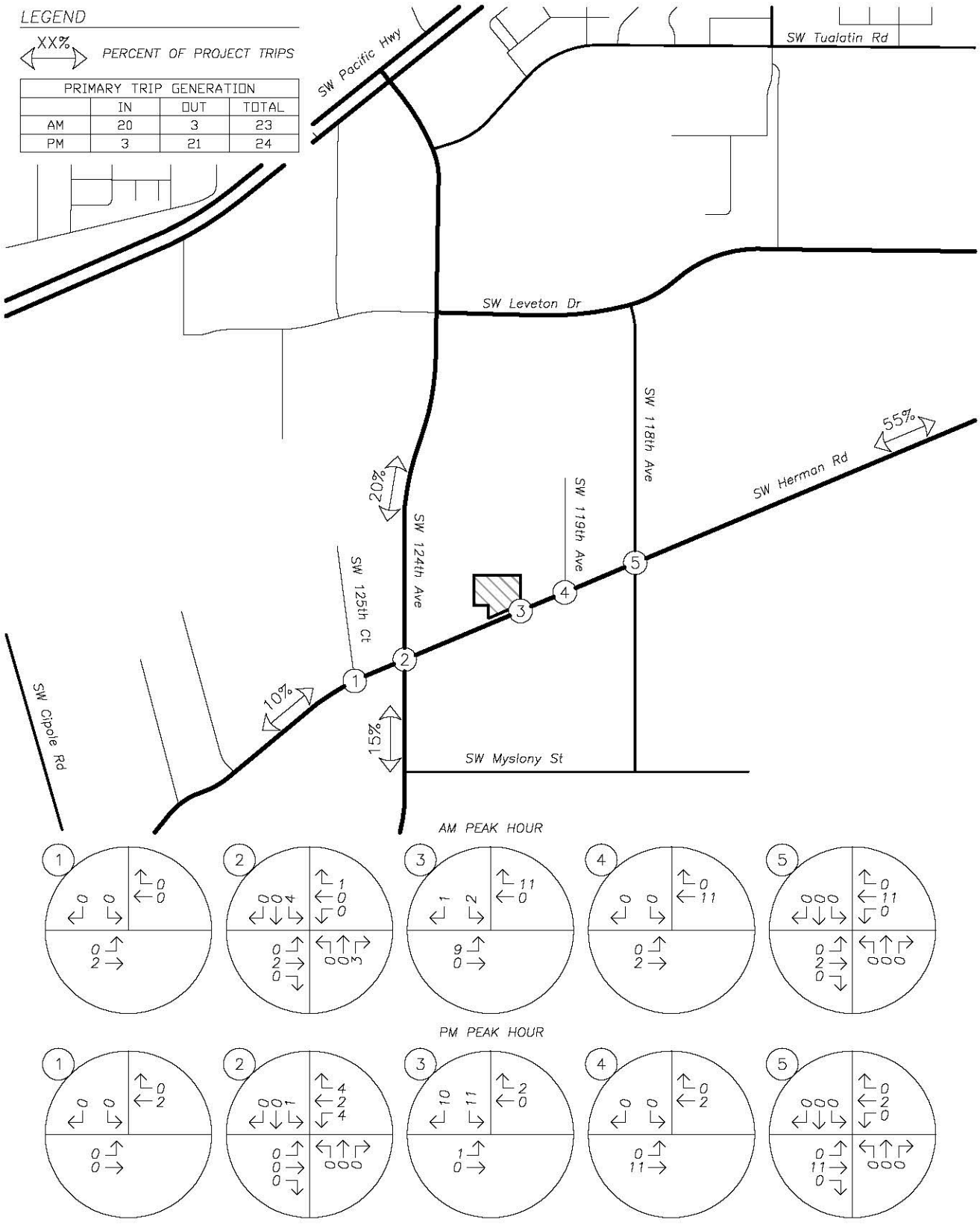
The directional distribution of site trips to/from the proposed development was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at the study area intersections.

It is expected that trips to/from the site will utilize the following trip distribution:

- Approximately 55 percent of the site trips will travel to/from the east along SW Herman Road.
- Approximately 20 percent of the site trips will travel to/from the north along SW 124th Avenue.
- Approximately 15 percent of the site trips will travel to/from the south along SW 124th Avenue.
- Approximately 10 percent of the site trips will travel to/from the west along SW Herman Road.

The trip assignment for the site trips generated by the proposed development during the morning and evening peak hours are shown in Figure 3 on page 10.

1 Institute of Transportation Engineers (ITE), *TRIP GENERATION MANUAL, 9th Edition,* 2012.



SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan – Site Trips
AM & PM Peak Hours

no scale

FIGURE 3

PAGE 10

Operational Analysis

Background Volume

To provide analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. In order to calculate the future traffic volumes, a compounded growth rate of two percent per year for an assumed build-out condition of two years was applied to the measured existing traffic volumes to approximate year 2017 background conditions.

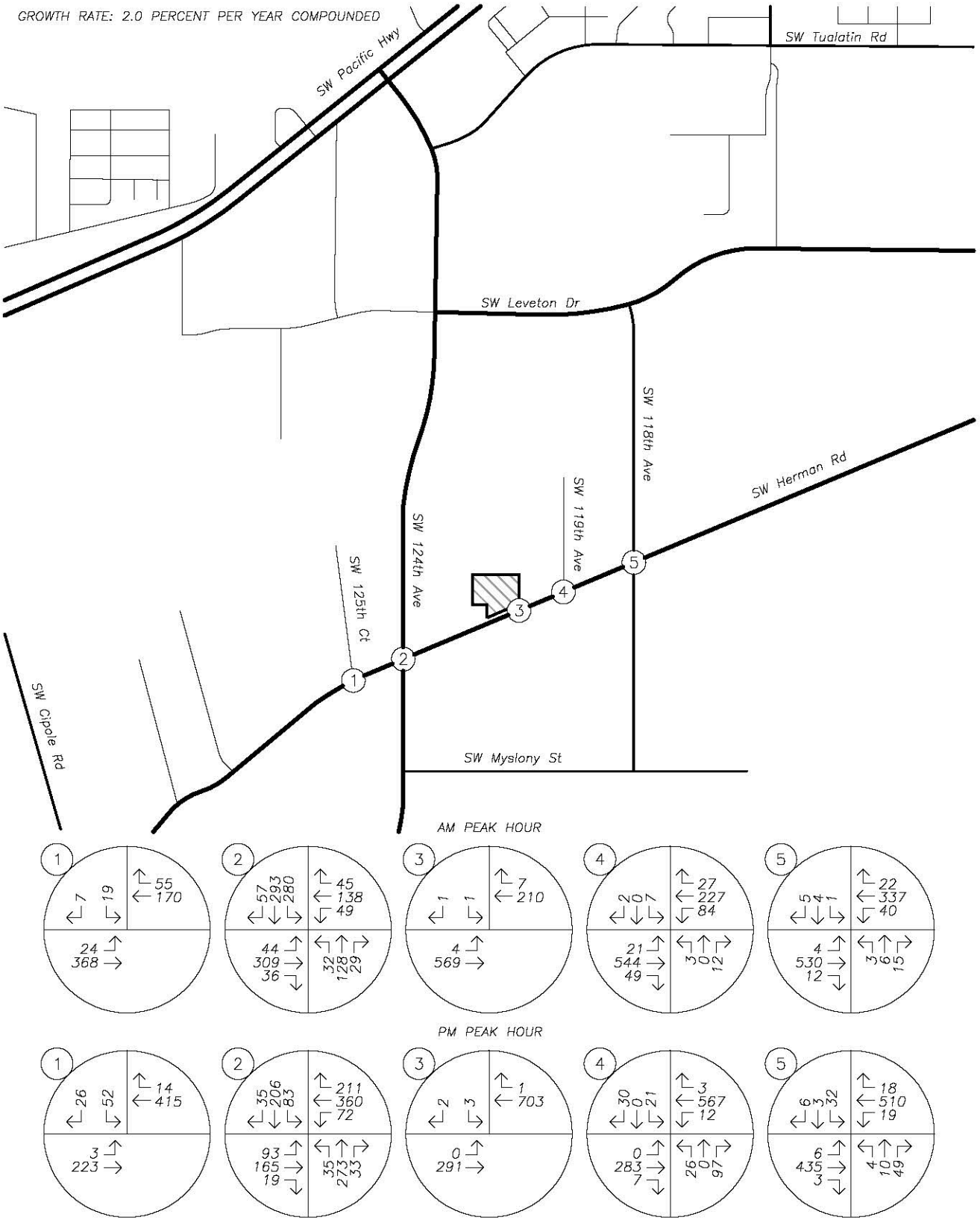
In addition to the traffic volume growth described above, there are two in-process developments near the proposed project vicinity that are currently not contributing trips to the transportation system but are anticipated to by the 2017 build-out year of the proposed development. The Southwest Industrial Park which proposes the construction of four industrial buildings totaling 302,000 square feet, and the River Ridge Apartments which proposes the construction of 180 multi-family apartment units. Based on the transportation impact studies prepared for these developments, additional in-process trips are included at study area intersections.

Figure 4 on page 12 shows the projected year 2017 background traffic volumes for the morning and evening peak hours at the study area intersections.

Background Volume plus Site Trips

Peak hour trips calculated to be generated from the proposed development, as described earlier within the Trip Generation section, were added to the projected year 2017 background traffic volumes to obtain the expected 2017 background plus site trip volumes.

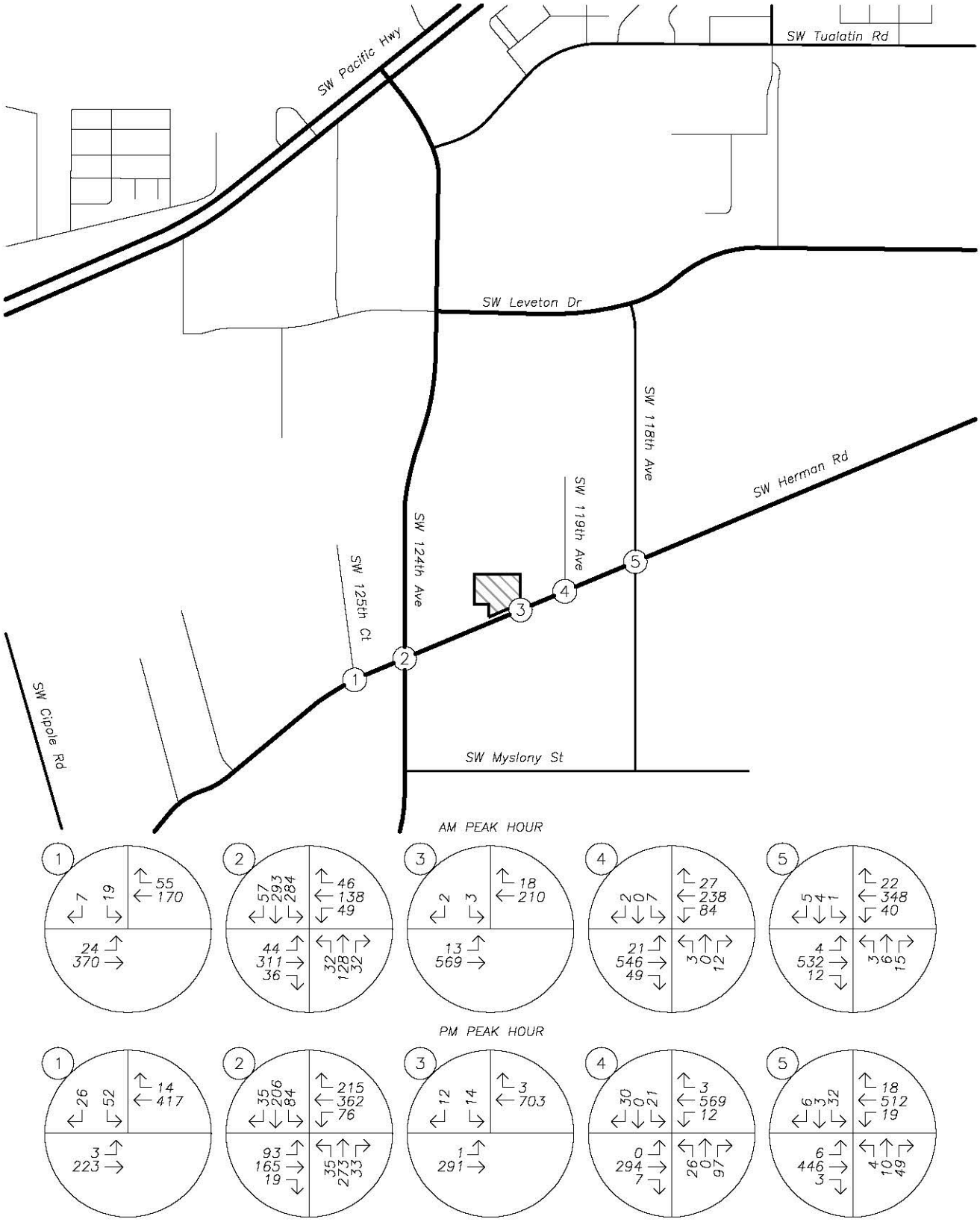
Figure 5 on page 13 shows the projected year 2017 peak hour background traffic volumes plus proposed development site trips at the study area intersections.



TRAFFIC VOLUMES
Year 2017 Background Conditions
AM & PM Peak Hours

no scale

FIGURE 4



TRAFFIC VOLUMES
Year 2017 Background plus Site Trips
AM & PM Peak Hours

no scale

FIGURE 5

Intersection Capacity and Level-of-Service Analysis

To determine the capacity and level-of-service (LOS) at the study intersections, a capacity analysis was conducted. The analysis was conducted using the signalized and unsignalized intersection analysis methodologies in the *HIGHWAY CAPACITY MANUAL (HCM)* published by the Transportation Research Board. The v/c ratio is a measure that compares the traffic volume (demand) against the available capacity of an intersection. Washington County standards require a v/c ratio of 0.99 or less while the City of Tualatin standards require a minimum LOS E or better. For both LOS and delay related to the analysis of unsignalized intersections, the reported result applies to the worst movement.

The intersection of SW Herman Road at SW 125th Court currently operates at LOS B with a v/c ratio of 0.13 during the morning peak hour and at LOS C with a v/c ratio of 0.26 during the evening peak hour. Under year 2017 conditions with or without construction of the proposed development, the intersection is projected to operate at LOS B with a v/c ratio of 0.14 during the morning peak hour and at LOS C with a v/c ratio of 0.29 during the evening peak hour.

The intersection of SW Herman Road at SW 124th Avenue currently operates at LOS B with v/c ratios of 0.45 and 0.42 during the morning and evening peak hours, respectively. Under 2017 background conditions, the intersection is projected to operate at LOS B with v/c ratios of 0.53 and 0.44 during the morning and evening peak hours, respectively. Upon completion of the proposed development in 2017, the intersection is projected to operate at LOS B with v/c ratios of 0.54 and 0.44 during the morning and evening peak hours, respectively.

The intersection of the site access at SW Herman Road currently operates at LOS C with v/c ratios of 0.35 and 0.41 during the morning and evening peak hours, respectively. Under 2017 background conditions with or without construction of the proposed development, the intersection is projected to operate at LOS C with v/c ratios of 0.41 and 0.45 during the morning and evening peak hours, respectively.

The intersection of SW Herman Road at SW 119th Avenue currently operates at LOS C with v/c ratios of 0.33 and 0.38 during the morning and evening peak hours, respectively. Under year 2017 conditions with or without construction of the proposed development, the intersection is projected to operate at LOS C with v/c ratios of 0.38 and 0.40 during the morning and evening peak hours, respectively.

The intersection of SW Herman Road at SW 118th Avenue currently operates at LOS B with v/c ratios of 0.40 and 0.45 during the morning and evening peak hours, respectively. Under year 2017 conditions with or without construction of the proposed development, the intersection is projected to operate at LOS B with v/c ratios of 0.44 and 0.49 during the morning and evening peak hours, respectively.

The v/c, delay, and LOS results of the capacity analysis are shown in Table 2. Detailed calculations as well as tables showing the relationships between delay and level of service are included in the appendix to this report.

Table 2 - Capacity and LOS Analysis Summary						
	Morning Peak Hour			Evening Peak Hour		
	LOS	Delay (s)	v / c	LOS	Delay (s)	v / c
SW Herman Road at SW 125th Court						
Existing Conditions	B	13	0.13	C	16	0.26
2017 Background Conditions	B	14	0.14	C	17	0.29
2017 Background + Site Conditions	B	14	0.14	C	17	0.29
SW Herman Road at SW 124th Avenue						
Existing Conditions	B	14	0.45	B	11	0.42
2017 Background Conditions	B	14	0.53	B	12	0.44
2017 Background + Site Conditions	B	15	0.54	B	12	0.44
Site Access Point at SW Herman Road						
Existing Conditions	C	16	0.35	C	18	0.41
2017 Background Conditions	C	18	0.41	C	20	0.45
2017 Background + Site Conditions	C	21	0.41	C	21	0.45
SW Herman Road at SW 119th Avenue						
Existing Conditions	C	15	0.33	C	19	0.38
2017 Background Conditions	C	22	0.38	C	24	0.40
2017 Background + Site Conditions	C	22	0.38	C	25	0.40
SW Herman Road at SW 118th Avenue						
Existing Conditions	B	14	0.40	B	18	0.45
2017 Background Conditions	B	13	0.44	B	16	0.49
2017 Background + Site Conditions	B	15	0.44	B	17	0.49

Based on the analysis, the study intersections operate within Washington County and City of Tualatin performance standards through year 2017 with full build-out of the proposed development. Accordingly, no mitigation is necessary or recommended as a part of this project.

Queuing Analysis

An analysis of projected queuing was conducted for the study area intersections. The queue lengths for the intersections were projected based on the results of Synchro/SimTraffic simulation, with the reported values based on the 95th percentile of the queue lengths. This means that 95 percent of the time during the peak hour the queue length will be less than or equal to the reported value.

Table 3 presents the projected 95th percentile queue lengths reported by the Synchro/SimTraffic simulation. Available lane storage was measured and rounded to the nearest five feet. For each lane group, the longest projected queue is reported, regardless of whether the queue occurred during the morning or evening peak hour. Detailed queuing analysis worksheets for both the morning and evening peak hours are included in the technical appendix.

Table 3 - Queuing Analysis Summary

	Available Storage	Existing Conditions	Background Conditions	Background + Site Conditions
SW Herman Road at SW 125th Court				
SB LT/RT Lane	-	57'	62'	58'
SW Herman Road at				
EB LT Lane	125'	71'	79'	75'
WB LT Lane	225'	105'	89'	107'
NB LT Lane	95'	40'	40'	41'
SB LT Lane	180'	134'	158'	178'
Site Access Point at SW Herman Road				
EB TWLTL	-	7'	8'	13'
SB LT/RT Lane	-	15'	18'	41'
SW Herman Road at SW 119th Avenue				
SB LT/RT Lane	-	23'	21'	15'
EB TWLTL	-	39'	40'	40'
SW Herman Road at SW 118th Avenue				
EB LT Lane	115'	14'	18'	27'
WB LT Lane	110'	38'	38'	39'

Based on the queuing analysis, the projected 95th percentile queues at the study area intersections are provided adequate vehicle storage space and queues are not projected to back up to adjacent intersections. Therefore, no queuing-related mitigations are recommended.

Safety Analysis

Warrant Analysis

Traffic signal warrants were examined for the intersections of SW Herman Road at SW 125th Court, the site access, and SW 119th Avenue. Since the posted speed of SW Herman Road at the location of study intersections is 45 mph, 70 percent warrants were examined. Due to insufficient traffic volumes, traffic signal warrants will not be met for any of the unsignalized intersections under any of the analysis scenarios. No new installation of traffic signals are recommended.

Detailed warrant analyses are included in the appendix to this report.

Crash Data Analysis

Using data obtained from ODOT's Crash Analysis and Reporting Unit, a review of the most recent available five years of crash history (2009-2013) at the study area intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions and the resulting crash rate for the intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak period represents 10% of annual average daily traffic (AADT) at the intersection. Crash rates in excess of one to two crashes per million entering vehicles (CMEV) may be indicative of safety hazards that should be further investigated for possible mitigation.

The intersection of SW Herman Road at SW 125th Court had one reported crash during the analysis period. The crash was a rear-end collision and was classified as "Property Damage Only" (*PDO*). The crash rate at the intersection was calculated to be 0.08 CMEV.

The intersection of SW Herman Road at SW 124th Avenue had five reported crashes during the analysis period. The crashes consisted of two rear-end collisions, two turning-movement collisions, and one angle-type collision. Of the crashes reported three were classified as "Property Damage Only" (*PDO*) and two were classified as "Non-Incapacitating Injury" (*Injury B*). The crash rate at the intersection was calculated to be 0.20 CMEV.

The intersections of SW Herman Road at the site access, SW 119th Avenue, and SW 118th Avenue had no reported crashes during the analysis period.

Based on the most recent five years of crash data at the study area intersections crash rates are relatively low, crash severity was relatively low for crashes likely to occur again, and no significant crash patterns are evident. The crash data does not appear to be indicative of any significant safety hazards. Accordingly, no safety mitigations are recommended.

Detailed information about crashes and crash reports for the study intersections are included in the appendix to this report.

Conclusions

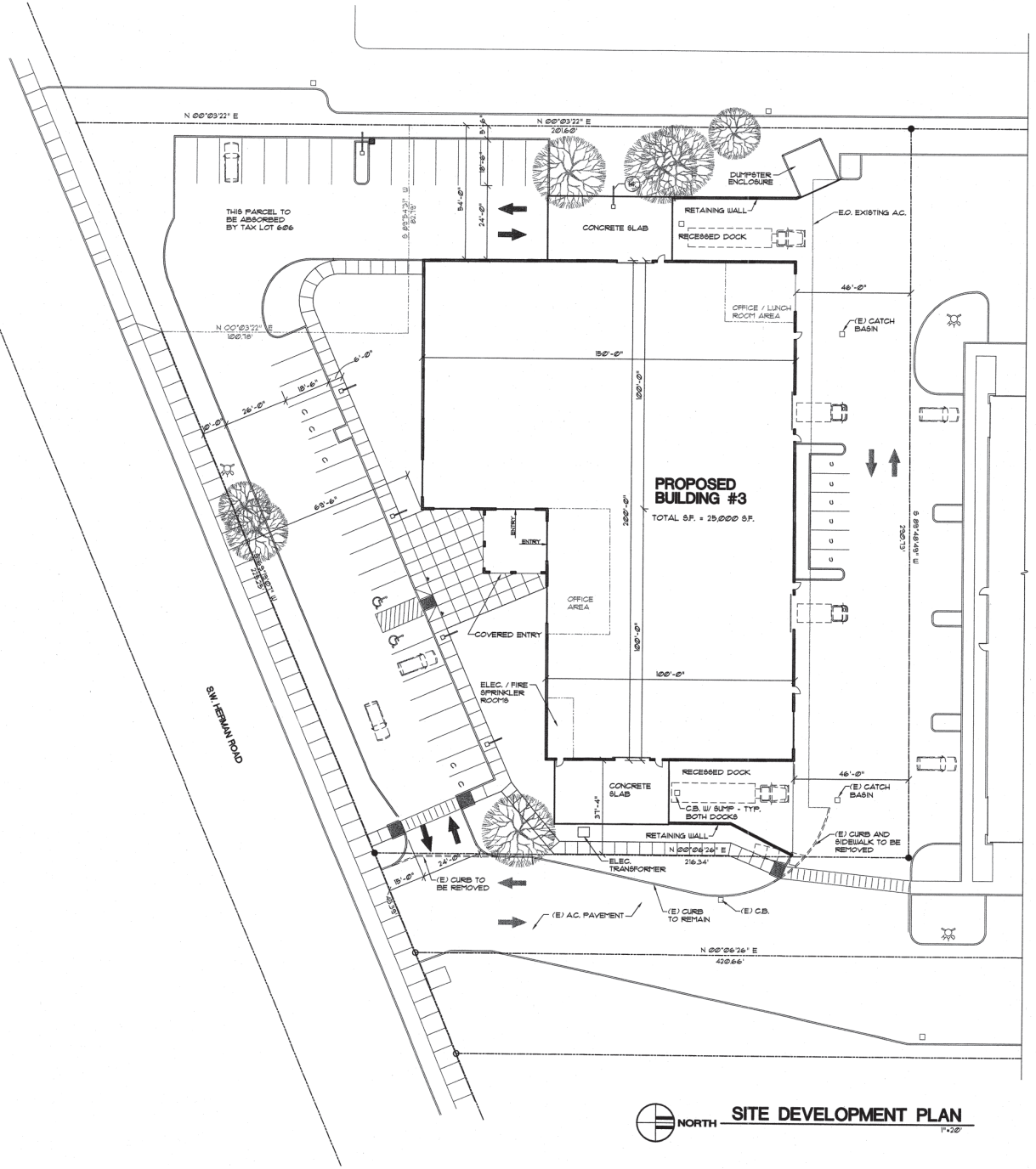
Based on the analysis, the study intersections operate within Washington County and City of Tualatin performance standards through year 2017 with full build-out of the proposed development. Accordingly, no mitigation is necessary or recommended as a part of this project.

Based on the queuing analysis, the projected 95th percentile queues at the study area intersections are provided adequate vehicle storage space and queues are not projected to back up to adjacent intersections. Therefore, no queuing-related mitigations are recommended.

Due to insufficient traffic volumes, traffic signal warrants will not be met for any of the unsignalized intersections under any of the analysis scenarios. No new installation of traffic signals are recommended.

Based on the review of the detailed crash data as well as our observations of the study area intersections, no crash patterns and no significant design concerns were identified. No specific safety mitigations are recommended in conjunction with the proposed development.

Appendix



NORTH

SITE DEVELOPMENT PLAN

1"=20'

LEGEND:

(E) TREES TO REMAIN

SITE DEVELOPMENT DATA

PLANNING DESIGNATION: ——— MG (GENERAL MANUFACTURING)

SITE AREA: ——— 70,950 S.F. (100%)

PARCEL NO. 3
TAX MAP NO.: 2S122C
TAX LOT NO.: 606

BUILDING AREA: ——— 25,000 S.F. (35.2%)

LANDSCAPING: ——— 15,900 S.F. (22.4%) OK
15% REQUIRED

PARKING LOT LANDSCAPING: ——— 1,488 S.F. OK
32 SPACES x 25 S.F./ SPACE
= 1,300 S.F. REQ'D.

PARKING SPACES: ——— 43 REQUIRED

MANUFACTURING = 22,500 S.F.
22,500 / 1,000 = 22.5
22.5 x 1.6 = 36 SPACES REQUIRED.

OFFICE (FUTURE) = 2,500 S.F.
2,500 / 1,000 = 2.5
2.5 x 2.1 = 7 SPACES REQUIRED.

PARKING SPACES: ——— 43 TOTAL PROVIDED OK

STANDARD SPACES ——— 29
COMPACT SPACES ——— 11
VAN-CAR POOL SPACE ——— 1
ADA SPACES ——— 2

ANDREWS
DESIGN ASSOCIATES
21835 SW 70TH AVE.
Phone: (503) 936-8210
Fax: (503) 313-6798

PROJECT:

BUILDING 3
HERMAN PROPERTIES DEVELOPMENT
12171 S.W. HERMAN ROAD
TUALATIN, OR 97062

CLIENT:

DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT, LLC
P.O. BOX 205
TUALATIN, OR 97062

SUBMITTALS:

Date: 4-17-2015
Scale: 1"=20'
Drawn by: JDA
Checked by: DA
Job No.: 12-0501
Drawing No.: SITE 4-17-15

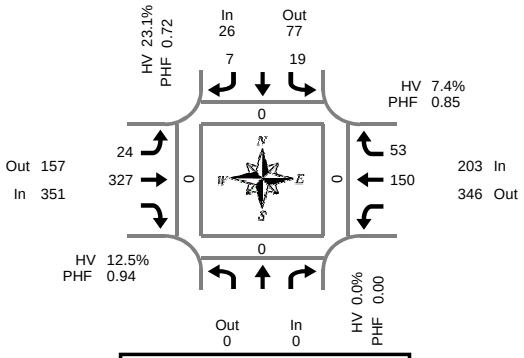
PRELIMINARY

SITE PLAN

SHEET
1.1

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 125th Ct & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:00 AM to 8:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	0		3	0	3	25		0		13	5	0	49	0	0	0	0
7:05 AM				0	1		0	0	4	29		0		12	7	0	53	0	0	0	0
7:10 AM				0	5		0	0	2	23		0		10	3	0	43	0	0	0	0
7:15 AM				0	2		0	0	3	28		3		12	3	0	48	0	0	0	0
7:20 AM				0	1		0	0	3	30		0		14	3	0	51	0	0	0	0
7:25 AM				0	1		0	0	0	18		0		10	6	0	35	0	0	0	0
7:30 AM				0	2		3	0	2	34		0		17	3	0	61	0	0	0	0
7:35 AM				0	3		0	0	1	25		0		6	4	0	39	0	0	0	0
7:40 AM				0	0		1	0	1	27		0		13	2	0	44	0	0	0	0
7:45 AM				0	1		0	0	1	28		0		17	8	0	55	0	0	0	0
7:50 AM				0	1		0	0	2	22		1		13	3	0	41	0	0	0	0
7:55 AM				0	2		0	0	2	38		0		13	6	0	61	0	0	0	0
8:00 AM				0	5		0	0	1	20		0		19	3	0	48	1	0	0	0
8:05 AM				0	1		1	0	1	24		0		12	1	0	40	0	0	0	0
8:10 AM				0	0		0	0	0	26		0		24	5	0	55	0	0	0	0
8:15 AM				0	1		0	0	0	13		0		6	3	0	23	1	0	0	0
8:20 AM				0	0		0	0	0	23		0		15	1	0	39	0	0	0	0
8:25 AM				0	1		0	0	0	18		1		13	6	0	38	0	0	0	0
8:30 AM				0	2		1	0	1	11		0		5	1	0	21	0	0	0	0
8:35 AM				0	0		0	1	1	9		1		8	3	0	21	0	0	0	0
8:40 AM				0	0		1	0	0	7		0		7	1	0	16	0	0	0	0
8:45 AM				0	0		1	0	2	14		0		11	4	0	32	0	0	0	0
8:50 AM				0	4		1	0	1	17		0		16	5	0	44	0	0	0	0
8:55 AM				0	2		0	0	1	5		0		11	3	0	22	0	0	0	0
Total Survey				0	35		12	1	32	514		6		297	89	0	979	2	0	0	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	6		3	0	9	77		0		35	15	0	145	0	0	0	0
7:15 AM				0	4		0	0	6	76		3		36	12	0	134	0	0	0	0
7:30 AM				0	5		4	0	4	86		0		36	9	0	144	0	0	0	0
7:45 AM				0	4		0	0	5	88		1		43	17	0	157	0	0	0	0
8:00 AM				0	6		1	0	2	70		0		55	9	0	143	1	0	0	0
8:15 AM				0	2		0	0	0	54		1		34	10	0	100	1	0	0	0
8:30 AM				0	2		2	1	2	27		1		20	5	0	58	0	0	0	0
8:45 AM				0	6		2	0	4	36		0		38	12	0	98	0	0	0	0
Total Survey				0	35		12	1	32	514		6		297	89	0	979	2	0	0	0

Peak Hour Summary
7:00 AM to 8:00 AM

By Approach	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	26	77	103	0	351	157	508	4	203	346	549	0	580	0	0	0	0
%HV	0.0%				23.1%				12.5%				7.4%				11.2%				
PHF	0.00				0.72				0.94				0.85				0.92				

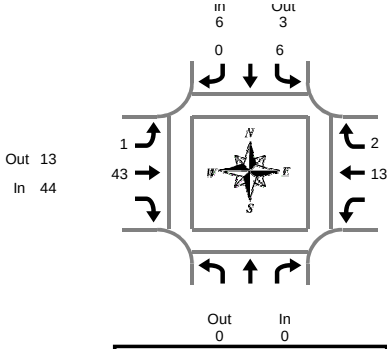
By Movement	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	19		7	26	24	327		351		150	53	203	580
%HV	NA	NA	NA	0.0%	31.6%	NA	0.0%	23.1%	4.2%	13.1%	NA	12.5%	NA	8.7%	3.8%	7.4%	11.2%
PHF				0.00	0.59		0.44	0.72	0.67	0.93		0.94		0.87	0.78	0.85	0.92

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	19		7	0	24	327		4		150	53	0	580	0	0	0	0
7:15 AM				0	19		5	0	17	320		4		170	47	0	578	1	0	0	0
7:30 AM				0	17		5	0	11	298		2		168	45	0	544	2	0	0	0
7:45 AM				0	14		3	1	9	239		3		152	41	0	458	2	0	0	0
8:00 AM				0	16		5	1	8	187		2		147	36	0	399	2	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW 125th Ct & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:00 AM to 8:00 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	4		4		1	0	1	5
7:05 AM				0	0		0	0	0	6		6		1	0	1	7
7:10 AM				0	0		0	0	0	3		3		1	0	1	4
7:15 AM				0	0		0	0	1	7		8		1	0	1	9
7:20 AM				0	1		0	1	0	3		3		2	1	3	7
7:25 AM				0	0		0	0	0	0		0		1	0	1	1
7:30 AM				0	2		0	2	0	7		7		3	0	3	12
7:35 AM				0	3		0	3	0	1		1		0	0	0	4
7:40 AM				0	0		0	0	0	6		6		1	0	1	7
7:45 AM				0	0		0	0	0	1		1		1	0	1	2
7:50 AM				0	0		0	0	0	3		3		1	0	1	4
7:55 AM				0	0		0	0	0	2		2		0	1	1	3
8:00 AM				0	1		0	1	0	2		2		1	1	2	5
8:05 AM				0	0		0	0	0	0		0		1	0	1	1
8:10 AM				0	0		0	0	0	0		0		1	0	1	1
8:15 AM				0	0		0	0	0	3		3		0	1	1	4
8:20 AM				0	0		0	0	0	3		3		1	0	1	4
8:25 AM				0	0		0	0	0	1		1		1	0	1	2
8:30 AM				0	0		1	1	1	0		1		1	0	1	3
8:35 AM				0	0		0	0	1	1		2		0	1	1	3
8:40 AM				0	0		1	1	0	2		2		4	0	4	7
8:45 AM				0	0		0	0	1	0		1		3	0	3	4
8:50 AM				0	3		0	3	0	1		1		4	0	4	8
8:55 AM				0	1		0	1	1	0		1		4	3	7	9
Total Survey				0	11		2	13	5	56		61		34	8	42	116

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	13		13		3	0	3	16
7:15 AM				0	1		0	1	1	10		11		4	1	5	17
7:30 AM				0	5		0	5	0	14		14		4	0	4	23
7:45 AM				0	0		0	0	0	6		6		2	1	3	9
8:00 AM				0	1		0	1	0	2		2		3	1	4	7
8:15 AM				0	0		0	0	0	7		7		2	1	3	10
8:30 AM				0	0		2	2	2	3		5		5	1	6	13
8:45 AM				0	4		0	4	2	1		3		11	3	14	21
Total Survey				0	11		2	13	5	56		61		34	8	42	116

Heavy Vehicle Peak Hour Summary
7:00 AM to 8:00 AM

By Approach	Northbound SW 125th Ct			Southbound SW 125th Ct			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	6	3	9	44	13	57	15	49	64	65
PHF	0.00			0.30			0.65			0.54			0.71

By Movement	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	6		0	6	1	43		44		13	2	15	65
PHF				0.00	0.30		0.00	0.30	0.25	0.67		0.65		0.54	0.50	0.54	0.71

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

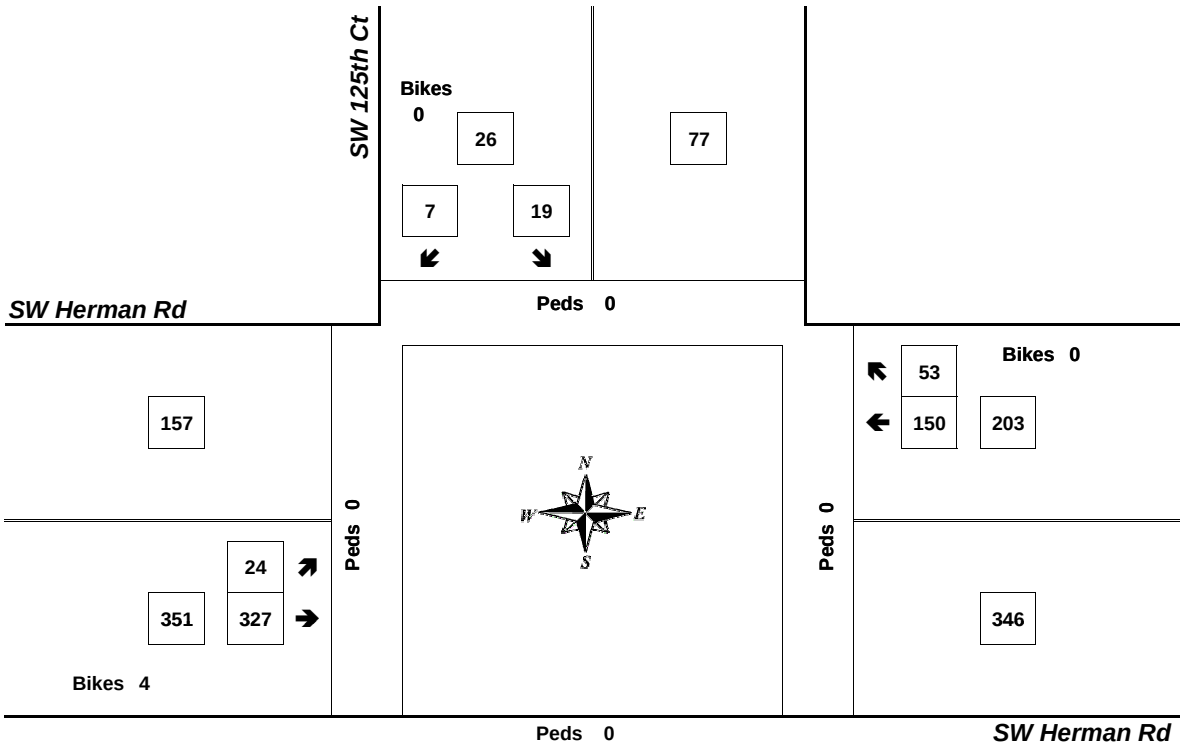
Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	6		0	6	1	43		44		13	2	15	65
7:15 AM				0	7		0	7	1	32		33		13	3	16	56
7:30 AM				0	6		0	6	0	29		29		11	3	14	49
7:45 AM				0	1		2	3	2	18		20		12	4	16	39
8:00 AM				0	5		2	7	4	13		17		21	6	27	51

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

SW 125th Ct & SW Herman Rd

7:00 AM to 8:00 AM
Thursday, September 10, 2015



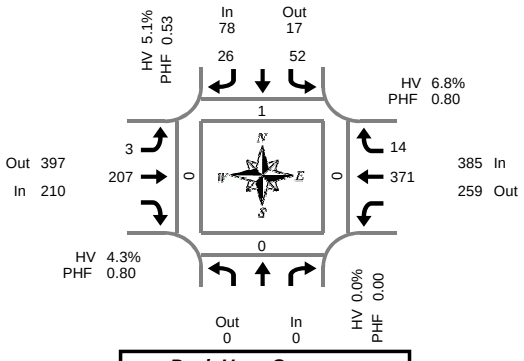
Bikes 0

Approach	PHF	HV%	Volume
EB	0.94	12.5%	351
WB	0.85	7.4%	203
NB	0.00	0.0%	0
SB	0.72	23.1%	26
Intersection	0.92	11.2%	580

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 125th Ct & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	15		1	0	0	21		0		20	0	0	57	0	0	0	0
4:05 PM				0	7		4	0	0	31		0		20	1	0	63	0	0	0	0
4:10 PM				0	1		2	0	0	17		0		23	3	0	46	0	0	0	0
4:15 PM				0	2		4	0	0	18		0		26	0	0	50	0	0	0	0
4:20 PM				0	2		2	0	0	12		0		24	1	0	41	0	0	0	0
4:25 PM				0	4		2	0	0	10		0		21	0	0	37	0	0	0	0
4:30 PM				0	5		2	0	0	20		0		23	1	0	51	0	0	0	0
4:35 PM				0	1		1	0	0	25		2		32	5	1	64	0	0	0	0
4:40 PM				0	2		1	0	1	16		0		49	1	0	70	0	0	0	0
4:45 PM				0	4		1	0	1	18		0		32	1	0	57	0	0	0	0
4:50 PM				0	2		0	0	0	19		0		33	3	0	57	0	0	0	0
4:55 PM				0	6		2	0	0	9		0		29	0	0	46	0	0	0	0
5:00 PM				0	3		4	0	0	29		0		39	0	0	75	1	0	0	0
5:05 PM				0	12		6	0	0	20		0		21	2	0	61	0	0	0	0
5:10 PM				0	7		4	0	1	16		0		24	1	2	53	0	0	0	0
5:15 PM				0	5		3	0	0	15		0		35	0	0	58	0	0	0	0
5:20 PM				0	1		1	0	0	10		0		30	0	0	42	0	0	0	0
5:25 PM				0	4		1	0	0	10		0		24	0	0	39	0	0	0	0
5:30 PM				0	1		0	0	0	12		0		32	1	0	46	0	0	0	0
5:35 PM				0	5		2	0	0	11		0		28	1	0	47	0	0	0	0
5:40 PM				0	5		0	0	0	8		0		27	0	0	40	0	0	0	0
5:45 PM				0	1		1	0	0	6		0		24	0	0	32	0	0	0	0
5:50 PM				0	0		0	0	0	8		1		20	1	0	29	0	0	0	0
5:55 PM				0	1		0	0	0	8		0		18	0	0	27	0	0	0	0
Total Survey				0	96		44	0	3	369		3		654	22	3	1,188	1	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	23		7	0	0	69		0		63	4	0	166	0	0	0	0
4:15 PM				0	8		8	0	0	40		0		71	1	0	128	0	0	0	0
4:30 PM				0	8		4	0	1	61		2		104	7	1	185	0	0	0	0
4:45 PM				0	12		3	0	1	46		0		94	4	0	160	0	0	0	0
5:00 PM				0	22		14	0	1	65		0		84	3	2	189	1	0	0	0
5:15 PM				0	10		5	0	0	35		0		89	0	0	139	0	0	0	0
5:30 PM				0	11		2	0	0	31		0		87	2	0	133	0	0	0	0
5:45 PM				0	2		1	0	0	22		1		62	1	0	88	0	0	0	0
Total Survey				0	96		44	0	3	369		3		654	22	3	1,188	1	0	0	0

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	78	17	95	0	210	397	607	2	385	259	644	3	673	1	0	0	0
%HV	0.0%				5.1%				4.3%				6.8%				5.8%				
PHF	0.00				0.53				0.80				0.80				0.88				

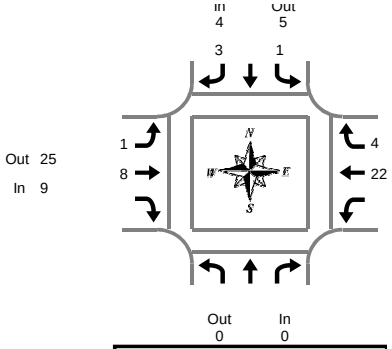
By Movement	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	52		26	78	3	207		210		371	14	385	673
%HV	NA	NA	NA	0.0%	1.9%	NA	11.5%	5.1%	33.3%	3.9%	NA	4.3%	NA	5.9%	28.6%	6.8%	5.8%
PHF				0.00	0.54		0.46	0.53	0.38	0.80		0.80		0.81	0.50	0.80	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	51		22	0	2	216		2		332	16	1	639	0	0	0	0
4:15 PM				0	50		29	0	3	212		2		353	15	3	662	1	0	0	0
4:30 PM				0	52		26	0	3	207		2		371	14	3	673	1	0	0	0
4:45 PM				0	55		24	0	2	177		0		354	9	2	621	1	0	0	0
5:00 PM				0	45		22	0	1	153		1		322	6	2	549	1	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW 125th Ct & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	1		0	1	0	2		2		1	0	1	4
4:05 PM				0	1		1	2	0	0		0		2	0	2	4
4:10 PM				0	0		0	0	0	1		1		3	0	3	4
4:15 PM				0	0		0	0	0	0		0		3	0	3	3
4:20 PM				0	0		1	1	0	1		1		1	0	1	3
4:25 PM				0	1		0	1	0	1		1		2	0	2	4
4:30 PM				0	0		0	0	0	2		2		4	0	4	6
4:35 PM				0	0		0	0	0	1		1		3	3	6	7
4:40 PM				0	0		1	1	0	0		0		1	0	1	2
4:45 PM				0	0		0	0	0	1		1		1	0	1	2
4:50 PM				0	0		0	0	0	1		1		2	1	3	4
4:55 PM				0	0		0	0	0	1		1		0	0	0	1
5:00 PM				0	0		0	0	0	0		0		4	0	4	4
5:05 PM				0	0		0	0	0	0		0		1	0	1	1
5:10 PM				0	0		1	1	1	1		2		0	0	0	3
5:15 PM				0	1		0	1	0	0		0		2	0	2	3
5:20 PM				0	0		1	1	0	0		0		3	0	3	4
5:25 PM				0	0		0	0	0	1		1		1	0	1	2
5:30 PM				0	0		0	0	0	0		0		1	1	2	2
5:35 PM				0	0		0	0	0	0		0		1	0	1	1
5:40 PM				0	0		0	0	0	0		0		1	0	1	1
5:45 PM				0	0		0	0	0	0		0		2	0	2	2
5:50 PM				0	0		0	0	0	0		0		1	0	1	1
5:55 PM				0	0		0	0	0	0		0		1	0	1	1
Total Survey				0	4		5	9	1	13		14		41	5	46	69

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	2		1	3	0	3		3		6	0	6	12
4:15 PM				0	1		1	2	0	2		2		6	0	6	10
4:30 PM				0	0		1	1	0	3		3		8	3	11	15
4:45 PM				0	0		0	0	0	3		3		3	1	4	7
5:00 PM				0	0		1	1	1	1		2		5	0	5	8
5:15 PM				0	1		1	2	0	1		1		6	0	6	9
5:30 PM				0	0		0	0	0	0		0		3	1	4	4
5:45 PM				0	0		0	0	0	0		0		4	0	4	4
Total Survey				0	4		5	9	1	13		14		41	5	46	69

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 125th Ct			Southbound SW 125th Ct			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	4	5	9	9	25	34	26	9	35	39
PHF	0.00			0.33			0.75			0.59			0.65

By Movement	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	1		3	4	1	8		9		22	4	26	39
PHF				0.00	0.25		0.38	0.33	0.25	0.67		0.75		0.69	0.33	0.59	0.65

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

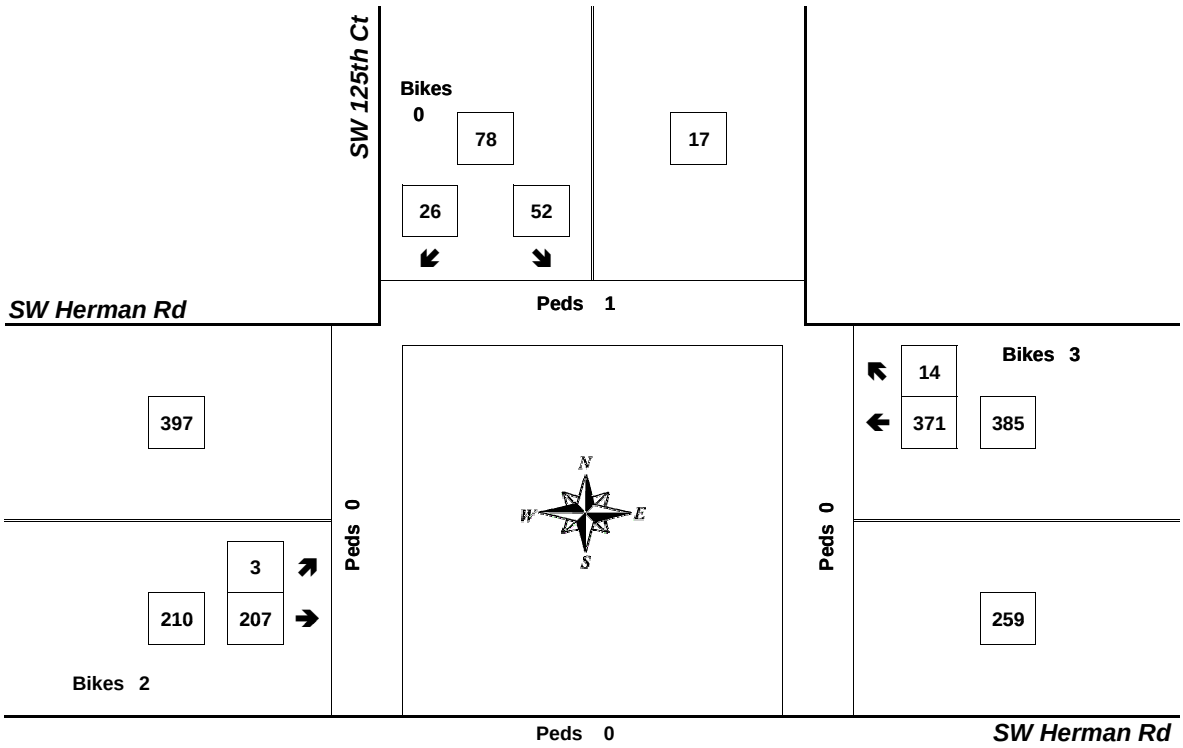
Interval Start Time	Northbound SW 125th Ct				Southbound SW 125th Ct				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	3		3	6	0	11		11		23	4	27	44
4:15 PM				0	1		3	4	1	9		10		22	4	26	40
4:30 PM				0	1		3	4	1	8		9		22	4	26	39
4:45 PM				0	1		2	3	1	5		6		17	2	19	28
5:00 PM				0	1		2	3	1	2		3		18	1	19	25

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

SW 125th Ct & SW Herman Rd

4:30 PM to 5:30 PM
Wednesday, September 09, 2015



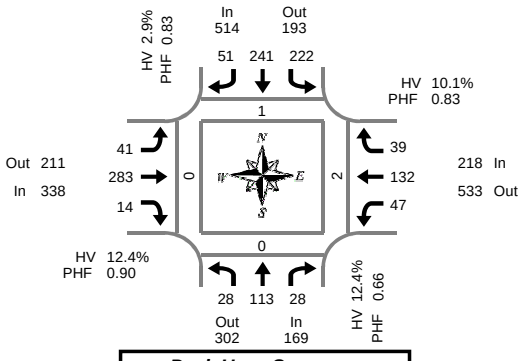
Bikes 0

Approach	PHF	HV%	Volume
EB	0.80	4.3%	210
WB	0.80	6.8%	385
NB	0.00	0.0%	0
SB	0.53	5.1%	78
Intersection	0.88	5.8%	673

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:15 AM to 8:15 AM

SW 124th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	4	1	0	16	21	6	0	2	19	2	0	1	11	3	0	86	0	0	0	0
7:05 AM	0	12	3	0	10	13	5	0	4	27	2	0	6	14	2	0	98	0	0	0	0
7:10 AM	0	1	1	0	14	16	3	0	2	24	1	0	1	14	6	0	83	0	0	0	0
7:15 AM	1	7	2	0	14	23	2	0	5	21	1	3	0	8	2	0	86	0	0	1	0
7:20 AM	3	6	1	0	19	30	3	0	5	25	2	0	6	12	2	0	114	0	0	0	0
7:25 AM	1	7	3	0	25	22	4	0	4	14	2	0	4	14	1	1	101	0	0	0	0
7:30 AM	2	6	2	0	28	21	2	0	4	30	0	0	3	12	6	0	116	0	0	0	0
7:35 AM	2	12	0	0	23	15	3	0	2	27	1	0	4	5	5	0	99	0	0	0	0
7:40 AM	2	6	0	0	19	23	4	0	5	23	2	0	3	10	3	0	100	0	0	1	0
7:45 AM	4	8	4	0	20	24	9	0	1	25	0	0	2	9	0	0	106	0	0	0	0
7:50 AM	1	15	3	1	19	21	4	0	1	21	1	0	7	15	5	0	113	0	0	0	0
7:55 AM	7	11	4	0	21	19	2	0	6	30	1	0	5	8	1	0	115	0	0	0	0
8:00 AM	2	17	4	0	10	22	11	1	2	22	2	0	2	9	3	0	106	1	0	0	0
8:05 AM	2	12	2	0	12	11	2	0	4	22	1	0	4	12	7	0	91	0	0	0	0
8:10 AM	1	6	3	0	12	10	5	0	2	23	1	0	7	18	4	0	92	0	0	0	0
8:15 AM	2	7	3	0	8	8	2	0	0	15	2	0	2	13	3	0	65	0	0	0	0
8:20 AM	1	9	6	1	6	10	1	0	3	14	0	0	3	7	4	0	64	0	0	0	0
8:25 AM	1	9	2	1	5	13	4	0	4	20	1	1	2	13	5	0	79	0	0	0	0
8:30 AM	0	6	4	0	7	6	0	0	1	8	1	0	6	7	7	1	53	0	0	0	0
8:35 AM	1	9	1	0	7	6	3	0	1	6	3	1	0	7	5	0	49	0	0	0	0
8:40 AM	2	11	6	0	2	8	1	0	1	4	2	0	0	7	4	0	48	0	0	1	0
8:45 AM	1	3	1	0	9	8	4	0	1	11	0	0	2	11	5	0	56	0	0	0	0
8:50 AM	2	7	3	1	4	12	3	0	1	17	3	0	2	15	6	0	75	0	0	0	0
8:55 AM	4	3	3	0	3	6	2	0	3	2	2	0	3	7	2	0	40	0	0	0	0
Total Survey	42	194	62	4	313	368	85	1	64	450	33	5	75	258	91	2	2,035	1	0	3	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	17	5	0	40	50	14	0	8	70	5	0	8	39	11	0	267	0	0	0	0
7:15 AM	5	20	6	0	58	75	9	0	14	60	5	3	10	34	5	1	301	0	0	1	0
7:30 AM	6	24	2	0	70	59	9	0	11	80	3	0	10	27	14	0	315	0	0	1	0
7:45 AM	12	34	11	1	60	64	15	0	8	76	2	0	14	32	6	0	334	0	0	0	0
8:00 AM	5	35	9	0	34	43	18	1	8	67	4	0	13	39	14	0	289	1	0	0	0
8:15 AM	4	25	11	2	19	31	7	0	7	49	3	1	7	33	12	0	208	0	0	0	0
8:30 AM	3	26	11	0	16	20	4	0	3	18	6	1	6	21	16	1	150	0	0	1	0
8:45 AM	7	13	7	1	16	26	9	0	5	30	5	0	7	33	13	0	171	0	0	0	0
Total Survey	42	194	62	4	313	368	85	1	64	450	33	5	75	258	91	2	2,035	1	0	3	0

Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	169	302	471	1	514	193	707	1	338	211	549	3	218	533	751	1	1,239	1	0	2	0
%HV	12.4%				2.9%				12.4%				10.1%				8.1%				
PHF	0.66				0.83				0.90				0.83				0.93				

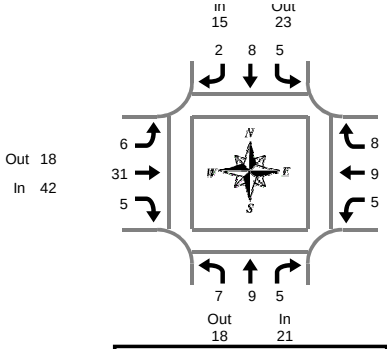
By Movement	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	28	113	28	169	222	241	51	514	41	283	14	338	47	132	39	218	1,239
%HV	25.0%	8.0%	17.9%	12.4%	2.3%	3.3%	3.9%	2.9%	14.6%	11.0%	35.7%	12.4%	10.6%	6.8%	20.5%	10.1%	8.1%
PHF	0.58	0.66	0.64	0.66	0.73	0.80	0.71	0.83	0.73	0.88	0.70	0.90	0.84	0.85	0.70	0.83	0.93

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	23	95	24	1	228	248	47	0	41	286	15	3	42	132	36	1	1,217	0	0	2	0
7:15 AM	28	113	28	1	222	241	51	1	41	283	14	3	47	132	39	1	1,239	1	0	2	0
7:30 AM	27	118	33	3	183	197	49	1	34	272	12	1	44	131	46	0	1,146	1	0	1	0
7:45 AM	24	120	42	3	129	158	44	1	26	210	15	2	40	125	48	1	981	1	0	1	0
8:00 AM	19	99	38	3	85	120	38	1	23	164	18	2	33	126	55	1	818	1	0	1	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW 124th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:15 AM to 8:15 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	2	1	3	2	1	0	3	2	2	0	4	0	1	2	3	13
7:05 AM	0	2	1	3	1	1	0	2	1	4	0	5	1	1	2	4	14
7:10 AM	0	0	0	0	5	2	1	8	1	1	1	3	0	0	0	0	11
7:15 AM	1	0	0	1	0	0	0	0	2	4	1	7	0	1	0	1	9
7:20 AM	1	1	1	3	0	0	0	0	0	2	2	4	2	2	0	4	11
7:25 AM	0	0	1	1	0	1	0	1	0	2	0	2	0	1	0	1	5
7:30 AM	1	2	1	4	0	1	0	1	1	9	0	10	0	2	2	4	19
7:35 AM	0	2	0	2	0	0	0	0	0	4	0	4	1	0	0	1	7
7:40 AM	1	0	0	1	0	1	0	1	1	4	1	6	0	0	1	1	9
7:45 AM	0	0	0	0	1	2	1	4	0	1	0	1	0	1	0	1	6
7:50 AM	1	1	0	2	1	0	0	1	0	3	0	3	0	0	1	1	7
7:55 AM	1	1	0	2	0	1	0	1	1	1	0	2	0	0	0	0	5
8:00 AM	1	1	1	3	1	1	1	3	1	1	1	3	1	0	1	2	11
8:05 AM	0	0	1	1	1	1	0	2	0	0	0	0	0	1	3	4	7
8:10 AM	0	1	0	1	1	0	0	1	0	0	0	0	1	1	0	2	4
8:15 AM	1	1	0	2	0	1	0	1	0	3	0	3	0	0	0	0	6
8:20 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	2	3
8:25 AM	1	2	0	3	0	2	0	2	0	2	0	2	0	0	2	2	9
8:30 AM	0	1	1	2	1	0	0	1	0	0	0	0	2	1	2	5	8
8:35 AM	0	0	0	0	0	0	0	0	0	1	1	2	0	1	4	5	7
8:40 AM	0	0	0	0	0	3	0	3	0	1	0	1	0	4	3	7	11
8:45 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	3	4	7	9
8:50 AM	0	2	1	3	0	3	1	4	0	2	2	4	0	3	1	4	15
8:55 AM	4	2	1	7	0	2	0	2	0	1	0	1	2	3	1	6	16
Total Survey	13	21	10	44	15	24	4	43	10	49	9	68	10	27	30	67	222

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	4	2	6	8	4	1	13	4	7	1	12	1	2	4	7	38
7:15 AM	2	1	2	5	0	1	0	1	2	8	3	13	2	4	0	6	25
7:30 AM	2	4	1	7	0	2	0	2	2	17	1	20	1	2	3	6	35
7:45 AM	2	2	0	4	2	3	1	6	1	5	0	6	0	1	1	2	18
8:00 AM	1	2	2	5	3	2	1	6	1	1	1	3	2	2	4	8	22
8:15 AM	2	3	0	5	0	3	0	3	0	6	0	6	0	1	3	4	18
8:30 AM	0	1	1	2	1	3	0	4	0	2	1	3	2	6	9	17	26
8:45 AM	4	4	2	10	1	6	1	8	0	3	2	5	2	9	6	17	40
Total Survey	13	21	10	44	15	24	4	43	10	49	9	68	10	27	30	67	222

Heavy Vehicle Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW 124th Ave			Southbound SW 124th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	21	18	39	15	23	38	42	18	60	22	41	63	100
PHF	0.66			0.63			0.53			0.61			0.71

By Movement	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	7	9	5	21	5	8	2	15	6	31	5	42	5	9	8	22	100
PHF	0.58	0.56	0.42	0.66	0.42	0.67	0.50	0.63	0.75	0.46	0.42	0.53	0.63	0.45	0.50	0.61	0.71

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

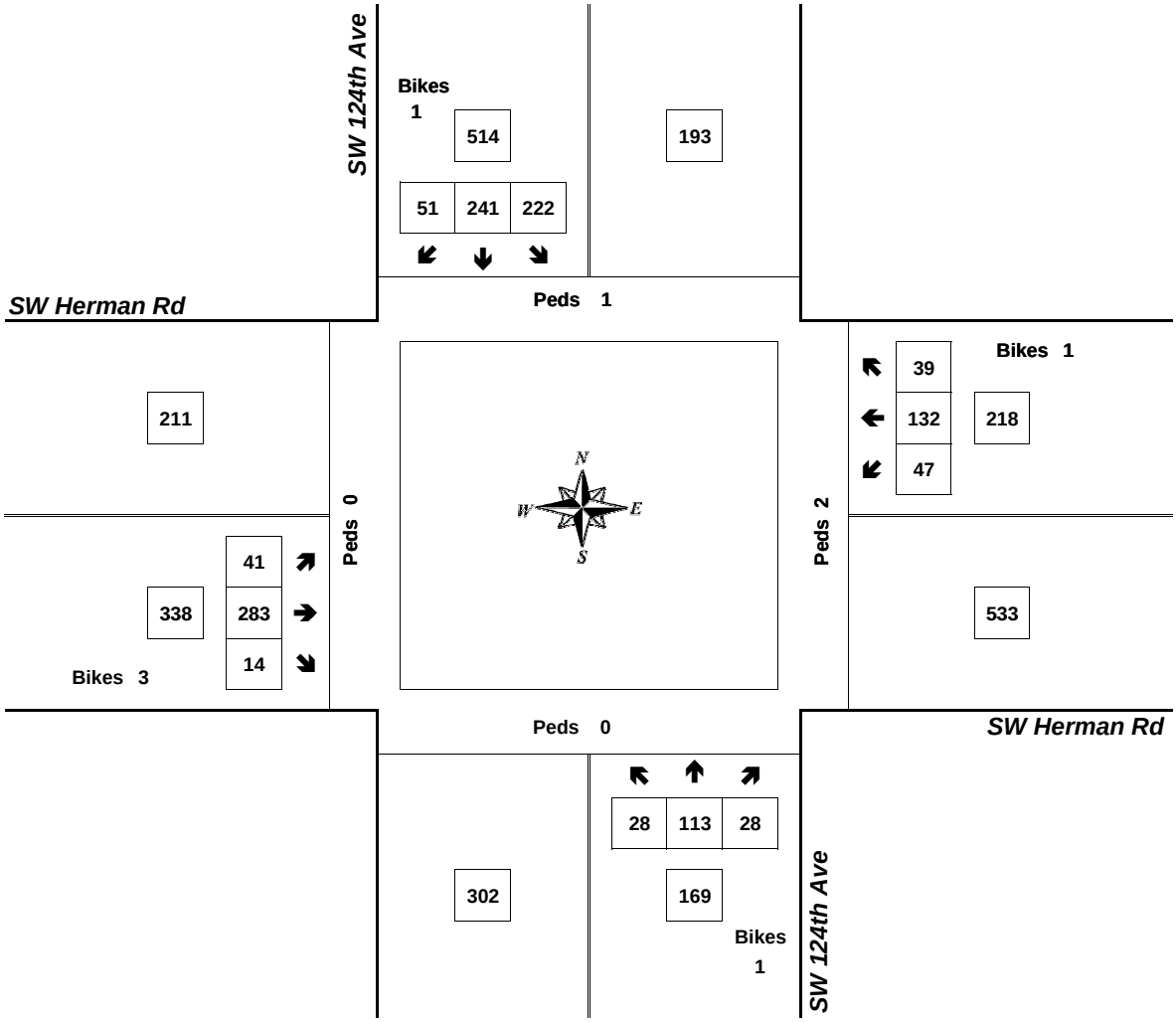
Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	6	11	5	22	10	10	2	22	9	37	5	51	4	9	8	21	116
7:15 AM	7	9	5	21	5	8	2	15	6	31	5	42	5	9	8	22	100
7:30 AM	7	11	3	21	5	10	2	17	4	29	2	35	3	6	11	20	93
7:45 AM	5	8	3	16	6	11	2	19	2	14	2	18	4	10	17	31	84
8:00 AM	7	10	5	22	5	14	2	21	1	12	4	17	6	18	22	46	106

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

SW 124th Ave & SW Herman Rd

7:15 AM to 8:15 AM
Thursday, September 10, 2015

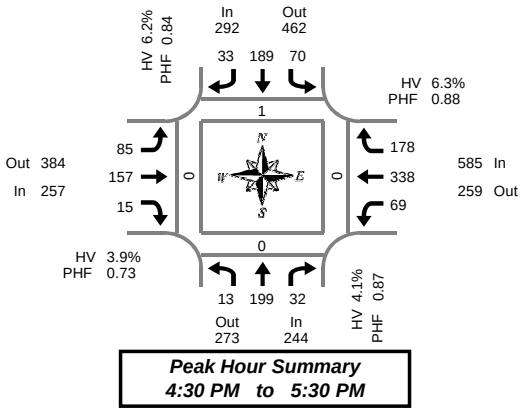


Approach	PHF	HV%	Volume
EB	0.90	12.4%	338
WB	0.83	10.1%	218
NB	0.66	12.4%	169
SB	0.83	2.9%	514
Intersection	0.93	8.1%	1,239

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 124th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	23	7	0	8	13	3	0	6	27	3	0	9	15	9	0	125	0	0	0	0
4:05 PM	3	21	6	0	3	12	1	0	11	24	3	0	7	18	11	0	120	0	0	0	0
4:10 PM	2	21	4	0	4	10	3	0	7	11	0	0	5	20	15	0	102	0	0	0	0
4:15 PM	1	16	2	0	6	9	4	0	1	19	0	0	8	19	12	0	97	0	0	0	0
4:20 PM	1	7	3	0	0	15	2	0	3	12	0	0	8	22	8	0	81	0	0	0	0
4:25 PM	0	7	0	0	5	11	1	0	3	12	1	0	2	23	8	0	73	0	0	0	0
4:30 PM	2	14	3	1	7	12	6	0	9	13	1	0	0	19	23	0	109	0	0	0	0
4:35 PM	2	16	3	0	7	5	2	0	5	22	1	1	7	33	14	0	117	0	0	0	0
4:40 PM	1	15	3	0	8	19	2	0	3	9	1	0	8	42	21	0	132	0	0	0	0
4:45 PM	1	17	3	0	8	19	6	0	7	15	2	0	6	28	8	0	120	0	0	0	0
4:50 PM	0	16	4	0	7	15	3	0	6	15	1	0	7	33	9	0	116	0	0	0	0
4:55 PM	0	13	4	0	5	20	3	0	7	6	2	0	4	24	10	0	98	1	0	0	0
5:00 PM	2	14	4	0	7	20	3	0	15	17	0	0	7	34	20	0	143	0	0	0	0
5:05 PM	1	24	3	0	2	12	1	0	8	23	2	0	5	24	17	0	122	0	0	0	0
5:10 PM	0	18	2	0	4	24	1	0	10	12	1	0	3	24	17	1	116	0	0	0	0
5:15 PM	0	21	1	0	6	18	3	0	6	11	1	0	7	27	15	0	116	0	0	0	0
5:20 PM	1	18	1	0	6	10	0	0	4	6	1	0	9	31	13	0	100	0	0	0	0
5:25 PM	3	13	1	0	3	15	3	0	5	8	2	0	6	19	11	0	89	0	0	0	0
5:30 PM	1	6	0	0	5	16	2	0	6	7	0	0	5	33	14	0	95	0	0	0	0
5:35 PM	0	12	1	0	6	2	2	0	3	11	0	0	2	22	6	0	67	0	0	0	0
5:40 PM	1	14	1	0	4	13	3	0	6	8	2	0	7	30	4	0	93	0	0	0	0
5:45 PM	1	13	0	0	4	14	1	0	2	3	1	0	4	16	10	0	69	0	0	0	0
5:50 PM	2	13	3	0	3	11	2	0	3	5	0	1	3	12	7	1	64	0	0	0	0
5:55 PM	0	13	0	0	4	16	0	0	2	8	1	0	5	21	9	0	79	0	0	0	0
Total Survey	27	365	59	1	122	331	57	0	138	304	26	2	134	589	291	2	2,443	1	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	7	65	17	0	15	35	7	0	24	62	6	0	21	53	35	0	347	0	0	0	0
4:15 PM	2	30	5	0	11	35	7	0	7	43	1	0	18	64	28	0	251	0	0	0	0
4:30 PM	5	45	9	1	22	36	10	0	17	44	3	1	15	94	58	0	358	0	0	0	0
4:45 PM	1	46	11	0	20	54	12	0	20	36	5	0	17	85	27	0	334	1	0	0	0
5:00 PM	3	56	9	0	13	56	5	0	33	52	3	0	15	82	54	1	381	0	0	0	0
5:15 PM	4	52	3	0	15	43	6	0	15	25	4	0	22	77	39	0	305	0	0	0	0
5:30 PM	2	32	2	0	15	31	7	0	15	26	2	0	14	85	24	0	255	0	0	0	0
5:45 PM	3	39	3	0	11	41	3	0	7	16	2	1	12	49	26	1	212	0	0	0	0
Total Survey	27	365	59	1	122	331	57	0	138	304	26	2	134	589	291	2	2,443	1	0	0	0

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	244	273	517	1	292	462	754	0	257	384	641	1	585	259	844	1	1,378	1	0	0	0
%HV	4.1%				6.2%				3.9%				6.3%				5.4%				
PHF	0.87				0.84				0.73				0.88				0.90				

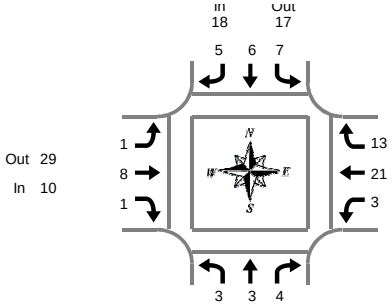
By Movement	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	13	199	32	244	70	189	33	292	85	157	15	257	69	338	178	585	1,378
%HV	23.1%	1.5%	12.5%	4.1%	10.0%	3.2%	15.2%	6.2%	1.2%	5.1%	6.7%	3.9%	4.3%	6.2%	7.3%	6.3%	5.4%
PHF	0.65	0.79	0.67	0.87	0.76	0.84	0.69	0.84	0.64	0.75	0.75	0.73	0.78	0.82	0.77	0.88	0.90

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	15	186	42	1	68	160	36	0	68	185	15	1	71	296	148	0	1,290	1	0	0	0
4:15 PM	11	177	34	1	66	181	34	0	77	175	12	1	65	325	167	1	1,324	1	0	0	0
4:30 PM	13	199	32	1	70	189	33	0	85	157	15	1	69	338	178	1	1,378	1	0	0	0
4:45 PM	10	186	25	0	63	184	30	0	83	139	14	0	68	329	144	1	1,275	1	0	0	0
5:00 PM	12	179	17	0	54	171	21	0	70	119	11	1	63	293	143	2	1,153	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 124th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	2	2	1	0	1	2	0	1	2	3	0	1	1	2	9
4:05 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	3	4
4:10 PM	0	0	1	1	0	2	0	2	0	0	0	0	0	2	3	5	8
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1	3	0	4	5
4:20 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
4:25 PM	0	0	0	0	0	2	0	2	1	1	0	2	0	3	2	5	9
4:30 PM	1	0	0	1	0	1	2	3	1	1	0	2	0	2	5	7	13
4:35 PM	2	1	1	4	0	0	0	0	0	1	0	1	1	3	1	5	10
4:40 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	2	1	4	5
4:45 PM	0	0	1	1	1	1	1	3	0	1	0	1	0	0	0	0	5
4:50 PM	0	0	1	1	1	0	0	1	0	1	0	1	0	4	1	5	8
4:55 PM	0	0	0	0	2	0	0	2	0	1	1	2	0	0	2	2	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	5	5
5:05 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	2	3
5:10 PM	0	0	0	0	1	1	0	2	0	1	0	1	0	0	0	0	3
5:15 PM	0	0	1	1	0	0	2	2	0	1	0	1	0	1	1	2	6
5:20 PM	0	1	0	1	1	1	0	2	0	0	0	0	0	3	0	3	6
5:25 PM	0	0	0	0	1	1	0	2	0	1	0	1	0	1	1	2	5
5:30 PM	1	0	0	1	1	0	0	1	0	0	0	0	0	2	0	2	4
5:35 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
5:40 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	2	3
5:50 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:55 PM	0	0	0	0	2	0	0	2	0	0	1	1	0	1	1	2	5
Total Survey	4	3	9	16	14	10	6	30	2	12	4	18	4	39	22	65	129

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	3	3	1	2	1	4	0	2	2	4	0	5	5	10	21
4:15 PM	0	0	0	0	1	2	0	3	1	2	0	3	1	7	2	10	16
4:30 PM	3	1	1	5	0	2	2	4	1	2	0	3	2	7	7	16	28
4:45 PM	0	0	2	2	4	1	1	6	0	3	1	4	0	4	3	7	19
5:00 PM	0	1	0	1	1	1	0	2	0	1	0	1	1	5	1	7	11
5:15 PM	0	1	1	2	2	2	2	6	0	2	0	2	0	5	2	7	17
5:30 PM	1	0	1	2	2	0	0	2	0	0	0	0	0	4	0	4	8
5:45 PM	0	0	1	1	3	0	0	3	0	0	1	1	0	2	2	4	9
Total Survey	4	3	9	16	14	10	6	30	2	12	4	18	4	39	22	65	129

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 124th Ave			Southbound SW 124th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	10	10	20	18	17	35	10	29	39	37	19	56	75
PHF	0.50			0.75			0.63			0.58			0.67

By Movement	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	3	3	4	10	7	6	5	18	1	8	1	10	3	21	13	37	75
PHF	0.25	0.75	0.50	0.50	0.44	0.75	0.63	0.75	0.25	0.67	0.25	0.63	0.38	0.66	0.46	0.58	0.67

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

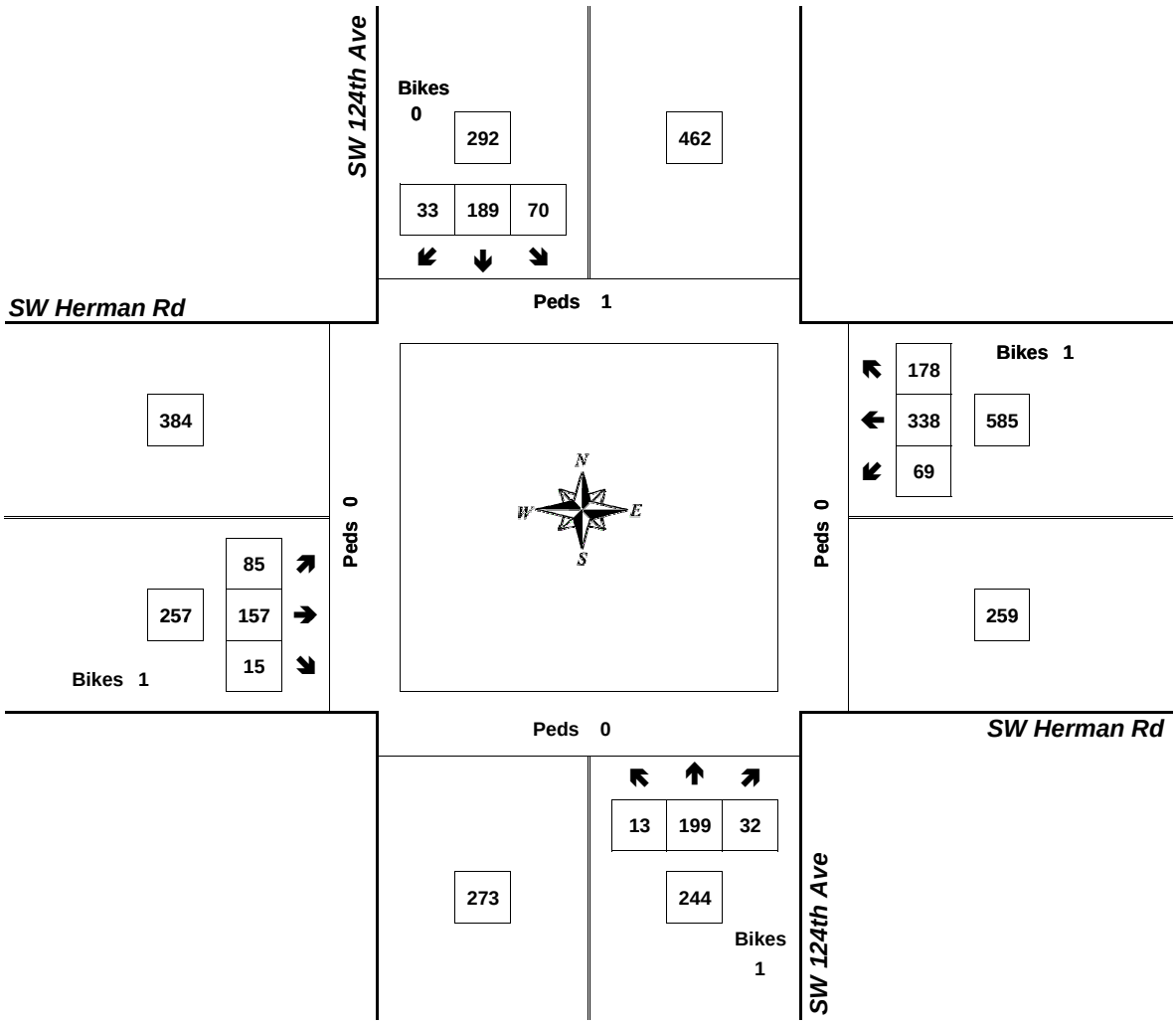
Interval Start Time	Northbound SW 124th Ave				Southbound SW 124th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	3	1	6	10	6	7	4	17	2	9	3	14	3	23	17	43	84
4:15 PM	3	2	3	8	6	6	3	15	2	8	1	11	4	23	13	40	74
4:30 PM	3	3	4	10	7	6	5	18	1	8	1	10	3	21	13	37	75
4:45 PM	1	2	4	7	9	4	3	16	0	6	1	7	1	18	6	25	55
5:00 PM	1	2	3	6	8	3	2	13	0	3	1	4	1	16	5	22	45

Peak Hour Summary

Clay Carney
(503) 833-2740

SW 124th Ave & SW Herman Rd

4:30 PM to 5:30 PM
Wednesday, September 09, 2015

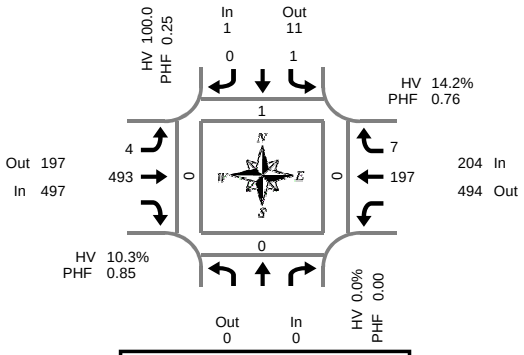


Approach	PHF	HV%	Volume
EB	0.73	3.9%	257
WB	0.88	6.3%	585
NB	0.87	4.1%	244
SB	0.84	6.2%	292
Intersection	0.90	5.4%	1,378

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Driveway Access & SW Herman Rd

Wednesday, September 16, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:10 AM to 8:10 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	0		0	0	1	35		0		21	1	0	58	0	0	0	0
7:05 AM				0	1		0	0	1	24		0		14	1	0	41	0	0	0	0
7:10 AM				0	0		0	0	0	29		0		9	1	0	39	0	0	0	0
7:15 AM				0	0		0	0	0	45		1		13	1	0	59	0	0	0	0
7:20 AM				0	0		0	0	1	33		0		15	1	0	50	0	0	0	0
7:25 AM				0	0		0	0	1	35		0		16	0	0	52	0	0	0	0
7:30 AM				0	0		0	0	0	48		0		19	0	0	67	0	0	0	0
7:35 AM				0	0		0	0	1	49		0		14	0	0	64	0	0	0	0
7:40 AM				0	1		0	0	0	49		0		14	1	0	65	0	0	0	0
7:45 AM				0	0		0	0	0	34		0		14	1	0	49	0	0	0	0
7:50 AM				0	0		0	0	0	53		0		28	1	0	82	0	0	0	0
7:55 AM				0	0		0	0	0	53		0		20	0	1	73	0	0	0	0
8:00 AM				0	0		0	0	1	39		0		17	1	0	58	1	0	0	0
8:05 AM				0	0		0	0	0	26		0		18	0	0	44	0	0	0	0
8:10 AM				0	0		0	0	0	22		0		17	0	0	39	0	0	0	0
8:15 AM				0	0		0	0	0	25		0		15	1	0	41	0	0	0	0
8:20 AM				0	0		0	0	0	21		0		11	0	0	32	0	0	0	0
8:25 AM				0	0		0	0	0	19		0		23	1	0	43	0	0	0	0
8:30 AM				0	0		0	0	0	14		0		13	1	0	28	0	0	0	0
8:35 AM				0	0		1	0	1	24		0		18	0	0	44	0	0	0	0
8:40 AM				0	0		0	0	0	12		0		17	0	0	29	0	0	0	0
8:45 AM				0	0		0	0	0	19		0		10	3	0	32	0	0	0	0
8:50 AM				0	0		0	0	0	23		0		11	0	0	34	0	0	0	0
8:55 AM				0	0		0	0	1	15		0		16	1	0	33	0	0	0	0
Total Survey				0	2		1	0	8	746		1		383	16	1	1,156	1	0	0	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	1		0	0	2	88		0		44	3	0	138	0	0	0	0
7:15 AM				0	0		0	0	2	113		1		44	2	0	161	0	0	0	0
7:30 AM				0	1		0	0	1	146		0		47	1	0	196	0	0	0	0
7:45 AM				0	0		0	0	0	140		0		62	2	1	204	0	0	0	0
8:00 AM				0	0		0	0	1	87		0		52	1	0	141	1	0	0	0
8:15 AM				0	0		0	0	0	65		0		49	2	0	116	0	0	0	0
8:30 AM				0	0		1	0	1	50		0		48	1	0	101	0	0	0	0
8:45 AM				0	0		0	0	1	57		0		37	4	0	99	0	0	0	0
Total Survey				0	2		1	0	8	746		1		383	16	1	1,156	1	0	0	0

Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	1	11	12	0	497	197	694	1	204	494	698	1	702	1	0	0	0
%HV	0.0%				100.0%				10.3%				14.2%				11.5%				
PHF	0.00				0.25				0.85				0.76				0.82				

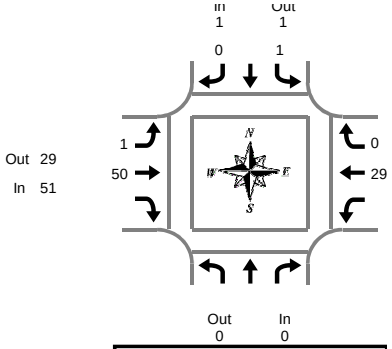
By Movement	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	1		0	1	4	493		497		197	7	204	702
%HV	NA	NA	NA	0.0%	#####	NA	0.0%	#####	25.0%	10.1%	NA	10.3%	NA	14.7%	0.0%	14.2%	11.5%
PHF				0.00	0.25		0.00	0.25	0.50	0.84		0.85		0.76	0.58	0.76	0.82

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	2		0	0	5	487		1		197	8	1	699	0	0	0	0
7:15 AM				0	1		0	0	4	486		1		205	6	1	702	1	0	0	0
7:30 AM				0	1		0	0	2	438		0		210	6	1	657	1	0	0	0
7:45 AM				0	0		1	0	2	342		0		211	6	1	562	1	0	0	0
8:00 AM				0	0		1	0	3	259		0		186	8	0	457	1	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Driveway Access & SW Herman Rd

Wednesday, September 16, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:10 AM to 8:10 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	5		5		2	0	2	7
7:05 AM				0	0		0	0	0	3		3		0	0	0	3
7:10 AM				0	0		0	0	0	3		3		0	0	0	3
7:15 AM				0	0		0	0	0	9		9		0	0	0	9
7:20 AM				0	0		0	0	0	2		2		5	0	5	7
7:25 AM				0	0		0	0	1	5		6		3	0	3	9
7:30 AM				0	0		0	0	0	7		7		2	0	2	9
7:35 AM				0	0		0	0	0	7		7		0	0	0	7
7:40 AM				0	1		0	1	0	3		3		0	0	0	4
7:45 AM				0	0		0	0	0	4		4		2	0	2	6
7:50 AM				0	0		0	0	0	3		3		5	0	5	8
7:55 AM				0	0		0	0	0	4		4		2	0	2	6
8:00 AM				0	0		0	0	0	0		0		8	0	8	8
8:05 AM				0	0		0	0	0	3		3		2	0	2	5
8:10 AM				0	0		0	0	0	4		4		0	0	0	4
8:15 AM				0	0		0	0	0	5		5		7	0	7	12
8:20 AM				0	0		0	0	0	1		1		4	0	4	5
8:25 AM				0	0		0	0	0	1		1		7	0	7	8
8:30 AM				0	0		0	0	0	1		1		5	0	5	6
8:35 AM				0	0		0	0	0	4		4		4	0	4	8
8:40 AM				0	0		0	0	0	2		2		6	0	6	8
8:45 AM				0	0		0	0	0	1		1		5	0	5	6
8:50 AM				0	0		0	0	0	4		4		3	0	3	7
8:55 AM				0	0		0	0	0	0		0		3	0	3	3
Total Survey				0	1		0	1	1	81		82		75	0	75	158

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	11		11		2	0	2	13
7:15 AM				0	0		0	0	1	16		17		8	0	8	25
7:30 AM				0	1		0	1	0	17		17		2	0	2	20
7:45 AM				0	0		0	0	0	11		11		9	0	9	20
8:00 AM				0	0		0	0	0	7		7		10	0	10	17
8:15 AM				0	0		0	0	0	7		7		18	0	18	25
8:30 AM				0	0		0	0	0	7		7		15	0	15	22
8:45 AM				0	0		0	0	0	5		5		11	0	11	16
Total Survey				0	1		0	1	1	81		82		75	0	75	158

Heavy Vehicle Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound Driveway Access			Southbound Driveway Access			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	1	1	2	51	29	80	29	51	80	81
PHF	0.00			0.25			0.64			0.48			0.81

By Movement	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	1		0	1	1	50		51		29	0	29	81
PHF				0.00	0.25		0.00	0.25	0.25	0.66		0.64		0.48	0.00	0.48	0.81

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

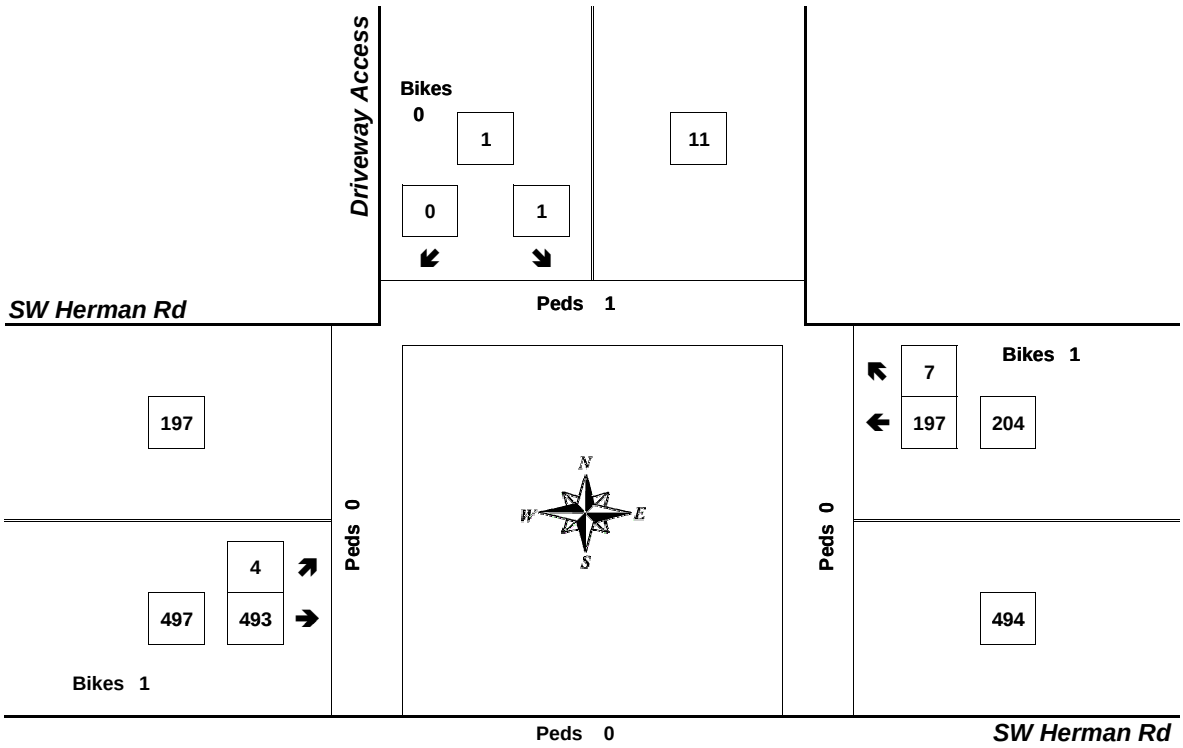
Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	1		0	1	1	55		56		21	0	21	78
7:15 AM				0	1		0	1	1	51		52		29	0	29	82
7:30 AM				0	1		0	1	0	42		42		39	0	39	82
7:45 AM				0	0		0	0	0	32		32		52	0	52	84
8:00 AM				0	0		0	0	0	26		26		54	0	54	80

Peak Hour Summary

Clay Carney
(503) 833-2740

Driveway Access & SW Herman Rd

7:10 AM to 8:10 AM
Wednesday, September 16, 2015



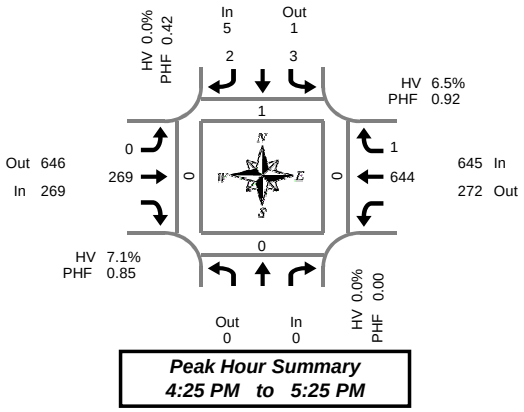
Bikes
0

Approach	PHF	HV%	Volume
EB	0.85	10.3%	497
WB	0.76	14.2%	204
NB	0.00	0.0%	0
SB	0.25	100.0%	1
Intersection	0.82	11.5%	702

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:25 PM to 5:25 PM

Driveway Access & SW Herman Rd

Tuesday, September 15, 2015
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	0		1	0	0	35		0		39	0	0	75	0	0	0	0
4:05 PM				0	1		1	0	0	32		0		47	0	0	81	0	0	0	0
4:10 PM				0	1		0	0	0	21		0		42	0	0	64	0	0	0	0
4:15 PM				0	0		0	0	0	18		0		40	0	0	58	0	0	0	0
4:20 PM				0	0		0	0	0	15		0		51	0	0	66	0	0	0	0
4:25 PM				0	0		0	0	0	15		0		46	0	0	61	1	0	0	0
4:30 PM				0	1		1	0	0	20		0		52	1	0	75	0	0	0	0
4:35 PM				0	1		0	0	0	26		0		53	0	0	80	0	0	0	0
4:40 PM				0	0		0	0	0	22		0		59	0	0	81	0	0	0	0
4:45 PM				0	0		0	0	0	31		0		56	0	0	87	0	0	0	0
4:50 PM				0	1		0	0	0	23		0		43	0	0	67	0	0	0	0
4:55 PM				0	0		0	0	0	25		0		55	0	0	80	0	0	0	0
5:00 PM				0	0		0	0	0	19		0		50	0	0	69	0	0	0	0
5:05 PM				0	0		0	0	0	33		0		55	0	0	88	0	0	0	0
5:10 PM				0	0		1	0	0	21		0		53	0	0	75	0	0	0	0
5:15 PM				0	0		0	0	0	19		0		63	0	0	82	0	0	0	0
5:20 PM				0	0		0	0	0	15		0		59	0	0	74	0	0	0	0
5:25 PM				0	0		0	0	0	20		0		39	0	0	59	0	0	0	0
5:30 PM				0	0		0	0	0	17		1		59	0	0	76	0	0	0	0
5:35 PM				0	0		0	0	0	12		0		47	0	0	59	0	0	0	0
5:40 PM				0	0		0	0	0	16		0		51	0	0	67	0	0	0	0
5:45 PM				0	0		0	0	0	20		0		34	0	0	54	0	0	0	0
5:50 PM				0	0		0	0	0	15		0		34	0	0	49	0	0	0	0
5:55 PM				0	0		0	0	0	9		0		28	0	0	37	0	0	0	0
Total Survey				0	5		4	0	0	499		1		1,155	1	0	1,664	1	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	2		2	0	0	88		0		128	0	0	220	0	0	0	0
4:15 PM				0	0		0	0	0	48		0		137	0	0	185	1	0	0	0
4:30 PM				0	2		1	0	0	68		0		164	1	0	236	0	0	0	0
4:45 PM				0	1		0	0	0	79		0		154	0	0	234	0	0	0	0
5:00 PM				0	0		1	0	0	73		0		158	0	0	232	0	0	0	0
5:15 PM				0	0		0	0	0	54		0		161	0	0	215	0	0	0	0
5:30 PM				0	0		0	0	0	45		1		157	0	0	202	0	0	0	0
5:45 PM				0	0		0	0	0	44		0		96	0	0	140	0	0	0	0
Total Survey				0	5		4	0	0	499		1		1,155	1	0	1,664	1	0	0	0

Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	5	1	6	0	269	646	915	0	645	272	917	0	919	1	0	0	0
%HV	0.0%				0.0%				7.1%				6.5%				6.6%				
PHF	0.00				0.42				0.85				0.92				0.93				

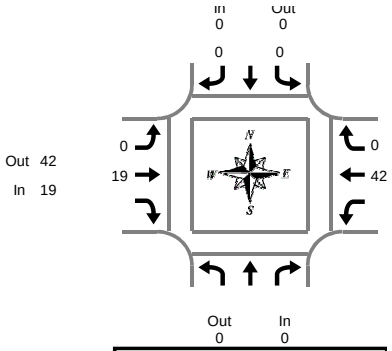
By Movement	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	3		2	5	0	269		269		644	1	645	919
%HV	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	0.0%	7.1%	NA	7.1%	NA	6.5%	0.0%	6.5%	6.6%
PHF				0.00	0.38		0.50	0.42	0.00	0.85		0.85		0.92	0.25	0.92	0.93

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	5		3	0	0	283		0		583	1	0	875	1	0	0	0
4:15 PM				0	3		2	0	0	268		0		613	1	0	887	1	0	0	0
4:30 PM				0	3		2	0	0	274		0		637	1	0	917	0	0	0	0
4:45 PM				0	1		1	0	0	251		1		630	0	0	883	0	0	0	0
5:00 PM				0	0		1	0	0	216		1		572	0	0	789	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Driveway Access & SW Herman Rd

Tuesday, September 15, 2015
4:00 PM to 6:00 PM

Peak Hour Summary
4:25 PM to 5:25 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	0		0	0	0	2		2		2	0	2	4
4:05 PM				0	0		0	0	0	3		3		5	0	5	8
4:10 PM				0	0		0	0	0	5		5		0	0	0	5
4:15 PM				0	0		0	0	0	1		1		4	0	4	5
4:20 PM				0	0		0	0	0	3		3		12	0	12	15
4:25 PM				0	0		0	0	0	2		2		6	0	6	8
4:30 PM				0	0		0	0	0	4		4		9	0	9	13
4:35 PM				0	0		0	0	0	2		2		5	0	5	7
4:40 PM				0	0		0	0	0	3		3		4	0	4	7
4:45 PM				0	0		0	0	0	2		2		2	0	2	4
4:50 PM				0	0		0	0	0	3		3		4	0	4	7
4:55 PM				0	0		0	0	0	1		1		2	0	2	3
5:00 PM				0	0		0	0	0	1		1		2	0	2	3
5:05 PM				0	0		0	0	0	0		0		1	0	1	1
5:10 PM				0	0		0	0	0	0		0		2	0	2	2
5:15 PM				0	0		0	0	0	0		0		1	0	1	1
5:20 PM				0	0		0	0	0	1		1		4	0	4	5
5:25 PM				0	0		0	0	0	0		0		1	0	1	1
5:30 PM				0	0		0	0	0	1		1		3	0	3	4
5:35 PM				0	0		0	0	0	0		0		1	0	1	1
5:40 PM				0	0		0	0	0	1		1		6	0	6	7
5:45 PM				0	0		0	0	0	1		1		1	0	1	2
5:50 PM				0	0		0	0	0	2		2		3	0	3	5
5:55 PM				0	0		0	0	0	2		2		1	0	1	3
Total Survey				0	0		0	0	0	40		40		81	0	81	121

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	0		0	0	0	10		10		7	0	7	17
4:15 PM				0	0		0	0	0	6		6		22	0	22	28
4:30 PM				0	0		0	0	0	9		9		18	0	18	27
4:45 PM				0	0		0	0	0	6		6		8	0	8	14
5:00 PM				0	0		0	0	0	1		1		5	0	5	6
5:15 PM				0	0		0	0	0	1		1		6	0	6	7
5:30 PM				0	0		0	0	0	2		2		10	0	10	12
5:45 PM				0	0		0	0	0	5		5		5	0	5	10
Total Survey				0	0		0	0	0	40		40		81	0	81	121

Heavy Vehicle Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound Driveway Access			Southbound Driveway Access			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	19	42	61	42	19	61	61
PHF	0.00			0.00			0.53			0.53			0.54

By Movement	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	0		0	0	0	19		19		42	0	42	61
PHF				0.00	0.00		0.00	0.00	0.00	0.53		0.53		0.53	0.00	0.53	0.54

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

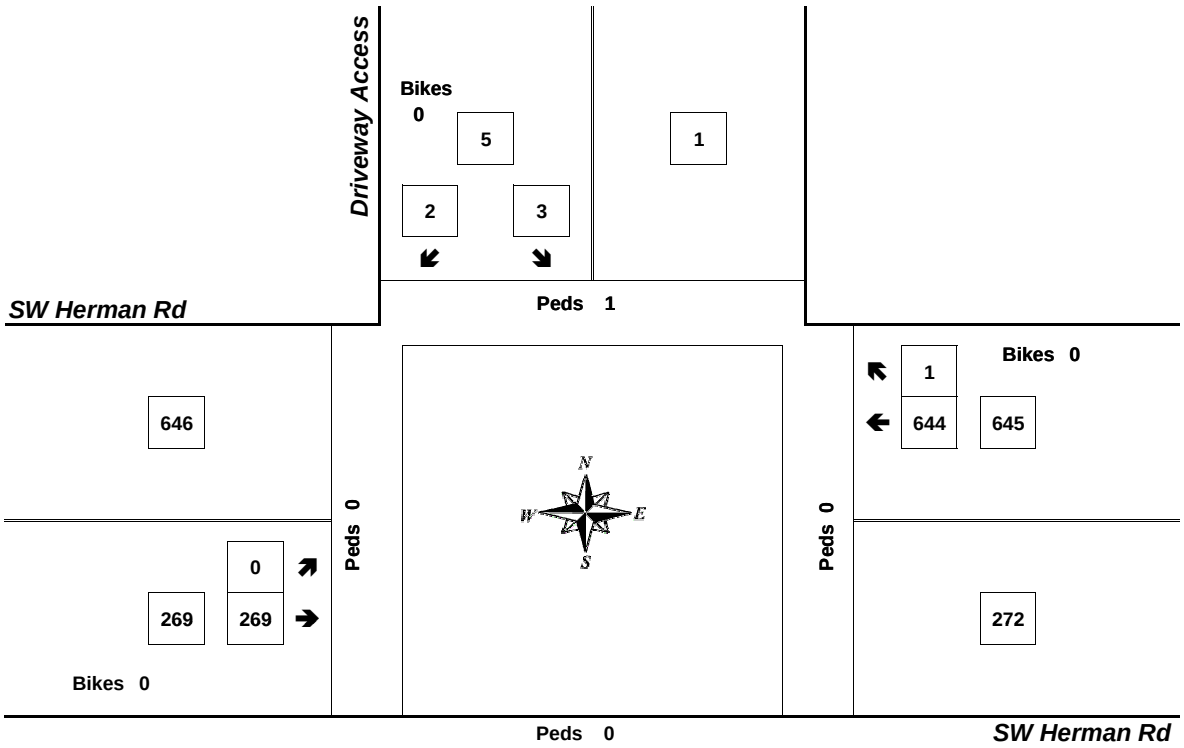
Interval Start Time	Northbound Driveway Access				Southbound Driveway Access				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	0		0	0	0	31		31		55	0	55	86
4:15 PM				0	0		0	0	0	22		22		53	0	53	75
4:30 PM				0	0		0	0	0	17		17		37	0	37	54
4:45 PM				0	0		0	0	0	10		10		29	0	29	39
5:00 PM				0	0		0	0	0	9		9		26	0	26	35

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

Driveway Access & SW Herman Rd

4:25 PM to 5:25 PM
Tuesday, September 15, 2015



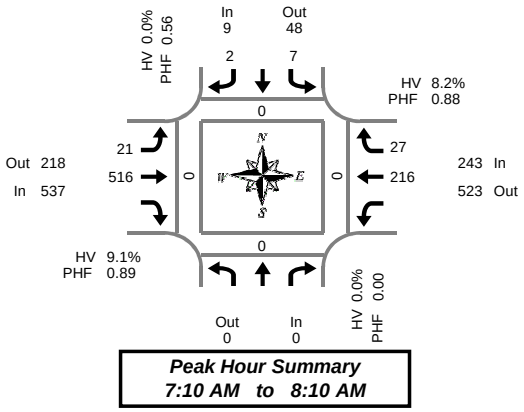
Bikes 0

Approach	PHF	HV%	Volume
EB	0.85	7.1%	269
WB	0.92	6.5%	645
NB	0.00	0.0%	0
SB	0.42	0.0%	5
Intersection	0.93	6.6%	919

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 119th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	1		0	0	5	29		0		17	5	0	57	0	0	0	0
7:05 AM				0	1		2	0	1	33		0		20	2	0	59	0	0	0	0
7:10 AM				0	0		0	0	0	45		0		24	4	0	73	0	0	0	0
7:15 AM				0	1		0	0	0	31		0		11	0	0	43	0	0	0	0
7:20 AM				0	0		1	0	2	44		1		22	3	0	72	0	0	0	0
7:25 AM				0	0		0	0	2	44		0		18	1	1	65	0	0	0	0
7:30 AM				0	0		1	0	2	49		0		23	2	0	77	0	0	0	0
7:35 AM				0	0		0	0	3	51		0		12	3	0	69	0	0	0	0
7:40 AM				0	1		0	0	2	40		0		17	0	1	60	0	0	0	0
7:45 AM				0	0		0	0	1	45		0		11	4	0	61	0	0	0	0
7:50 AM				0	3		0	0	4	38		0		28	2	0	75	0	0	0	0
7:55 AM				0	0		0	0	2	50		0		17	2	0	71	0	0	0	0
8:00 AM				0	0		0	0	2	40		0		13	5	0	60	0	0	0	0
8:05 AM				0	2		0	0	1	39		0		20	1	0	63	0	0	0	0
8:10 AM				0	0		1	0	2	34		0		31	0	0	68	0	0	0	0
8:15 AM				0	1		2	0	0	23		0		15	0	0	41	1	0	0	0
8:20 AM				0	0		0	0	1	29		0		18	0	0	48	0	0	0	0
8:25 AM				0	0		4	0	0	27		1		17	0	0	48	0	0	0	0
8:30 AM				0	0		2	0	0	21		0		15	0	1	38	0	0	0	0
8:35 AM				0	0		0	0	0	8		1		14	0	0	22	0	0	0	0
8:40 AM				0	0		1	0	3	13		0		10	1	0	28	0	0	0	0
8:45 AM				0	1		0	0	1	20		0		18	0	0	40	0	0	0	0
8:50 AM				0	0		0	0	1	23		1		22	0	0	46	0	0	0	0
8:55 AM				0	0		0	0	1	9		0		14	1	0	25	0	0	0	0
Total Survey				0	11		14	0	36	785		4		427	36	3	1,309	1	0	0	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	2		2	0	6	107		0		61	11	0	189	0	0	0	0
7:15 AM				0	1		1	0	4	119		1		51	4	1	180	0	0	0	0
7:30 AM				0	1		1	0	7	140		0		52	5	1	206	0	0	0	0
7:45 AM				0	3		0	0	7	133		0		56	8	0	207	0	0	0	0
8:00 AM				0	2		1	0	5	113		0		64	6	0	191	0	0	0	0
8:15 AM				0	1		6	0	1	79		1		50	0	0	137	1	0	0	0
8:30 AM				0	0		3	0	3	42		1		39	1	1	88	0	0	0	0
8:45 AM				0	1		0	0	3	52		1		54	1	0	111	0	0	0	0
Total Survey				0	11		14	0	36	785		4		427	36	3	1,309	1	0	0	0

Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	9	48	57	0	537	218	755	1	243	523	766	2	789	0	0	0	0
%HV	0.0%				0.0%				9.1%				8.2%				8.7%				
PHF	0.00				0.56				0.89				0.88				0.92				

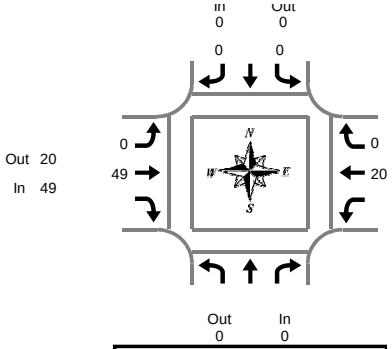
By Movement	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	7		2	9	21	516		537		216	27	243	789
%HV	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	0.0%	9.5%	NA	9.1%	NA	9.3%	0.0%	8.2%	8.7%
PHF				0.00	0.44		0.25	0.56	0.66	0.90		0.89		0.86	0.75	0.88	0.92

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
7:00 AM				0	7		4	0	24	499		1		220	28	2	782	0	0	0	0
7:15 AM				0	7		3	0	23	505		1		223	23	2	784	0	0	0	0
7:30 AM				0	7		8	0	20	465		1		222	19	1	741	1	0	0	0
7:45 AM				0	6		10	0	16	367		2		209	15	1	623	1	0	0	0
8:00 AM				0	4		10	0	12	286		3		207	8	1	527	1	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW 119th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:10 AM to 8:10 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		0	0	0	6		6		3	1	4	10
7:05 AM				0	0		2	2	0	6		6		2	0	2	10
7:10 AM				0	0		0	0	0	5		5		0	0	0	5
7:15 AM				0	0		0	0	0	5		5		1	0	1	6
7:20 AM				0	0		0	0	0	5		5		3	0	3	8
7:25 AM				0	0		0	0	0	2		2		1	0	1	3
7:30 AM				0	0		0	0	0	9		9		5	0	5	14
7:35 AM				0	0		0	0	0	6		6		0	0	0	6
7:40 AM				0	0		0	0	0	3		3		3	0	3	6
7:45 AM				0	0		0	0	0	2		2		0	0	0	2
7:50 AM				0	0		0	0	0	5		5		1	0	1	6
7:55 AM				0	0		0	0	0	2		2		0	0	0	2
8:00 AM				0	0		0	0	0	3		3		2	0	2	5
8:05 AM				0	0		0	0	0	2		2		4	0	4	6
8:10 AM				0	0		0	0	1	0		1		3	0	3	4
8:15 AM				0	0		0	0	0	3		3		0	0	0	3
8:20 AM				0	0		0	0	0	3		3		2	0	2	5
8:25 AM				0	0		0	0	0	2		2		2	0	2	4
8:30 AM				0	0		0	0	0	1		1		4	0	4	5
8:35 AM				0	0		0	0	0	1		1		5	0	5	6
8:40 AM				0	0		1	1	0	2		2		5	0	5	8
8:45 AM				0	0		0	0	0	0		0		8	0	8	8
8:50 AM				0	0		0	0	0	3		3		4	0	4	7
8:55 AM				0	0		0	0	0	0		0		5	0	5	5
Total Survey				0	0		3	3	1	76		77		63	1	64	144

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		2	2	0	17		17		5	1	6	25
7:15 AM				0	0		0	0	0	12		12		5	0	5	17
7:30 AM				0	0		0	0	0	18		18		8	0	8	26
7:45 AM				0	0		0	0	0	9		9		1	0	1	10
8:00 AM				0	0		0	0	1	5		6		9	0	9	15
8:15 AM				0	0		0	0	0	8		8		4	0	4	12
8:30 AM				0	0		1	1	0	4		4		14	0	14	19
8:45 AM				0	0		0	0	0	3		3		17	0	17	20
Total Survey				0	0		3	3	1	76		77		63	1	64	144

Heavy Vehicle Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound SW 119th Ave			Southbound SW 119th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	49	20	69	20	49	69	69
PHF	0.00			0.00			0.68			0.56			0.66

By Movement	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	0		0	0	0	49		49		20	0	20	69
PHF				0.00	0.00		0.00	0.00	0.00	0.68		0.68		0.56	0.00	0.56	0.66

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

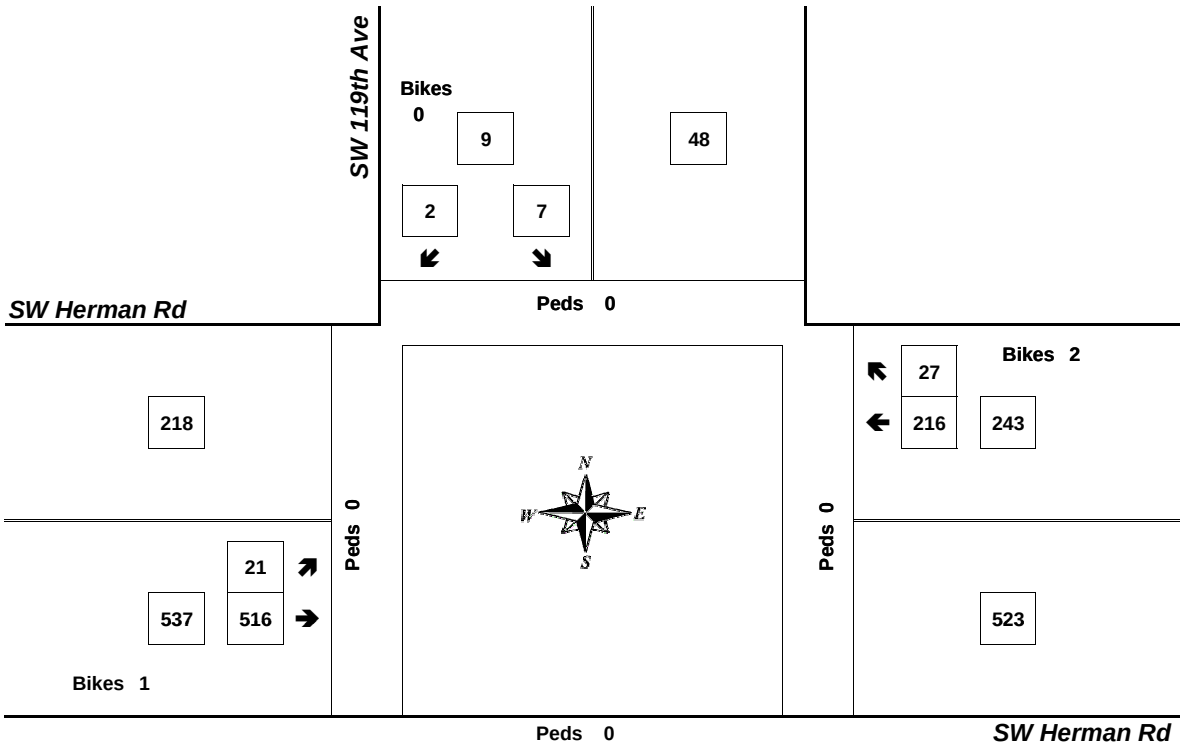
Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
7:00 AM				0	0		2	2	0	56		56		19	1	20	78
7:15 AM				0	0		0	0	1	44		45		23	0	23	68
7:30 AM				0	0		0	0	1	40		41		22	0	22	63
7:45 AM				0	0		1	1	1	26		27		28	0	28	56
8:00 AM				0	0		1	1	1	20		21		44	0	44	66

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

SW 119th Ave & SW Herman Rd

7:10 AM to 8:10 AM
Thursday, September 10, 2015

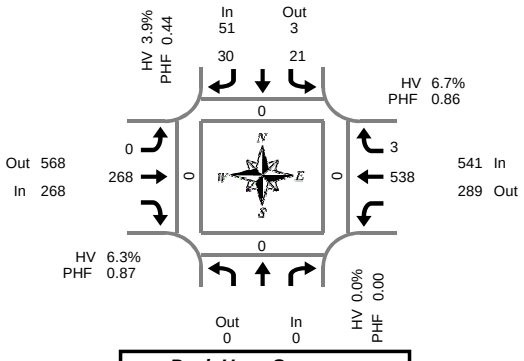


Approach	PHF	HV%	Volume
EB	0.89	9.1%	537
WB	0.88	8.2%	243
NB	0.00	0.0%	0
SB	0.56	0.0%	9
Intersection	0.92	8.7%	789

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:25 PM to 5:25 PM

SW 119th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	5		2	0	0	38		0		30	0	0	75	0	0	0	0
4:05 PM				0	2		3	0	0	41		0		33	0	0	79	0	0	0	0
4:10 PM				0	0		0	0	0	20		0		34	0	0	54	0	0	0	0
4:15 PM				0	0		1	0	0	20		0		40	0	0	61	0	0	0	0
4:20 PM				0	0		0	0	0	22		0		36	3	0	61	0	0	0	0
4:25 PM				0	0		0	0	0	14		0		36	0	0	50	0	0	0	0
4:30 PM				0	6		8	0	0	26		0		31	0	0	71	0	0	0	0
4:35 PM				0	4		4	0	0	29		1		55	0	0	92	0	0	0	0
4:40 PM				0	4		3	0	0	21		0		65	0	0	93	0	0	0	0
4:45 PM				0	1		2	0	0	25		0		37	1	0	66	0	0	0	0
4:50 PM				0	2		2	0	0	30		0		46	1	0	81	0	0	0	0
4:55 PM				0	2		0	0	0	16		0		38	1	0	57	0	0	0	0
5:00 PM				0	0		1	0	0	26		0		50	0	0	77	0	0	0	0
5:05 PM				0	0		4	0	0	33		0		41	0	0	78	0	0	0	0
5:10 PM				0	2		3	0	0	18		0		37	0	1	60	0	0	0	0
5:15 PM				0	0		3	0	0	16		0		51	0	0	70	0	0	0	0
5:20 PM				0	0		0	0	0	14		0		51	0	0	65	0	0	0	0
5:25 PM				0	0		2	0	0	13		0		32	0	0	47	0	0	0	0
5:30 PM				0	0		1	0	0	14		0		55	0	0	70	0	0	0	0
5:35 PM				0	0		1	0	0	14		0		30	0	0	45	0	0	0	0
5:40 PM				0	3		1	0	1	14		0		35	0	0	54	0	0	0	0
5:45 PM				0	0		1	0	0	8		0		30	0	0	39	0	0	0	0
5:50 PM				0	1		0	0	0	9		1		27	0	1	37	0	0	0	0
5:55 PM				0	3		0	0	0	13		0		31	0	0	47	0	0	0	0
Total Survey				0	35		42	0	1	494		2		951	6	2	1,529	0	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	7		5	0	0	99		0		97	0	0	208	0	0	0	0
4:15 PM				0	0		1	0	0	56		0		112	3	0	172	0	0	0	0
4:30 PM				0	14		15	0	0	76		1		151	0	0	256	0	0	0	0
4:45 PM				0	5		4	0	0	71		0		121	3	0	204	0	0	0	0
5:00 PM				0	2		8	0	0	77		0		128	0	1	215	0	0	0	0
5:15 PM				0	0		5	0	0	43		0		134	0	0	182	0	0	0	0
5:30 PM				0	3		3	0	1	42		0		120	0	0	169	0	0	0	0
5:45 PM				0	4		1	0	0	30		1		88	0	1	123	0	0	0	0
Total Survey				0	35		42	0	1	494		2		951	6	2	1,529	0	0	0	0

Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	51	3	54	0	268	568	836	1	541	289	830	1	860	0	0	0	0
%HV	0.0%				3.9%				6.3%				6.7%				6.4%				
PHF	0.00				0.44				0.87				0.86				0.84				

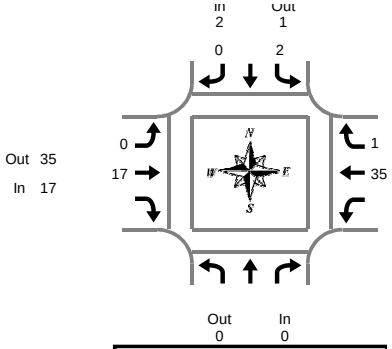
By Movement	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	21		30	51	0	268		268		538	3	541	860
%HV	NA	NA	NA	0.0%	9.5%	NA	0.0%	3.9%	0.0%	6.3%	NA	6.3%	NA	6.5%	33.3%	6.7%	6.4%
PHF				0.00	0.38		0.50	0.44	0.00	0.87		0.87		0.86	0.25	0.86	0.84

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
				Bikes	L		R	Bikes	L	T		Bikes		T	R	Bikes		North	South	East	West
4:00 PM				0	26		25	0	0	302		1		481	6	0	840	0	0	0	0
4:15 PM				0	21		28	0	0	280		1		512	6	1	847	0	0	0	0
4:30 PM				0	21		32	0	0	267		1		534	3	1	857	0	0	0	0
4:45 PM				0	10		20	0	1	233		0		503	3	1	770	0	0	0	0
5:00 PM				0	9		17	0	1	192		1		470	0	2	689	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:25 PM to 5:25 PM

SW 119th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	0		0	0	0	3		3		3	0	3	6
4:05 PM				0	0		0	0	0	2		2		3	0	3	5
4:10 PM				0	0		0	0	0	1		1		5	0	5	6
4:15 PM				0	0		0	0	0	1		1		4	0	4	5
4:20 PM				0	0		0	0	0	1		1		1	1	2	3
4:25 PM				0	0		0	0	0	1		1		4	0	4	5
4:30 PM				0	0		0	0	0	1		1		7	0	7	8
4:35 PM				0	0		0	0	0	2		2		5	0	5	7
4:40 PM				0	1		0	1	0	0		0		3	0	3	4
4:45 PM				0	0		0	0	0	2		2		0	0	0	2
4:50 PM				0	1		0	1	0	3		3		4	1	5	9
4:55 PM				0	0		0	0	0	3		3		2	0	2	5
5:00 PM				0	0		0	0	0	1		1		4	0	4	5
5:05 PM				0	0		0	0	0	0		0		1	0	1	1
5:10 PM				0	0		0	0	0	2		2		0	0	0	2
5:15 PM				0	0		0	0	0	2		2		2	0	2	4
5:20 PM				0	0		0	0	0	0		0		3	0	3	3
5:25 PM				0	0		0	0	0	2		2		2	0	2	4
5:30 PM				0	0		0	0	0	2		2		2	0	2	4
5:35 PM				0	0		0	0	0	0		0		2	0	2	2
5:40 PM				0	0		0	0	0	1		1		0	0	0	1
5:45 PM				0	0		0	0	0	1		1		3	0	3	4
5:50 PM				0	0		0	0	0	2		2		2	0	2	4
5:55 PM				0	0		0	0	0	2		2		2	0	2	4
Total Survey				0	2		0	2	0	35		35		64	2	66	103

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	0		0	0	0	6		6		11	0	11	17
4:15 PM				0	0		0	0	0	3		3		9	1	10	13
4:30 PM				0	1		0	1	0	3		3		15	0	15	19
4:45 PM				0	1		0	1	0	8		8		6	1	7	16
5:00 PM				0	0		0	0	0	3		3		5	0	5	8
5:15 PM				0	0		0	0	0	4		4		7	0	7	11
5:30 PM				0	0		0	0	0	3		3		4	0	4	7
5:45 PM				0	0		0	0	0	5		5		7	0	7	12
Total Survey				0	2		0	2	0	35		35		64	2	66	103

Heavy Vehicle Peak Hour Summary
4:25 PM to 5:25 PM

By Approach	Northbound SW 119th Ave			Southbound SW 119th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	2	1	3	17	35	52	36	19	55	55
PHF	0.00			0.25			0.53			0.56			0.69

By Movement	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
				Total	L		R	Total	L	T		Total		T	R	Total	
Volume				0	2		0	2	0	17		17		35	1	36	55
PHF				0.00	0.25		0.00	0.25	0.00	0.53		0.53		0.55	0.25	0.56	0.69

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

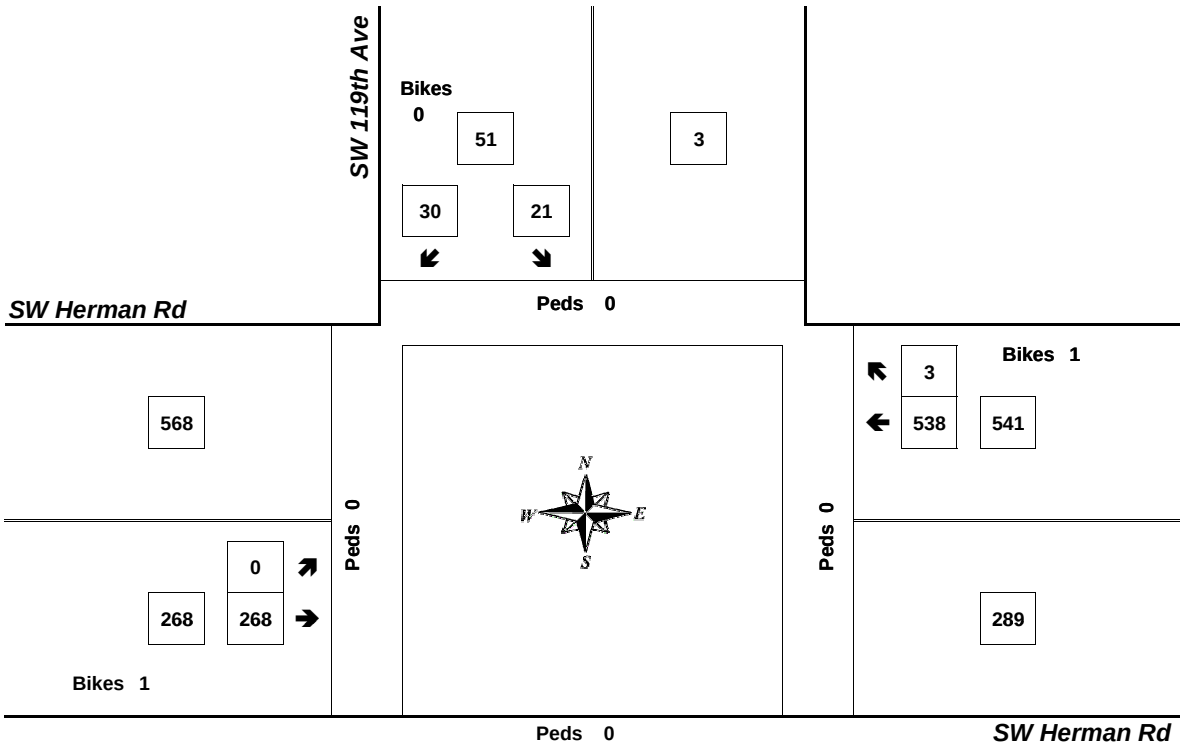
Interval Start Time	Northbound SW 119th Ave				Southbound SW 119th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
				Total	L		R	Total	L	T		Total		T	R	Total	
4:00 PM				0	2		0	2	0	20		20		41	2	43	65
4:15 PM				0	2		0	2	0	17		17		35	2	37	56
4:30 PM				0	2		0	2	0	18		18		33	1	34	54
4:45 PM				0	1		0	1	0	18		18		22	1	23	42
5:00 PM				0	0		0	0	0	15		15		23	0	23	38

Peak Hour Summary

Clay Carney
(503) 833-2740

SW 119th Ave & SW Herman Rd

4:25 PM to 5:25 PM
Wednesday, September 09, 2015



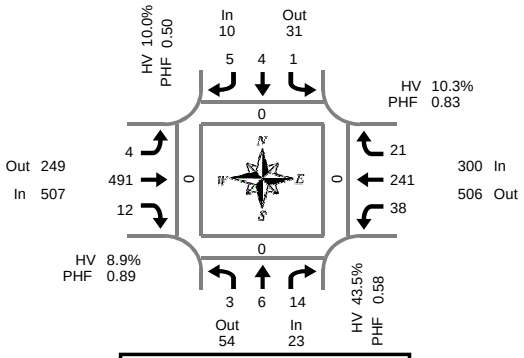
Bikes
0

Approach	PHF	HV%	Volume
EB	0.87	6.3%	268
WB	0.86	6.7%	541
NB	0.00	0.0%	0
SB	0.44	3.9%	51
Intersection	0.84	6.4%	860

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:15 AM to 8:15 AM

SW 118th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	1	0	0	0	0	0	0	27	2	0	4	20	1	0	55	0	0	0	0
7:05 AM	1	0	1	0	0	0	0	0	1	31	4	0	3	22	1	0	64	0	0	0	0
7:10 AM	0	0	3	0	0	0	0	0	0	40	1	0	0	26	0	0	70	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	37	0	1	3	11	2	0	53	0	0	0	0
7:20 AM	0	1	0	1	0	0	0	0	0	40	0	1	6	25	1	0	73	0	0	0	0
7:25 AM	1	0	0	0	0	2	0	0	0	42	0	0	5	23	1	1	74	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	1	46	3	0	5	22	2	0	80	0	0	0	0
7:35 AM	1	1	2	0	0	1	0	0	1	48	1	0	5	13	0	0	73	0	0	0	0
7:40 AM	0	0	1	0	0	0	0	0	0	38	1	0	1	16	4	1	61	0	0	0	0
7:45 AM	0	1	4	0	0	0	1	0	0	44	1	0	2	15	5	0	73	0	0	0	0
7:50 AM	0	0	1	0	0	0	0	0	1	38	1	0	4	29	0	0	74	0	0	0	0
7:55 AM	0	0	1	0	0	0	1	0	0	49	2	0	2	22	0	0	77	0	0	0	0
8:00 AM	1	0	2	0	0	0	2	0	0	38	0	0	1	14	2	0	60	0	0	0	0
8:05 AM	0	2	3	0	0	0	0	0	1	36	2	0	2	22	2	0	70	0	0	0	0
8:10 AM	0	0	0	0	1	1	1	0	0	35	1	0	2	29	2	0	72	0	0	0	0
8:15 AM	0	0	3	0	1	0	0	0	0	23	0	0	1	15	1	0	44	0	0	0	0
8:20 AM	0	0	1	0	0	0	0	0	0	28	1	0	0	15	1	0	46	0	0	0	0
8:25 AM	0	0	2	0	0	0	0	0	0	24	0	1	2	18	2	0	48	0	0	0	0
8:30 AM	0	0	0	0	2	0	0	0	1	19	1	0	0	18	2	1	43	0	0	0	0
8:35 AM	1	0	0	0	0	0	0	0	0	9	0	1	0	9	2	0	21	0	0	0	0
8:40 AM	0	0	1	0	0	1	0	0	3	10	1	0	2	13	0	0	31	0	0	0	0
8:45 AM	0	0	1	0	1	0	1	0	1	20	0	0	2	17	0	0	43	0	0	0	0
8:50 AM	0	0	2	0	1	0	0	0	1	24	0	1	1	23	1	0	53	0	0	0	0
8:55 AM	0	0	2	0	1	0	1	0	1	5	0	0	6	12	0	0	28	0	0	0	0
Total Survey	5	6	31	1	7	5	7	0	12	751	22	5	59	449	32	3	1,386	0	0	0	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	1	0	5	0	0	0	0	0	1	98	7	0	7	68	2	0	189	0	0	0	0
7:15 AM	1	1	0	1	0	2	0	0	0	119	0	2	14	59	4	1	200	0	0	0	0
7:30 AM	1	2	3	0	0	1	0	0	2	132	5	0	11	51	6	1	214	0	0	0	0
7:45 AM	0	1	6	0	0	0	2	0	1	131	4	0	8	66	5	0	224	0	0	0	0
8:00 AM	1	2	5	0	1	1	3	0	1	109	3	0	5	65	6	0	202	0	0	0	0
8:15 AM	0	0	6	0	1	0	0	0	0	75	1	1	3	48	4	0	138	0	0	0	0
8:30 AM	1	0	1	0	2	1	0	0	4	38	2	1	2	40	4	1	95	0	0	0	0
8:45 AM	0	0	5	0	3	0	2	0	3	49	0	1	9	52	1	0	124	0	0	0	0
Total Survey	5	6	31	1	7	5	7	0	12	751	22	5	59	449	32	3	1,386	0	0	0	0

Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	23	54	77	1	10	31	41	0	507	249	756	2	300	506	806	2	840	0	0	0	0
%HV	43.5%				10.0%				8.9%				10.3%				10.4%				
PHF	0.58				0.50				0.89				0.83				0.93				

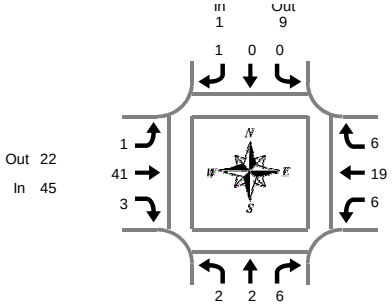
By Movement	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	3	6	14	23	1	4	5	10	4	491	12	507	38	241	21	300	840
%HV	66.7%	33.3%	42.9%	43.5%	0.0%	0.0%	20.0%	10.0%	25.0%	8.4%	25.0%	8.9%	15.8%	7.9%	28.6%	10.3%	10.4%
PHF	0.38	0.75	0.50	0.58	0.25	0.33	0.42	0.50	0.50	0.90	0.60	0.89	0.59	0.86	0.58	0.83	0.93

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	3	4	14	1	0	3	2	0	4	480	16	2	40	244	17	2	827	0	0	0	0
7:15 AM	3	6	14	1	1	4	5	0	4	491	12	2	38	241	21	2	840	0	0	0	0
7:30 AM	2	5	20	0	2	2	5	0	4	447	13	1	27	230	21	1	778	0	0	0	0
7:45 AM	2	3	18	0	4	2	5	0	6	353	10	2	18	219	19	1	659	0	0	0	0
8:00 AM	2	2	17	0	7	2	5	0	8	271	6	3	19	205	15	1	559	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 118th Ave & SW Herman Rd

Thursday, September 10, 2015
7:00 AM to 9:00 AM

Peak Hour Summary
7:15 AM to 8:15 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	0	1	1	0	0	0	0	0	5	1	6	0	3	0	3	10
7:05 AM	1	0	0	1	0	0	0	0	1	3	2	6	2	1	0	3	10
7:10 AM	0	0	2	2	0	0	0	0	0	6	0	6	0	0	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	5	0	5	1	1	1	3	8
7:20 AM	0	1	0	1	0	0	0	0	0	4	0	4	0	3	1	4	9
7:25 AM	1	0	0	1	0	0	0	0	0	2	0	2	0	2	0	2	5
7:30 AM	0	0	0	0	0	0	0	0	1	8	0	9	1	3	0	4	13
7:35 AM	0	0	2	2	0	0	0	0	0	5	1	6	0	1	0	1	9
7:40 AM	0	0	1	1	0	0	0	0	0	4	0	4	0	1	0	1	6
7:45 AM	0	1	1	2	0	0	0	0	0	2	0	2	1	0	2	3	7
7:50 AM	0	0	0	0	0	0	0	0	0	4	1	5	0	1	0	1	6
7:55 AM	0	0	1	1	0	0	1	1	0	2	0	2	1	0	0	1	5
8:00 AM	1	0	1	2	0	0	0	0	0	3	0	3	1	0	1	2	7
8:05 AM	0	0	0	0	0	0	0	0	0	1	1	2	1	4	1	6	8
8:10 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	3	4
8:15 AM	0	0	2	2	0	0	0	0	0	2	0	2	1	0	0	1	5
8:20 AM	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	3	6
8:25 AM	0	0	1	1	0	0	0	0	0	2	0	2	0	3	0	3	6
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	3	4
8:35 AM	1	0	0	1	0	0	0	0	0	2	0	2	0	4	0	4	7
8:40 AM	0	0	0	0	0	1	0	1	0	1	0	1	0	6	0	6	8
8:45 AM	0	0	0	0	0	0	1	1	0	0	0	0	1	6	0	7	8
8:50 AM	0	0	0	0	1	0	0	1	0	3	0	3	0	3	0	3	7
8:55 AM	0	0	2	2	0	0	0	0	0	0	0	0	2	5	0	7	9
Total Survey	4	2	14	20	1	1	2	4	2	68	7	77	12	56	6	74	175

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	0	3	4	0	0	0	0	1	14	3	18	2	4	0	6	28
7:15 AM	1	1	0	2	0	0	0	0	0	11	0	11	1	6	2	9	22
7:30 AM	0	0	3	3	0	0	0	0	1	17	1	19	1	5	0	6	28
7:45 AM	0	1	2	3	0	0	1	1	0	8	1	9	2	1	2	5	18
8:00 AM	1	0	1	2	0	0	0	0	0	5	1	6	2	7	2	11	19
8:15 AM	0	0	3	3	0	0	0	0	0	7	0	7	1	6	0	7	17
8:30 AM	1	0	0	1	0	1	0	1	0	3	1	4	0	13	0	13	19
8:45 AM	0	0	2	2	1	0	1	2	0	3	0	3	3	14	0	17	24
Total Survey	4	2	14	20	1	1	2	4	2	68	7	77	12	56	6	74	175

Heavy Vehicle Peak Hour Summary
7:15 AM to 8:15 AM

By Approach	Northbound SW 118th Ave			Southbound SW 118th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	10	9	19	1	9	10	45	22	67	31	47	78	87
PHF	0.50			0.25			0.59			0.70			0.78

By Movement	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	2	6	10	0	0	1	1	1	41	3	45	6	19	6	31	87
PHF	0.50	0.50	0.38	0.50	0.00	0.00	0.25	0.25	0.25	0.60	0.75	0.59	0.50	0.59	0.75	0.70	0.78

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

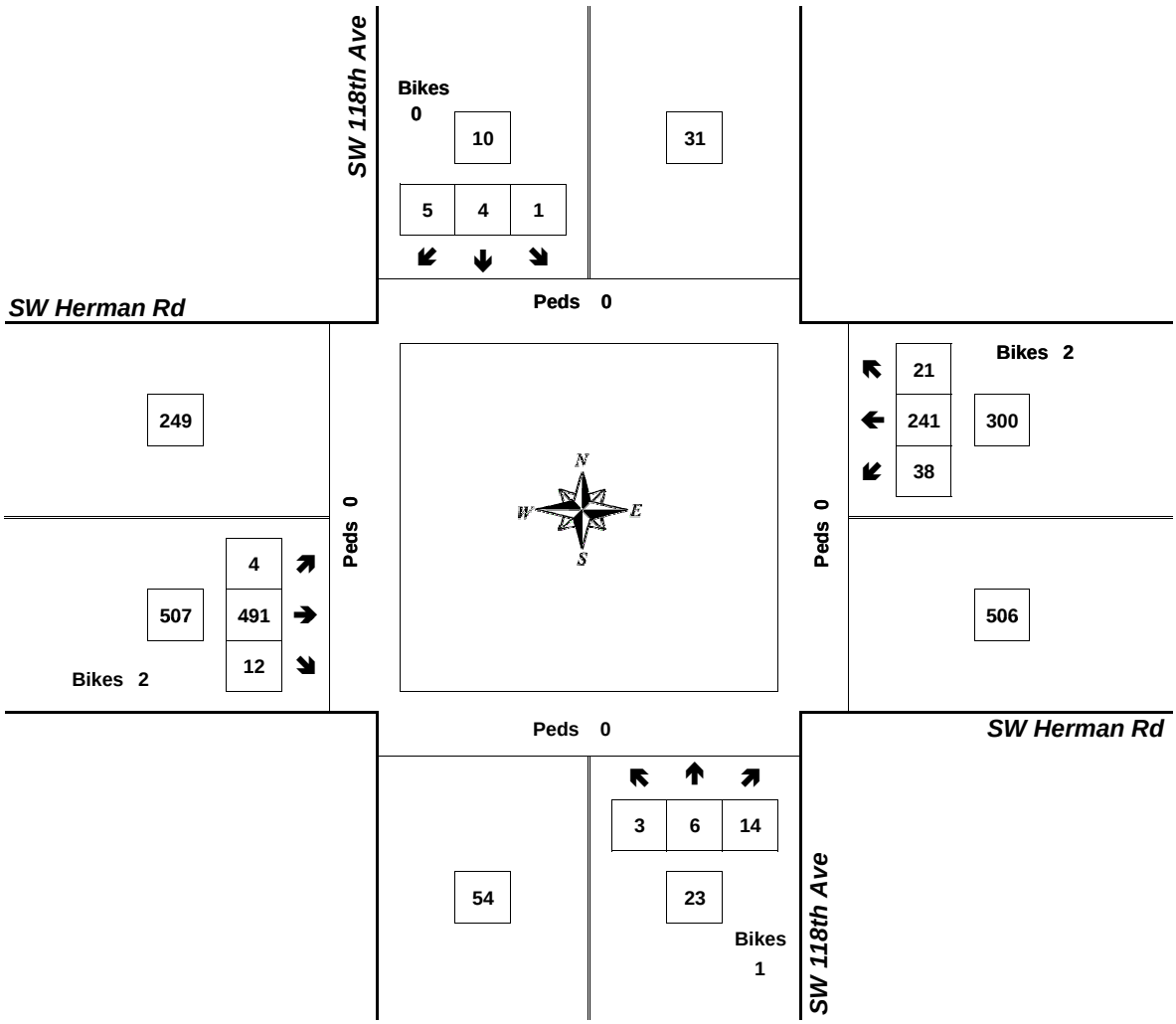
Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	2	2	8	12	0	0	1	1	2	50	5	57	6	16	4	26	96
7:15 AM	2	2	6	10	0	0	1	1	1	41	3	45	6	19	6	31	87
7:30 AM	1	1	9	11	0	0	1	1	1	37	3	41	6	19	4	29	82
7:45 AM	2	1	6	9	0	1	1	2	0	23	3	26	5	27	4	36	73
8:00 AM	2	0	6	8	1	1	1	3	0	18	2	20	6	40	2	48	79

Peak Hour Summary

Clay Carney
(503) 833-2740

SW 118th Ave & SW Herman Rd

7:15 AM to 8:15 AM
Thursday, September 10, 2015

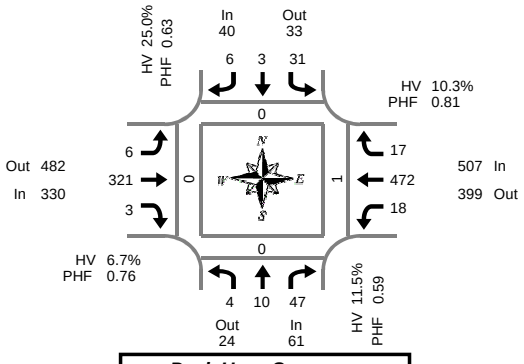


Approach	PHF	HV%	Volume
EB	0.89	8.9%	507
WB	0.83	10.3%	300
NB	0.58	43.5%	23
SB	0.50	10.0%	10
Intersection	0.93	10.4%	840

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:00 PM to 5:00 PM

SW 118th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	1	7	0	2	2	0	0	0	47	0	0	1	32	1	0	93	0	0	0	0
4:05 PM	0	0	9	0	6	0	1	0	1	39	0	0	1	28	3	0	88	0	0	0	0
4:10 PM	2	2	5	0	3	1	0	0	0	21	0	0	2	35	1	0	72	0	0	0	0
4:15 PM	0	0	2	0	3	0	2	0	1	18	0	0	2	32	1	0	61	0	0	0	0
4:20 PM	0	0	2	0	4	0	1	0	0	23	0	0	2	41	2	0	75	0	0	0	0
4:25 PM	0	1	5	0	3	0	0	0	0	14	0	0	2	32	0	0	57	0	0	0	0
4:30 PM	0	2	5	0	1	0	0	0	2	30	0	0	2	39	5	0	86	0	0	0	0
4:35 PM	0	3	1	0	2	0	1	0	1	35	0	1	0	53	1	0	97	0	0	0	0
4:40 PM	0	1	4	0	2	0	0	0	0	24	0	0	1	56	0	0	88	0	0	0	0
4:45 PM	0	0	5	0	2	0	1	0	0	23	2	0	2	39	1	0	75	0	0	1	0
4:50 PM	0	0	1	0	1	0	0	0	1	30	0	0	3	42	2	0	80	0	0	0	0
4:55 PM	2	0	1	0	2	0	0	0	0	17	1	0	0	43	0	0	66	0	0	0	0
5:00 PM	1	0	4	0	1	0	0	0	2	25	0	0	1	45	1	0	80	0	0	0	0
5:05 PM	0	3	2	0	6	0	1	0	0	32	0	0	1	37	2	0	84	0	0	0	0
5:10 PM	0	1	1	0	2	0	0	0	0	21	0	0	1	39	1	1	66	0	0	0	0
5:15 PM	1	0	2	0	1	0	0	0	0	16	0	0	3	54	0	0	77	0	0	0	0
5:20 PM	0	2	5	1	1	0	0	0	0	14	0	0	1	46	1	0	70	0	0	0	0
5:25 PM	2	2	2	0	2	1	0	0	1	12	0	0	1	32	0	0	55	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	1	13	0	0	1	51	2	0	68	0	0	0	0
5:35 PM	1	0	2	0	3	0	0	0	0	13	0	0	1	34	0	0	54	0	0	0	0
5:40 PM	0	2	3	0	0	0	3	0	0	18	0	0	2	29	0	0	57	0	0	0	0
5:45 PM	1	0	2	0	1	0	0	0	0	7	0	0	1	28	1	0	41	0	0	0	0
5:50 PM	0	1	1	0	1	0	0	0	0	11	0	1	0	27	0	1	41	0	0	0	0
5:55 PM	1	1	0	0	0	0	0	0	0	16	0	0	0	33	2	0	53	0	0	0	0
Total Survey	11	22	71	1	49	4	10	0	10	519	3	2	31	927	27	2	1,684	0	0	1	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	3	21	0	11	3	1	0	1	107	0	0	4	95	5	0	253	0	0	0	0
4:15 PM	0	1	9	0	10	0	3	0	1	55	0	0	6	105	3	0	193	0	0	0	0
4:30 PM	0	6	10	0	5	0	1	0	3	89	0	1	3	148	6	0	271	0	0	0	0
4:45 PM	2	0	7	0	5	0	1	0	1	70	3	0	5	124	3	0	221	0	0	1	0
5:00 PM	1	4	7	0	9	0	1	0	2	78	0	0	3	121	4	1	230	0	0	0	0
5:15 PM	3	4	9	1	4	1	0	0	1	42	0	0	5	132	1	0	202	0	0	0	0
5:30 PM	1	2	5	0	3	0	3	0	1	44	0	0	4	114	2	0	179	0	0	0	0
5:45 PM	2	2	3	0	2	0	0	0	0	34	0	1	1	88	3	1	135	0	0	0	0
Total Survey	11	22	71	1	49	4	10	0	10	519	3	2	31	927	27	2	1,684	0	0	1	0

Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	61	24	85	0	40	33	73	0	330	482	812	1	507	399	906	0	938	0	0	1	0
%HV	11.5%				25.0%				6.7%				10.3%				9.7%				
PHF	0.59				0.63				0.76				0.81				0.87				

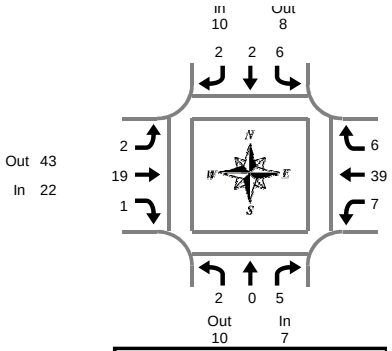
By Movement	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	10	47	61	31	3	6	40	6	321	3	330	18	472	17	507	938
%HV	50.0%	0.0%	10.6%	11.5%	19.4%	66.7%	33.3%	25.0%	33.3%	5.9%	33.3%	6.7%	38.9%	8.3%	35.3%	10.3%	9.7%
PHF	0.50	0.42	0.56	0.59	0.65	0.25	0.50	0.63	0.50	0.75	0.25	0.76	0.75	0.80	0.61	0.81	0.87

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	4	10	47	0	31	3	6	0	6	321	3	1	18	472	17	0	938	0	0	1	0
4:15 PM	3	11	33	0	29	0	6	0	7	292	3	1	17	498	16	1	915	0	0	1	0
4:30 PM	6	14	33	1	23	1	3	0	7	279	3	1	16	525	14	1	924	0	0	1	0
4:45 PM	7	10	28	1	21	1	5	0	5	234	3	0	17	491	10	1	832	0	0	1	0
5:00 PM	7	12	24	1	18	1	4	0	4	198	0	1	13	455	10	2	746	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 118th Ave & SW Herman Rd

Wednesday, September 09, 2015
4:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	2	0	2	0	3	0	3	0	2	0	2	7
4:05 PM	0	0	1	1	0	0	0	0	0	2	0	2	1	3	2	6	9
4:10 PM	1	0	1	2	2	0	0	2	0	1	0	1	1	4	1	6	11
4:15 PM	0	0	1	1	1	0	1	2	0	1	0	1	1	3	1	5	9
4:20 PM	0	0	0	0	2	0	0	2	0	1	0	1	0	2	1	3	6
4:25 PM	0	0	1	1	0	0	0	0	0	1	0	1	0	5	0	5	7
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	6	1	8	9
4:35 PM	0	0	1	1	0	0	1	1	1	1	0	2	0	5	0	5	9
4:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	2	0	3	4
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
4:50 PM	0	0	0	0	1	0	0	1	1	3	0	4	2	4	0	6	11
4:55 PM	1	0	0	1	0	0	0	0	0	2	1	3	0	2	0	2	6
5:00 PM	0	0	1	1	1	0	0	1	1	0	0	1	0	4	1	5	8
5:05 PM	0	0	0	0	1	0	0	1	0	0	0	0	1	2	0	3	4
5:10 PM	0	0	0	0	1	0	0	1	0	2	0	2	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
5:20 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
5:25 PM	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	4
5:30 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	1	3
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
5:40 PM	0	0	0	0	0	0	0	0	0	2	0	2	1	0	0	1	3
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	2	0	3	4
5:50 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
5:55 PM	1	0	0	1	0	0	0	0	0	2	0	2	0	1	0	1	4
Total Survey	4	0	6	10	9	3	2	14	4	33	1	38	10	56	7	73	135

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	2	3	2	2	0	4	0	6	0	6	2	9	3	14	27
4:15 PM	0	0	2	2	3	0	1	4	0	3	0	3	1	10	2	13	22
4:30 PM	0	0	1	1	0	0	1	1	1	3	0	4	2	13	1	16	22
4:45 PM	1	0	0	1	1	0	0	1	1	7	1	9	2	7	0	9	20
5:00 PM	0	0	1	1	3	0	0	3	1	2	0	3	1	6	1	8	15
5:15 PM	1	0	0	1	0	1	0	1	0	4	0	4	0	4	0	4	10
5:30 PM	0	0	0	0	0	0	0	0	1	3	0	4	1	3	0	4	8
5:45 PM	1	0	0	1	0	0	0	0	0	5	0	5	1	4	0	5	11
Total Survey	4	0	6	10	9	3	2	14	4	33	1	38	10	56	7	73	135

Heavy Vehicle Peak Hour Summary
4:00 PM to 5:00 PM

By Approach	Northbound SW 118th Ave			Southbound SW 118th Ave			Eastbound SW Herman Rd			Westbound SW Herman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	7	10	17	10	8	18	22	43	65	52	30	82	91
PHF	0.44			0.42			0.61			0.72			0.78

By Movement	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	0	5	7	6	2	2	10	2	19	1	22	7	39	6	52	91
PHF	0.50	0.00	0.42	0.44	0.30	0.25	0.50	0.42	0.50	0.68	0.25	0.61	0.58	0.61	0.38	0.72	0.78

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

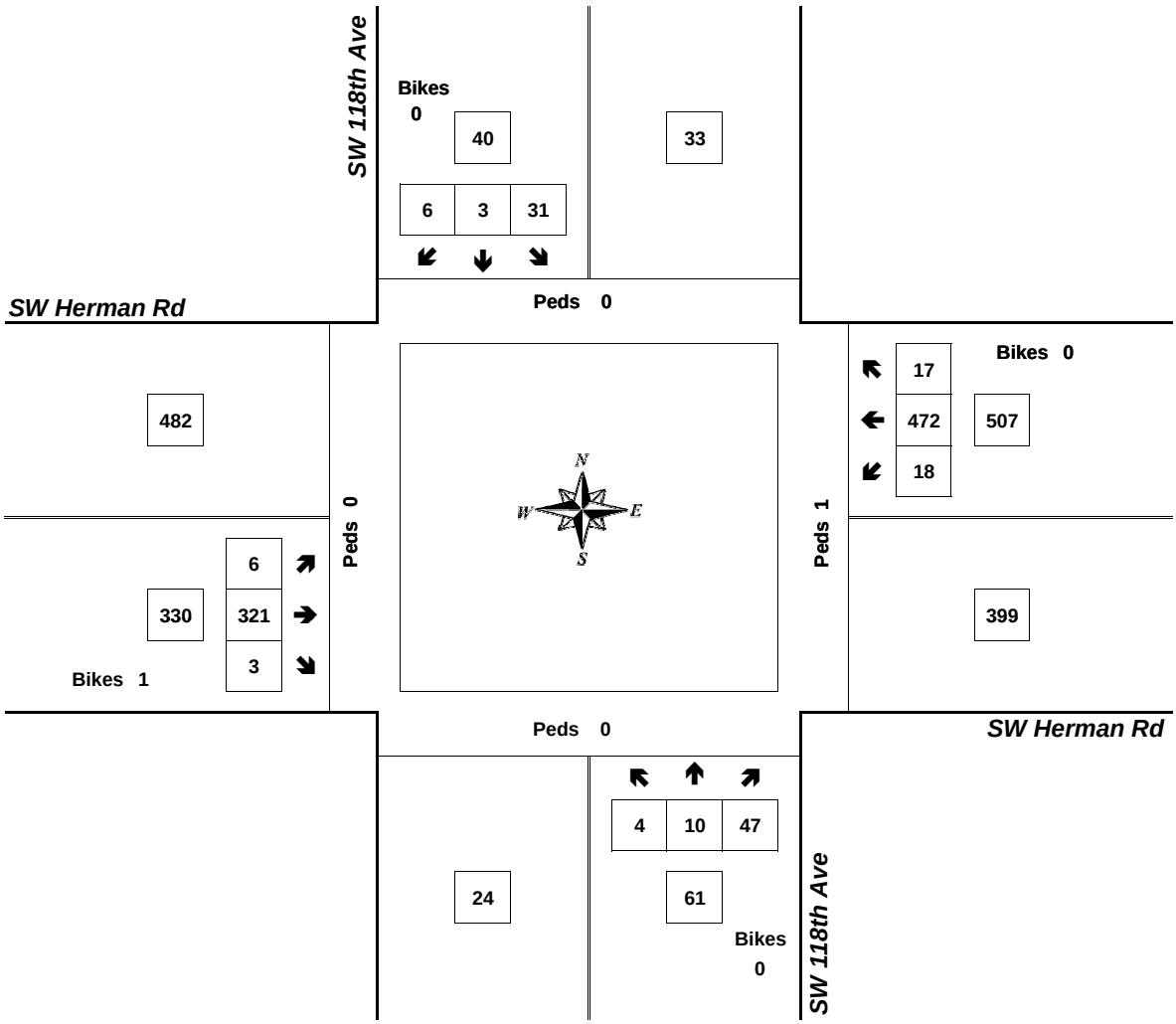
Interval Start Time	Northbound SW 118th Ave				Southbound SW 118th Ave				Eastbound SW Herman Rd				Westbound SW Herman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	0	5	7	6	2	2	10	2	19	1	22	7	39	6	52	91
4:15 PM	1	0	4	5	7	0	2	9	3	15	1	19	6	36	4	46	79
4:30 PM	2	0	2	4	4	1	1	6	3	16	1	20	5	30	2	37	67
4:45 PM	2	0	1	3	4	1	0	5	3	16	1	20	4	20	1	25	53
5:00 PM	2	0	1	3	3	1	0	4	2	14	0	16	3	17	1	21	44

Peak Hour Summary

Clay Carney
(503) 833-2740

SW 118th Ave & SW Herman Rd

4:00 PM to 5:00 PM
Wednesday, September 09, 2015



Approach	PHF	HV%	Volume
EB	0.76	6.7%	330
WB	0.81	10.3%	507
NB	0.59	11.5%	61
SB	0.63	25.0%	40
Intersection	0.87	9.7%	938

Count Period: 4:00 PM to 6:00 PM

TRIP GENERATION CALCULATIONS

Land Use: General Light Industrial
Land Use Code: 110
Variable: 1,000 Square Feet
Variable Quantity: 25

AM PEAK HOUR

Trip Rate: 0.92

	Enter	Exit	Total
Directional Distribution	88%	12%	
Trip Ends	**20**	**3**	**23**

PM PEAK HOUR

Trip Rate: 0.97

	Enter	Exit	Total
Directional Distribution	12%	88%	
Trip Ends	**3**	**21**	**24**

WEEKDAY

Trip Rate: 6.97

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**87**	**87**	**174**

SATURDAY

Trip Rate: 1.32

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**17**	**17**	**34**

Source: TRIP GENERATION, Ninth Edition

LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

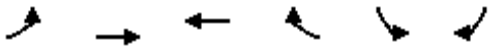
Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	24	327	156	55	19	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	355	170	60	21	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	229				607	199
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190				587	159
tC, single (s)	4.2				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.5
p0 queue free %	98				95	99
cM capacity (veh/h)	1256				409	794

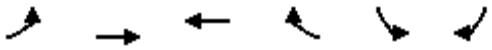
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	382	229	28
Volume Left	26	0	21
Volume Right	0	60	8
cSH	1256	1700	470
Volume to Capacity	0.02	0.13	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	0.7	0.0	13.1
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	13.1
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1611	1696	1421	1641	1727	1448	1612	3119		1749	3400	
Flt Permitted	0.65	1.00	1.00	0.38	1.00	1.00	0.56	1.00		0.66	1.00	
Satd. Flow (perm)	1100	1696	1421	657	1727	1448	952	3119		1207	3400	
Volume (vph)	42	290	14	47	132	39	28	113	28	222	241	51
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	45	312	15	51	142	42	30	122	30	239	259	55
RTOR Reduction (vph)	0	0	5	0	0	32	0	15	0	0	25	0
Lane Group Flow (vph)	45	312	10	51	142	10	30	137	0	239	289	0
Confl. Peds. (#/hr)	1					1			2	2		
Confl. Bikes (#/hr)			3			1			1			1
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	12%	12%	12%	3%	3%	3%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	19.0	15.3	15.3	18.2	14.9	14.9	29.4	29.4		29.4	29.4	
Effective Green, g (s)	19.0	15.3	15.3	18.2	14.9	14.9	29.4	29.4		29.4	29.4	
Actuated g/C Ratio	0.32	0.26	0.26	0.30	0.25	0.25	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	380	432	362	253	429	360	466	1528		591	1666	
v/s Ratio Prot	0.01	c0.18		c0.01	0.08			0.04			0.08	
v/s Ratio Perm	0.03		0.01	0.05		0.01	0.03			c0.20		
v/c Ratio	0.12	0.72	0.03	0.20	0.33	0.03	0.06	0.09		0.40	0.17	
Uniform Delay, d1	14.4	20.4	16.8	15.2	18.5	17.1	8.1	8.2		9.7	8.5	
Progression Factor	1.00	1.00	1.00	0.62	0.66	0.49	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	5.9	0.0	0.4	0.4	0.0	0.3	0.1		2.1	0.2	
Delay (s)	14.6	26.3	16.8	9.9	12.6	8.4	8.3	8.3		11.8	8.8	
Level of Service	B	C	B	A	B	A	A	A		B	A	
Approach Delay (s)		24.5			11.2			8.3			10.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

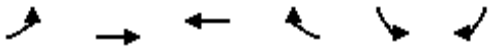
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	493	197	7	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	5	601	240	9	1	1
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked	0.96				0.84	0.96
vC, conflicting volume	250				856	246
vC1, stage 1 conf vol					246	
vC2, stage 2 conf vol					611	
vCu, unblocked vol	222				765	218
tC, single (s)	4.2				7.4	7.2
tC, 2 stage (s)					6.4	
tF (s)	2.3				4.4	4.2
p0 queue free %	100				99	100
cM capacity (veh/h)	1254				218	605

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	5	601	249	2
Volume Left	5	0	0	1
Volume Right	0	0	9	1
cSH	1254	1700	1700	320
Volume to Capacity	0.00	0.35	0.15	0.01
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	7.9	0.0	0.0	16.3
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	16.3
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		



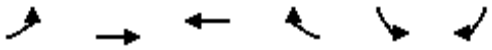
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	21	516	216	27	7	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	561	235	29	8	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		1152	525			
pX, platoon unblocked	0.92				0.93	0.92
vC, conflicting volume	264				856	249
vC1, stage 1 conf vol					249	
vC2, stage 2 conf vol					607	
vCu, unblocked vol	197				711	181
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.3				3.5	3.3
p0 queue free %	98				98	100
cM capacity (veh/h)	1223				320	794

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	23	561	264	10
Volume Left	23	0	0	8
Volume Right	0	0	29	2
cSH	1223	1700	1700	369
Volume to Capacity	0.02	0.33	0.16	0.03
Queue Length 95th (ft)	1	0	0	2
Control Delay (s)	8.0	0.0	0.0	15.0
Lane LOS	A			C
Approach Delay (s)	0.3		0.0	15.0
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.92			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1656	1743	1449	1641	1703			1185			1603	
Flt Permitted	0.43	1.00	1.00	0.36	1.00			0.99			0.99	
Satd. Flow (perm)	751	1743	1449	618	1703			1175			1594	
Volume (vph)	4	491	12	38	241	21	3	6	14	1	4	5
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	528	13	41	259	23	3	6	15	1	4	5
RTOR Reduction (vph)	0	0	3	0	6	0	0	10	0	0	3	0
Lane Group Flow (vph)	4	528	10	41	276	0	0	14	0	0	7	0
Confl. Bikes (#/hr)			2			2			1			
Heavy Vehicles (%)	9%	9%	9%	10%	10%	10%	44%	44%	44%	10%	10%	10%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	24.7	24.7	24.7	26.3	26.3			20.6			20.6	
Effective Green, g (s)	24.7	24.7	24.7	26.3	26.3			20.6			20.6	
Actuated g/C Ratio	0.41	0.41	0.41	0.44	0.44			0.34			0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	326	718	597	317	746			403			547	
v/s Ratio Prot	0.00	c0.30		0.01	c0.16							
v/s Ratio Perm	0.00		0.01	0.05				c0.01			0.00	
v/c Ratio	0.01	0.74	0.02	0.13	0.37			0.04			0.01	
Uniform Delay, d1	10.7	14.9	10.5	13.5	11.3			13.1			13.0	
Progression Factor	0.81	0.81	0.73	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	3.4	0.0	0.2	0.3			0.2			0.0	
Delay (s)	8.7	15.5	7.7	13.7	11.6			13.3			13.0	
Level of Service	A	B	A	B	B			B			B	
Approach Delay (s)		15.3			11.9			13.3			13.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	207	371	14	52	26
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	235	422	16	59	30
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.82				0.82	0.82
vC, conflicting volume	438				673	431
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316				601	306
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				84	95
cM capacity (veh/h)	1011				375	596

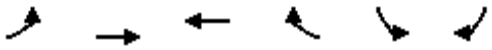
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	239	438	89
Volume Left	3	0	59
Volume Right	0	16	30
cSH	1011	1700	428
Volume to Capacity	0.00	0.26	0.21
Queue Length 95th (ft)	0	0	19
Control Delay (s)	0.2	0.0	15.6
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	15.6
Approach LOS			C

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	1827	1533	1703	1792	1503	1736	3392		1703	3329	
Flt Permitted	0.31	1.00	1.00	0.65	1.00	1.00	0.60	1.00		0.59	1.00	
Satd. Flow (perm)	558	1827	1533	1158	1792	1503	1093	3392		1063	3329	
Volume (vph)	86	158	15	69	339	178	13	199	32	70	189	33
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	176	17	77	377	198	14	221	36	78	210	37
RTOR Reduction (vph)	0	0	9	0	0	83	0	20	0	0	22	0
Lane Group Flow (vph)	96	176	8	77	377	115	14	237	0	78	225	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			1			1			
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	29.4	22.7	22.7	23.2	19.6	19.6	21.7	21.7		21.7	21.7	
Effective Green, g (s)	29.4	22.7	22.7	23.2	19.6	19.6	21.7	21.7		21.7	21.7	
Actuated g/C Ratio	0.49	0.38	0.38	0.39	0.33	0.33	0.36	0.36		0.36	0.36	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	405	691	580	480	585	491	395	1227		384	1204	
v/s Ratio Prot	c0.03	0.10		0.01	c0.21			0.07			0.07	
v/s Ratio Perm	0.09		0.01	0.05		0.08	0.01			c0.07		
v/c Ratio	0.24	0.25	0.01	0.16	0.64	0.23	0.04	0.19		0.20	0.19	
Uniform Delay, d1	9.1	12.8	11.7	11.8	17.2	14.7	12.4	13.1		13.2	13.1	
Progression Factor	1.00	1.00	1.00	0.39	0.50	0.16	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2	0.0	0.1	1.9	0.2	0.2	0.4		1.2	0.3	
Delay (s)	9.5	13.0	11.7	4.7	10.4	2.6	12.6	13.5		14.4	13.5	
Level of Service	A	B	B	A	B	A	B	B		B	B	
Approach Delay (s)		11.8			7.4			13.4			13.7	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

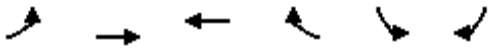
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	269	644	1	3	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	289	692	1	3	2
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked	0.71				0.72	0.71
vC, conflicting volume	695				983	694
vC1, stage 1 conf vol					694	
vC2, stage 2 conf vol					289	
vCu, unblocked vol	571				939	571
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.3				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	696				242	373

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	289	694	5
Volume Left	0	0	0	3
Volume Right	0	0	1	2
cSH	1700	1700	1700	281
Volume to Capacity	0.00	0.17	0.41	0.02
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	18.0
Lane LOS				C
Approach Delay (s)	0.0		0.0	18.0
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	268	538	3	21	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	319	640	4	25	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		1152	525			
pX, platoon unblocked	0.71				0.71	0.71
vC, conflicting volume	644				961	642
vC1, stage 1 conf vol					642	
vC2, stage 2 conf vol					319	
vCu, unblocked vol	498				945	496
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.3				3.5	3.3
p0 queue free %	100				90	91
cM capacity (veh/h)	742				247	404

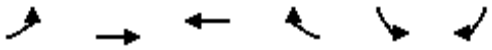
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	319	644	61
Volume Left	0	0	0	25
Volume Right	0	0	4	36
cSH	1700	1700	1700	320
Volume to Capacity	0.00	0.19	0.38	0.19
Queue Length 95th (ft)	0	0	0	17
Control Delay (s)	0.0	0.0	0.0	18.9
Lane LOS				C
Approach Delay (s)	0.0		0.0	18.9
Approach LOS				C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.90			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.96	
Satd. Flow (prot)	1687	1776	1478	1641	1718			1489			1431	
Flt Permitted	0.31	1.00	1.00	0.32	1.00			0.99			0.83	
Satd. Flow (perm)	553	1776	1478	548	1718			1479			1228	
Volume (vph)	6	321	3	18	472	17	4	10	47	31	3	6
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	7	369	3	21	543	20	5	11	54	36	3	7
RTOR Reduction (vph)	0	0	1	0	2	0	0	33	0	0	4	0
Lane Group Flow (vph)	7	369	2	21	561	0	0	37	0	0	42	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	7%	7%	7%	10%	10%	10%	12%	12%	12%	25%	25%	25%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.5	23.5	23.5	24.0	24.0			23.2			23.2	
Effective Green, g (s)	23.5	23.5	23.5	24.0	24.0			23.2			23.2	
Actuated g/C Ratio	0.39	0.39	0.39	0.40	0.40			0.39			0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	232	696	579	243	687			572			475	
v/s Ratio Prot	0.00	c0.21		0.00	c0.33							
v/s Ratio Perm	0.01		0.00	0.03				0.02			c0.03	
v/c Ratio	0.03	0.53	0.00	0.09	0.82			0.06			0.09	
Uniform Delay, d1	16.0	14.0	11.1	11.7	16.0			11.6			11.7	
Progression Factor	0.74	0.77	0.63	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.8	0.0	0.2	7.4			0.2			0.1	
Delay (s)	11.9	11.5	7.0	11.8	23.5			11.8			11.8	
Level of Service	B	B	A	B	C			B			B	
Approach Delay (s)		11.5			23.0			11.8			11.8	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	24	368	170	55	19	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	400	185	60	21	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	245				667	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	203				649	172
tC, single (s)	4.2				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.5
p0 queue free %	98				94	99
cM capacity (veh/h)	1238				374	778

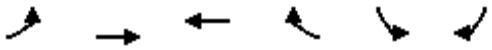
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	426	245	28
Volume Left	26	0	21
Volume Right	0	60	8
cSH	1238	1700	435
Volume to Capacity	0.02	0.14	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	0.7	0.0	13.9
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	13.9
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1611	1696	1421	1641	1727	1448	1612	3126		1749	3408	
Flt Permitted	0.61	1.00	1.00	0.40	1.00	1.00	0.53	1.00		0.65	1.00	
Satd. Flow (perm)	1029	1696	1421	690	1727	1448	897	3126		1188	3408	
Volume (vph)	44	309	36	49	138	45	32	128	29	280	293	57
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	332	39	53	148	48	34	138	31	301	315	61
RTOR Reduction (vph)	0	0	12	0	0	36	0	16	0	0	23	0
Lane Group Flow (vph)	47	332	27	53	148	12	34	153	0	301	353	0
Confl. Peds. (#/hr)	1					1			2	2		
Confl. Bikes (#/hr)			3			1			1			1
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	12%	12%	12%	3%	3%	3%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	20.0	16.7	16.7	17.2	15.3	15.3	29.4	29.4		29.4	29.4	
Effective Green, g (s)	20.0	16.7	16.7	17.2	15.3	15.3	29.4	29.4		29.4	29.4	
Actuated g/C Ratio	0.33	0.28	0.28	0.29	0.26	0.26	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	375	472	396	228	440	369	440	1532		582	1670	
v/s Ratio Prot	0.01	c0.20		c0.01	0.09			0.05			0.10	
v/s Ratio Perm	0.03		0.02	0.06		0.01	0.04			c0.25		
v/c Ratio	0.13	0.70	0.07	0.23	0.34	0.03	0.08	0.10		0.52	0.21	
Uniform Delay, d1	13.8	19.4	15.9	15.9	18.2	16.8	8.1	8.2		10.5	8.7	
Progression Factor	1.00	1.00	1.00	0.47	0.62	0.87	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	4.7	0.1	0.5	0.4	0.0	0.3	0.1		3.3	0.3	
Delay (s)	13.9	24.1	16.0	8.0	11.7	14.6	8.5	8.3		13.7	9.0	
Level of Service	B	C	B	A	B	B	A	A		B	A	
Approach Delay (s)		22.2			11.5			8.4			11.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

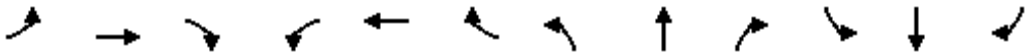
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	569	210	7	1	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	5	694	256	9	1	1
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked					0.77	
vC, conflicting volume	266				965	261
vC1, stage 1 conf vol					261	
vC2, stage 2 conf vol					704	
vCu, unblocked vol	266				955	261
tC, single (s)	4.2				7.4	7.2
tC, 2 stage (s)					6.4	
tF (s)	2.3				4.4	4.2
p0 queue free %	100				99	100
cM capacity (veh/h)	1252				178	589

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	5	694	265	2
Volume Left	5	0	0	1
Volume Right	0	0	9	1
cSH	1252	1700	1700	274
Volume to Capacity	0.00	0.41	0.16	0.01
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	7.9	0.0	0.0	18.3
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	18.3
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		



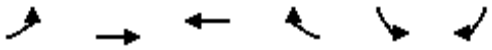
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	544	49	84	227	27	3	0	12	7	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	591	53	91	247	29	3	0	13	8	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								0			0	
Upstream signal (ft)		1152			525							
pX, platoon unblocked	0.92			0.85			0.89	0.89	0.85	0.89	0.89	0.92
vC, conflicting volume	276			645			1095	1122	618	1094	1134	261
vC1, stage 1 conf vol							664	664		444	444	
vC2, stage 2 conf vol							432	459		650	690	
vCu, unblocked vol	214			583			974	1005	551	973	1018	198
tC, single (s)	4.2			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			89			98	100	97	96	100	100
cM capacity (veh/h)	1212			820			214	211	455	188	185	781

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	23	645	91	276	16	10
Volume Left	23	0	91	0	3	8
Volume Right	0	53	0	29	13	2
cSH	1212	1700	820	1700	371	226
Volume to Capacity	0.02	0.38	0.11	0.16	0.04	0.04
Queue Length 95th (ft)	1	0	9	0	3	3
Control Delay (s)	8.0	0.0	9.9	0.0	15.1	21.7
Lane LOS	A		A		C	C
Approach Delay (s)	0.3		2.5		15.1	21.7
Approach LOS					C	C

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	49.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.91			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1656	1743	1450	1641	1709			1182			1603	
Flt Permitted	0.35	1.00	1.00	0.34	1.00			0.98			0.99	
Satd. Flow (perm)	619	1743	1450	592	1709			1171			1593	
Volume (vph)	4	530	12	40	337	22	3	6	15	1	4	5
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	570	13	43	362	24	3	6	16	1	4	5
RTOR Reduction (vph)	0	0	3	0	4	0	0	11	0	0	3	0
Lane Group Flow (vph)	4	570	10	43	382	0	0	14	0	0	7	0
Confl. Bikes (#/hr)			2			2			1			
Heavy Vehicles (%)	9%	9%	9%	10%	10%	10%	44%	44%	44%	10%	10%	10%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	26.9	26.9	26.9	28.5	28.5			18.3			18.3	
Effective Green, g (s)	26.9	26.9	26.9	28.5	28.5			18.3			18.3	
Actuated g/C Ratio	0.45	0.45	0.45	0.48	0.48			0.31			0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	298	781	650	330	812			357			486	
v/s Ratio Prot	0.00	c0.33		0.01	c0.22							
v/s Ratio Perm	0.01		0.01	0.06				c0.01			0.00	
v/c Ratio	0.01	0.73	0.02	0.13	0.47			0.04			0.01	
Uniform Delay, d1	9.8	13.6	9.2	12.5	10.7			14.7			14.6	
Progression Factor	1.05	0.81	1.03	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	3.0	0.0	0.2	0.4			0.2			0.0	
Delay (s)	10.3	13.9	9.4	12.7	11.1			14.9			14.6	
Level of Service	B	B	A	B	B			B			B	
Approach Delay (s)		13.8			11.2			14.9			14.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	223	415	14	52	26
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	253	472	16	59	30
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.80				0.80	0.80
vC, conflicting volume	488				741	481
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	362				677	352
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	95
cM capacity (veh/h)	950				330	549

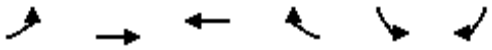
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	257	488	89
Volume Left	3	0	59
Volume Right	0	16	30
cSH	950	1700	381
Volume to Capacity	0.00	0.29	0.23
Queue Length 95th (ft)	0	0	22
Control Delay (s)	0.2	0.0	17.3
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	17.3
Approach LOS			C

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	1827	1533	1703	1792	1503	1736	3410		1703	3331	
Flt Permitted	0.29	1.00	1.00	0.64	1.00	1.00	0.59	1.00		0.55	1.00	
Satd. Flow (perm)	525	1827	1533	1151	1792	1503	1072	3410		977	3331	
Volume (vph)	93	165	19	72	360	211	35	273	33	83	206	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	183	21	80	400	234	39	303	37	92	229	39
RTOR Reduction (vph)	0	0	13	0	0	96	0	14	0	0	20	0
Lane Group Flow (vph)	103	183	8	80	400	138	39	326	0	92	248	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			1			1			
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.4	20.2	20.2	23.6	18.8	18.8	23.0	23.0		23.0	23.0	
Effective Green, g (s)	26.4	20.2	20.2	23.6	18.8	18.8	23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.44	0.34	0.34	0.39	0.31	0.31	0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	615	516	497	561	471	411	1307		375	1277	
v/s Ratio Prot	c0.03	0.10		0.01	c0.22			c0.10			0.07	
v/s Ratio Perm	0.10		0.01	0.05		0.09	0.04			0.09		
v/c Ratio	0.29	0.30	0.02	0.16	0.71	0.29	0.09	0.25		0.25	0.19	
Uniform Delay, d1	10.8	14.7	13.3	11.6	18.2	15.6	11.8	12.6		12.6	12.3	
Progression Factor	1.00	1.00	1.00	0.48	0.58	0.16	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.0	0.1	3.4	0.3	0.5	0.5		1.6	0.3	
Delay (s)	11.2	14.9	13.3	5.7	14.0	2.8	12.3	13.1		14.1	12.7	
Level of Service	B	B	B	A	B	A	B	B		B	B	
Approach Delay (s)		13.6			9.4			13.0			13.0	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

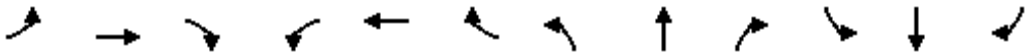
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	291	703	1	3	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	313	756	1	3	2
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked	0.70				0.72	0.70
vC, conflicting volume	758				1070	757
vC1, stage 1 conf vol					757	
vC2, stage 2 conf vol					313	
vCu, unblocked vol	655				1031	654
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.3				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	637				219	329

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	313	757	5
Volume Left	0	0	0	3
Volume Right	0	0	1	2
cSH	1700	1700	1700	253
Volume to Capacity	0.00	0.18	0.45	0.02
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	19.6
Lane LOS				C
Approach Delay (s)	0.0		0.0	19.6
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	283	7	12	567	3	26	0	97	21	0	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	337	8	14	675	4	31	0	115	25	0	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								0			0	
Upstream signal (ft)		1152			525							
pX, platoon unblocked	0.70			1.00			0.70	0.70	1.00	0.70	0.70	0.70
vC, conflicting volume	679			345			1080	1048	341	1158	1051	677
vC1, stage 1 conf vol							341	341		705	705	
vC2, stage 2 conf vol							739	707		452	345	
vCu, unblocked vol	539			343			1107	1061	339	1218	1065	537
tC, single (s)	4.2			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			82	100	84	85	100	91
cM capacity (veh/h)	704			1185			171	198	701	165	196	377

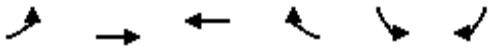
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	345	14	679	146	61
Volume Left	0	0	14	0	31	25
Volume Right	0	8	0	4	115	36
cSH	1700	1700	1185	1700	424	246
Volume to Capacity	0.00	0.20	0.01	0.40	0.35	0.25
Queue Length 95th (ft)	0	0	1	0	38	24
Control Delay (s)	0.0	0.0	8.1	0.0	17.9	24.3
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.2		17.9	24.3
Approach LOS					C	C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.90			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.96	
Satd. Flow (prot)	1687	1776	1478	1641	1718			1487			1431	
Flt Permitted	0.30	1.00	1.00	0.23	1.00			0.99			0.82	
Satd. Flow (perm)	535	1776	1478	399	1718			1476			1215	
Volume (vph)	6	435	3	19	510	18	4	10	49	32	3	6
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	7	500	3	22	586	21	5	11	56	37	3	7
RTOR Reduction (vph)	0	0	1	0	2	0	0	37	0	0	5	0
Lane Group Flow (vph)	7	500	2	22	605	0	0	35	0	0	42	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	7%	7%	7%	10%	10%	10%	12%	12%	12%	25%	25%	25%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	26.0	26.0	26.0	26.5	26.5			20.7			20.7	
Effective Green, g (s)	26.0	26.0	26.0	26.5	26.5			20.7			20.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.44	0.44			0.34			0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	247	770	640	203	759			509			419	
v/s Ratio Prot	0.00	c0.28		0.00	c0.35							
v/s Ratio Perm	0.01		0.00	0.05				0.02			c0.03	
v/c Ratio	0.03	0.65	0.00	0.11	0.80			0.07			0.10	
Uniform Delay, d1	14.7	13.4	9.6	10.9	14.4			13.2			13.3	
Progression Factor	0.79	0.82	0.73	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	1.9	0.0	0.2	5.8			0.3			0.1	
Delay (s)	11.7	12.8	7.1	11.2	20.3			13.4			13.4	
Level of Service	B	B	A	B	C			B			B	
Approach Delay (s)		12.8			19.9			13.4			13.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

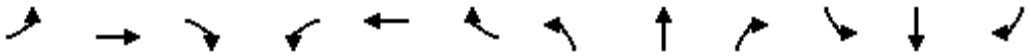
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	24	370	170	55	19	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	402	185	60	21	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	245				669	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204				651	172
tC, single (s)	4.2				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.5
p0 queue free %	98				94	99
cM capacity (veh/h)	1238				373	778

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	428	245	28
Volume Left	26	0	21
Volume Right	0	60	8
cSH	1238	1700	434
Volume to Capacity	0.02	0.14	0.07
Queue Length 95th (ft)	2	0	5
Control Delay (s)	0.7	0.0	13.9
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	13.9
Approach LOS			B

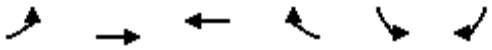
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1611	1696	1421	1641	1727	1448	1612	3119		1749	3408	
Flt Permitted	0.66	1.00	1.00	0.34	1.00	1.00	0.53	1.00		0.64	1.00	
Satd. Flow (perm)	1117	1696	1421	591	1727	1448	897	3119		1184	3408	
Volume (vph)	44	311	36	49	138	46	32	128	32	284	293	57
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	334	39	53	148	49	34	138	34	305	315	61
RTOR Reduction (vph)	0	0	12	0	0	36	0	17	0	0	23	0
Lane Group Flow (vph)	47	334	27	53	148	13	34	155	0	305	353	0
Confl. Peds. (#/hr)	1					1			2	2		
Confl. Bikes (#/hr)			3			1			1			1
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	12%	12%	12%	3%	3%	3%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	18.7	15.6	15.6	18.5	15.5	15.5	29.4	29.4		29.4	29.4	
Effective Green, g (s)	18.7	15.6	15.6	18.5	15.5	15.5	29.4	29.4		29.4	29.4	
Actuated g/C Ratio	0.31	0.26	0.26	0.31	0.26	0.26	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	374	441	369	235	446	374	440	1528		580	1670	
v/s Ratio Prot	0.01	c0.20		c0.01	0.09			0.05			0.10	
v/s Ratio Perm	0.03		0.02	0.06		0.01	0.04			c0.26		
v/c Ratio	0.13	0.76	0.07	0.23	0.33	0.03	0.08	0.10		0.53	0.21	
Uniform Delay, d1	14.6	20.5	16.7	15.2	18.0	16.6	8.1	8.2		10.5	8.7	
Progression Factor	1.00	1.00	1.00	0.83	0.79	0.54	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	7.3	0.1	0.4	0.4	0.0	0.3	0.1		3.4	0.3	
Delay (s)	14.8	27.7	16.8	12.9	14.7	9.0	8.5	8.3		13.9	9.0	
Level of Service	B	C	B	B	B	A	A	A		B	A	
Approach Delay (s)		25.3			13.2			8.4			11.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

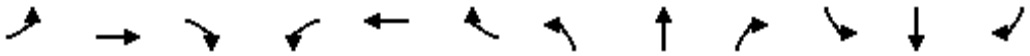
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	13	569	210	18	3	2
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	16	694	256	22	4	2
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked	1.00				0.77	1.00
vC, conflicting volume	279				994	268
vC1, stage 1 conf vol					268	
vC2, stage 2 conf vol					726	
vCu, unblocked vol	278				990	267
tC, single (s)	4.2				7.4	7.2
tC, 2 stage (s)					6.4	
tF (s)	2.3				4.4	4.2
p0 queue free %	99				98	100
cM capacity (veh/h)	1237				170	583

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	16	694	278	6
Volume Left	16	0	0	4
Volume Right	0	0	22	2
cSH	1237	1700	1700	238
Volume to Capacity	0.01	0.41	0.16	0.03
Queue Length 95th (ft)	1	0	0	2
Control Delay (s)	7.9	0.0	0.0	20.5
Lane LOS	A			C
Approach Delay (s)	0.2		0.0	20.5
Approach LOS				C

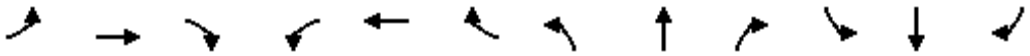
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	546	49	84	238	27	3	0	12	7	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	593	53	91	259	29	3	0	13	8	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								0			0	
Upstream signal (ft)		1152			525							
pX, platoon unblocked	0.90			0.85			0.90	0.90	0.85	0.90	0.90	0.90
vC, conflicting volume	288			647			1109	1136	620	1108	1148	273
vC1, stage 1 conf vol							666	666		456	456	
vC2, stage 2 conf vol							443	471		652	692	
vCu, unblocked vol	212			585			961	991	554	960	1004	196
tC, single (s)	4.2			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			89			98	100	97	96	100	100
cM capacity (veh/h)	1191			818			214	211	453	188	186	769

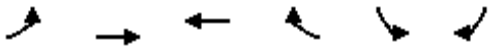
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	23	647	91	288	16	10
Volume Left	23	0	91	0	3	8
Volume Right	0	53	0	29	13	2
cSH	1191	1700	818	1700	370	226
Volume to Capacity	0.02	0.38	0.11	0.17	0.04	0.04
Queue Length 95th (ft)	1	0	9	0	3	3
Control Delay (s)	8.1	0.0	10.0	0.0	15.2	21.6
Lane LOS	A		A		C	C
Approach Delay (s)	0.3		2.4		15.2	21.6
Approach LOS					C	C

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.91			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1656	1743	1449	1641	1709			1182			1603	
Flt Permitted	0.33	1.00	1.00	0.32	1.00			0.99			0.99	
Satd. Flow (perm)	569	1743	1449	557	1709			1172			1594	
Volume (vph)	4	532	12	40	348	22	3	6	15	1	4	5
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	572	13	43	374	24	3	6	16	1	4	5
RTOR Reduction (vph)	0	0	3	0	4	0	0	11	0	0	3	0
Lane Group Flow (vph)	4	572	10	43	394	0	0	14	0	0	7	0
Confl. Bikes (#/hr)			2			2			1			
Heavy Vehicles (%)	9%	9%	9%	10%	10%	10%	44%	44%	44%	10%	10%	10%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	25.6	25.6	25.6	27.1	27.1			19.8			19.8	
Effective Green, g (s)	25.6	25.6	25.6	27.1	27.1			19.8			19.8	
Actuated g/C Ratio	0.43	0.43	0.43	0.45	0.45			0.33			0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	263	744	618	299	772			387			526	
v/s Ratio Prot	0.00	c0.33		0.01	c0.23							
v/s Ratio Perm	0.01		0.01	0.06				c0.01			0.00	
v/c Ratio	0.02	0.77	0.02	0.14	0.51			0.04			0.01	
Uniform Delay, d1	10.6	14.7	9.9	14.0	11.7			13.6			13.5	
Progression Factor	0.78	0.87	0.72	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	4.1	0.0	0.2	0.6			0.2			0.0	
Delay (s)	8.3	16.9	7.2	14.2	12.3			13.8			13.5	
Level of Service	A	B	A	B	B			B			B	
Approach Delay (s)		16.6			12.5			13.8			13.5	
Approach LOS		B			B			B			B	

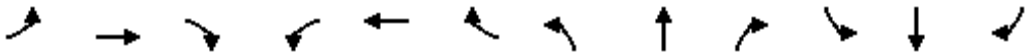
Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	223	417	14	52	26
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	253	474	16	59	30
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			356			
pX, platoon unblocked	0.80				0.80	0.80
vC, conflicting volume	491				743	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364				679	354
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				82	95
cM capacity (veh/h)	947				329	546

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	257	490	89
Volume Left	3	0	59
Volume Right	0	16	30
cSH	947	1700	379
Volume to Capacity	0.00	0.29	0.23
Queue Length 95th (ft)	0	0	22
Control Delay (s)	0.2	0.0	17.4
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	17.4
Approach LOS			C

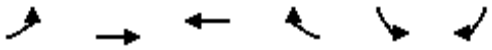
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	1827	1533	1703	1792	1503	1736	3410		1703	3331	
Flt Permitted	0.28	1.00	1.00	0.64	1.00	1.00	0.59	1.00		0.55	1.00	
Satd. Flow (perm)	521	1827	1533	1151	1792	1503	1072	3410		977	3331	
Volume (vph)	93	165	19	76	362	215	35	273	33	84	206	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	183	21	84	402	239	39	303	37	93	229	39
RTOR Reduction (vph)	0	0	13	0	0	98	0	14	0	0	20	0
Lane Group Flow (vph)	103	183	8	84	402	141	39	326	0	93	248	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			1			1			
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	26.4	20.2	20.2	23.6	18.8	18.8	23.0	23.0		23.0	23.0	
Effective Green, g (s)	26.4	20.2	20.2	23.6	18.8	18.8	23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.44	0.34	0.34	0.39	0.31	0.31	0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	355	615	516	497	561	471	411	1307		375	1277	
v/s Ratio Prot	c0.03	0.10		0.01	c0.22			c0.10			0.07	
v/s Ratio Perm	0.10		0.01	0.05		0.09	0.04			0.10		
v/c Ratio	0.29	0.30	0.02	0.17	0.72	0.30	0.09	0.25		0.25	0.19	
Uniform Delay, d1	10.8	14.7	13.3	11.6	18.2	15.6	11.8	12.6		12.6	12.3	
Progression Factor	1.00	1.00	1.00	0.49	0.58	0.17	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.0	0.1	3.5	0.3	0.5	0.5		1.6	0.3	
Delay (s)	11.3	14.9	13.3	5.8	14.2	2.9	12.3	13.1		14.2	12.7	
Level of Service	B	B	B	A	B	A	B	B		B	B	
Approach Delay (s)		13.6			9.5			13.0			13.1	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

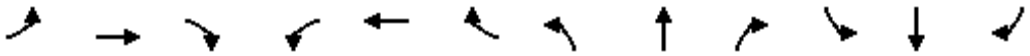
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	1	291	703	3	14	12
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	313	756	3	15	13
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)		872	805			
pX, platoon unblocked	0.70				0.71	0.70
vC, conflicting volume	760				1074	759
vC1, stage 1 conf vol					759	
vC2, stage 2 conf vol					315	
vCu, unblocked vol	657				1037	654
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.3				3.5	3.3
p0 queue free %	100				93	96
cM capacity (veh/h)	633				217	328

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	1	313	759	28
Volume Left	1	0	0	15
Volume Right	0	0	3	13
cSH	633	1700	1700	257
Volume to Capacity	0.00	0.18	0.45	0.11
Queue Length 95th (ft)	0	0	0	9
Control Delay (s)	10.7	0.0	0.0	20.7
Lane LOS	B			C
Approach Delay (s)	0.0		0.0	20.7
Approach LOS				C

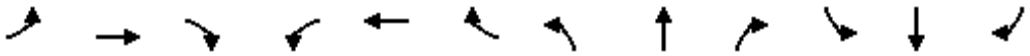
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	294	7	12	569	3	26	0	97	21	0	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	350	8	14	677	4	31	0	115	25	0	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								0			0	
Upstream signal (ft)		1152			525							
pX, platoon unblocked	0.70			1.00			0.70	0.70	1.00	0.70	0.70	0.70
vC, conflicting volume	681			358			1096	1064	354	1173	1066	679
vC1, stage 1 conf vol							354	354		708	708	
vC2, stage 2 conf vol							742	710		465	358	
vCu, unblocked vol	541			357			1132	1085	352	1243	1089	538
tC, single (s)	4.2			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.3			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			82	100	83	85	100	90
cM capacity (veh/h)	700			1172			169	195	689	162	193	375

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	358	14	681	146	61
Volume Left	0	0	14	0	31	25
Volume Right	0	8	0	4	115	36
cSH	1700	1700	1172	1700	417	243
Volume to Capacity	0.00	0.21	0.01	0.40	0.35	0.25
Queue Length 95th (ft)	0	0	1	0	39	24
Control Delay (s)	0.0	0.0	8.1	0.0	18.2	24.7
Lane LOS			A		C	C
Approach Delay (s)	0.0		0.2		18.2	24.7
Approach LOS					C	C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			0.98			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.90			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00			0.96	
Satd. Flow (prot)	1687	1776	1478	1641	1718			1487			1431	
Flt Permitted	0.30	1.00	1.00	0.22	1.00			0.99			0.82	
Satd. Flow (perm)	530	1776	1478	379	1718			1476			1215	
Volume (vph)	6	446	3	19	512	18	4	10	49	32	3	6
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	7	513	3	22	589	21	5	11	56	37	3	7
RTOR Reduction (vph)	0	0	1	0	2	0	0	37	0	0	5	0
Lane Group Flow (vph)	7	513	2	22	608	0	0	35	0	0	42	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	7%	7%	7%	10%	10%	10%	12%	12%	12%	25%	25%	25%
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	26.0	26.0	26.0	26.5	26.5			20.7			20.7	
Effective Green, g (s)	26.0	26.0	26.0	26.5	26.5			20.7			20.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.44	0.44			0.34			0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	245	770	640	195	759			509			419	
v/s Ratio Prot	0.00	c0.29		0.00	c0.35							
v/s Ratio Perm	0.01		0.00	0.05				0.02			c0.03	
v/c Ratio	0.03	0.67	0.00	0.11	0.80			0.07			0.10	
Uniform Delay, d1	14.7	13.5	9.6	11.1	14.5			13.2			13.3	
Progression Factor	0.79	0.82	0.74	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.0	2.2	0.0	0.3	6.1			0.3			0.1	
Delay (s)	11.8	13.3	7.1	11.3	20.5			13.4			13.4	
Level of Service	B	B	A	B	C			B			B	
Approach Delay (s)		13.2			20.2			13.4			13.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	56	4	48
Average Queue (ft)	7	0	19
95th Queue (ft)	33	3	47
Link Distance (ft)	1005	252	834
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	106	236	53	82	166	73	61	58	44	157	63	67
Average Queue (ft)	23	122	12	28	65	40	14	18	10	71	25	22
95th Queue (ft)	68	199	42	64	122	84	40	46	30	134	53	52
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)	0	45	0		19	0	0	0		0		
Queuing Penalty (veh)	0	25	1		17	1	0	0		0		

Intersection: 3: SW Herman Road & Site Access Point

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	16	24
Average Queue (ft)	1	1
95th Queue (ft)	7	13
Link Distance (ft)	798	696
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	43	20	24
Average Queue (ft)	4	1	5
95th Queue (ft)	23	10	19
Link Distance (ft)	213	213	732
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	24	169	54	49	89	74	22
Average Queue (ft)	2	83	15	14	40	15	3
95th Queue (ft)	14	143	48	38	74	48	13
Link Distance (ft)		437			863	1348	606
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		20	0		0		
Queuing Penalty (veh)		3	1		0		

Nework Summary

Network wide Queuing Penalty: 48

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	10	65
Average Queue (ft)	1	30
95th Queue (ft)	7	57
Link Distance (ft)	1005	834
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	93	153	45	154	417	74	34	79	68	80	84	69
Average Queue (ft)	34	65	14	40	167	61	6	33	19	31	35	23
95th Queue (ft)	71	121	42	105	322	76	22	68	46	65	69	53
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)		29	0		37	2		0				
Queuing Penalty (veh)		29	0		92	9		0				

Intersection: 3: SW Herman Road & Site Access Point

Movement	SB
Directions Served	LR
Maximum Queue (ft)	21
Average Queue (ft)	3
95th Queue (ft)	15
Link Distance (ft)	696
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	SB
Directions Served	LR
Maximum Queue (ft)	49
Average Queue (ft)	18
95th Queue (ft)	39
Link Distance (ft)	732
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	22	154	39	33	172	68	50
Average Queue (ft)	3	56	4	8	73	22	14
95th Queue (ft)	14	115	24	25	129	53	38
Link Distance (ft)		437			863	1348	606
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		14	0		1		
Queuing Penalty (veh)		1	0		0		

Nework Summary

Network wide Queuing Penalty: 132

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	90	56
Average Queue (ft)	10	19
95th Queue (ft)	50	48
Link Distance (ft)	1005	834
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	72	252	53	90	186	73	50	74	56	178	126	101
Average Queue (ft)	24	127	24	31	66	44	14	22	11	90	31	31
95th Queue (ft)	56	215	54	69	132	85	40	55	35	158	78	66
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)		1										
Queuing Penalty (veh)		2										
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)		45	0		20	1		0		1		
Queuing Penalty (veh)		36	2		19	1		0		1		

Intersection: 3: SW Herman Road & Site Access Point

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	16	31
Average Queue (ft)	1	2
95th Queue (ft)	8	18
Link Distance (ft)	798	695
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LR	LR
Maximum Queue (ft)	37	25	75	23	22
Average Queue (ft)	4	1	23	8	4
95th Queue (ft)	21	12	57	23	17
Link Distance (ft)	180	180	437	266	727
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	23	175	54	51	113	61	43
Average Queue (ft)	2	85	15	16	51	16	5
95th Queue (ft)	12	149	46	38	94	48	23
Link Distance (ft)		437			863	1348	610
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		20	0		0		
Queuing Penalty (veh)		3	1		0		

Nework Summary

Network wide Queuing Penalty: 65

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	36	88
Average Queue (ft)	2	32
95th Queue (ft)	17	62
Link Distance (ft)	1005	834
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	99	142	41	150	572	76	49	102	83	100	85	74
Average Queue (ft)	38	59	16	33	212	61	15	44	30	37	37	24
95th Queue (ft)	79	110	45	89	439	76	39	81	65	77	70	56
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)					0							
Queuing Penalty (veh)					1							
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)		28	0	0	38	3	0	0				
Queuing Penalty (veh)		31	1	1	107	11	0	0				

Intersection: 3: SW Herman Road & Site Access Point

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	45	20
Average Queue (ft)	2	3
95th Queue (ft)	32	14
Link Distance (ft)	180	695
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	EB	WB	NB	SB
Directions Served	TR	L	LR	LR
Maximum Queue (ft)	6	26	108	52
Average Queue (ft)	0	2	32	19
95th Queue (ft)	4	13	69	40
Link Distance (ft)	180	437	232	727
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	28	179	39	40	161	64	73
Average Queue (ft)	4	71	5	8	78	23	22
95th Queue (ft)	18	131	27	25	137	55	55
Link Distance (ft)		437			863	1348	610
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		18	0		1		
Queuing Penalty (veh)		2	0		0		

Nework Summary

Network wide Queuing Penalty: 153

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	76	51
Average Queue (ft)	8	18
95th Queue (ft)	39	45
Link Distance (ft)	1005	834
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	101	247	53	86	172	73	54	52	49	196	171	84
Average Queue (ft)	23	135	25	28	62	44	15	20	11	95	36	32
95th Queue (ft)	66	223	55	67	134	85	41	45	33	178	100	70
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		1										
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)		45	0		18	1				1		
Queuing Penalty (veh)		36	2		17	1				2		

Intersection: 3: SW Herman Road & Site Access Point

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	26	32
Average Queue (ft)	2	5
95th Queue (ft)	13	25
Link Distance (ft)	798	695
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LR	LR
Maximum Queue (ft)	24	18	87	26	19
Average Queue (ft)	3	2	26	7	6
95th Queue (ft)	15	12	65	22	19
Link Distance (ft)	180	180	437	266	727
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	24	212	54	50	106	53	36
Average Queue (ft)	2	88	13	17	49	14	4
95th Queue (ft)	14	156	46	39	91	45	19
Link Distance (ft)		437			863	1348	610
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		21	0		0		
Queuing Penalty (veh)		3	1		0		

Nework Summary

Network wide Queuing Penalty: 63

Intersection: 1: SW Herman Road & SW 125th Court

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	21	75
Average Queue (ft)	1	32
95th Queue (ft)	11	58
Link Distance (ft)	1005	834
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: SW Herman Road & SW 124th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	94	145	41	150	478	74	50	90	80	104	72	67
Average Queue (ft)	39	57	15	40	180	60	15	45	29	42	31	23
95th Queue (ft)	75	114	43	107	363	74	41	80	62	86	63	53
Link Distance (ft)		252			798			722	722		1354	1354
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	230		15	125		35	95			180		
Storage Blk Time (%)		26	0		36	2		0				
Queuing Penalty (veh)		29	1		106	10		0				

Intersection: 3: SW Herman Road & Site Access Point

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	5	52
Average Queue (ft)	0	15
95th Queue (ft)	3	41
Link Distance (ft)	798	695
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SW Herman Road & SW 119th Avenue

Movement	EB	WB	NB	SB
Directions Served	TR	L	LR	LR
Maximum Queue (ft)	3	27	93	55
Average Queue (ft)	0	2	30	18
95th Queue (ft)	2	15	62	40
Link Distance (ft)	180	437	232	727
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: SW Herman Road & SW 118th Avenue

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	R	L	TR	LTR	LTR
Maximum Queue (ft)	47	165	39	31	180	77	68
Average Queue (ft)	4	71	5	9	70	27	26
95th Queue (ft)	27	129	25	26	128	58	58
Link Distance (ft)		437			863	1348	610
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	115		20	110			
Storage Blk Time (%)		18	0		1		
Queuing Penalty (veh)		2	0		0		

Nework Summary

Network wide Queuing Penalty: 148

Traffic Signal Warrant Analysis

Project: 15146 - Herman Road Development
Date: 9/24/2015
Scenario: 2017 Background Plus Site

Major Street:	SW Herman Road	Minor Street:	SW 125th Court
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	656	PM Peak Hour Volumes:	72

Warrant Used:

	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	6,560	6,200	
Minor Street*	720	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	6,560	9,300	
Minor Street*	720	950	**No**
Combination Warrant			
Major Street	6,560	7,440	
Minor Street*	720	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 15146 - Herman Road Development
Date: 9/24/2015
Scenario: 2017 Background Plus Site

Major Street:	SW Herman Road	Minor Street:	Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	998	PM Peak Hour Volumes:	21

Warrant Used:

	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	9,980	6,200	
Minor Street*	210	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	9,980	9,300	
Minor Street*	210	950	**No**
Combination Warrant			
Major Street	9,980	7,440	
Minor Street*	210	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 15146 - Herman Road Development
Date: 9/24/2015
Scenario: 2017 Background Plus Site

Major Street:	SW Herman Road	Minor Street:	SW 119th Court
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	875	PM Peak Hour Volumes:	99

Warrant Used:

	100 percent of standard warrants used
X	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	8,750	6,200	
Minor Street*	990	1,850	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	8,750	9,300	
Minor Street*	990	950	**No**
Combination Warrant			
Major Street	8,750	7,440	
Minor Street*	990	1,480	**No**

* Minor street right-turning traffic volumes reduced by 25%

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HERMAN RD at 125TH CT, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2009														
BACKING	0	0	1	1	0	0	0	0	0	1	0	1	0	0
YEAR 2009 TOTAL	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**
FINAL TOTAL	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at 125TH CT, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 1

SER# / INVEST	S P E D	A L C	U G S	C H L	O R K	W	DATE / DAY / TIME	CLASS / DIST FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03583	N	N	N				07/21/2009	19	SW HERMAN RD	INTER	3-LEG	N	N	UNK	O-1STOP	01	UNKN 0	BACK											10
NONE							TU	0	SW 125TH CT	N		STOP SIGN	N	UNK	BACK		PRVTE	S -N										000	00
							10A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	OR-Y OR<25		011,026	000		10
																02	NONE 0	STOP											
																	PRVTE	S -N									011		00
																	PSNGR CAR		01	DRVR	NONE	44	M	OR-Y OR<25		000	000		00

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HERMAN RD at 124TH AVE, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2013														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	1	1	2	0	2	0	0
YEAR 2013 TOTAL	**0**	**1**	**2**	**3**	**0**	**3**	**0**	**2**	**1**	**3**	**0**	**3**	**0**	**0**
YEAR: 2011														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
YEAR 2011 TOTAL	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**
YEAR: 2009														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
YEAR 2009 TOTAL	**0**	**1**	**0**	**1**	**0**	**3**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**
FINAL TOTAL	**0**	**2**	**3**	**5**	**0**	**6**	**0**	**3**	**2**	**5**	**0**	**5**	**0**	**0**

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at 124TH AVE, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 5

SER# / INVEST	SPE	ALC	DRS	UGL	CHS	OLK	WRK	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
02769	N	N	N	N	N	N		05/27/2013	16	SW HERMAN RD	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										07
CITY								MO	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000	00
								1P			06	2		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	35	M	OR-Y OR<25		026	000	07
																	02	NONE 0	STOP										
																		PRVTE	E -W									011	00
																		PSNGR CAR		01	DRVR	INJB	38	M	OR-Y OR>25		000	000	00
																	02	NONE 0	STOP										
																		PRVTE	E -W									011	00
																		PSNGR CAR		02	PSNG	INJB	36	F			000	000	00
03929	Y	N	N					08/11/2009	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										01
NONE								TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E								000	00
								2P			06	2		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	62	F	OR-Y OR<25		047,026	000	01
																	02	NONE 0	STOP										
																		PRVTE	W -E									011	00
																		PSNGR CAR		01	DRVR	INJB	65	F	OR-Y OR>25		000	000	00
																	02	NONE 0	STOP										
																		PRVTE	W -E									011	00
																		PSNGR CAR		02	PSNG	INJB	74	M			000	000	00
																	02	NONE 0	STOP										
																		PRVTE	W -E									011	00
																		PSNGR CAR		03	PSNG	INJB	09	M			000	000	00
00070	N	N	N	N	N	N		01/05/2011	16	SW HERMAN RD	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT										04
CITY								WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	W -E								000	00
								9A			03	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	64	F	OR-Y OR>25		020	000	04
																	01	NONE 0	STRGHT										
																		PRVTE	W -E									000	00
																		PSNGR CAR		02	PSNG	NO<5	04	F			000	000	00
																	02	NONE 0	STRGHT										
																		PRVTE	N -S									000	00
																		PSNGR CAR		01	DRVR	NONE	18	M	N-VAL OR<25		000	000	00
00906	N	N	N	N	N	N		02/20/2013	16	SW HERMAN RD	INTER	CROSS	N	N	RAIN	O-1TURN	01	NONE 0	STRGHT										02
CITY								WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN		PRVTE	S -N								000	00
								3P			04	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	27	M	OR-Y OR<25		028	000	02
																	02	NONE 0	TURN-L										
																		PRVTE	N -E									000	00
																		PSNGR CAR		01	DRVR	NONE	69	M	OR-Y OR<25		004	000	00
04215	N	N	N					08/02/2013	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	STRGHT										02
NO RPT								FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S								000	00
								7A			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	M	OR-Y		000	000	00

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at 124TH AVE, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 5

SER# / INVEST	S P E D	A L C	U G S	C H L	O R K	W	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																								OR<25					
																02	NONE 0	TURN-L											
																	PRVTE	S -W									000		00
																	PSNGR CAR		01	DRVR	NONE	28	M	OR-Y		028	000		02
																								OR<25					

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HERMAN RD at 119TH AVE, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
FINAL TOTAL														

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HERMAN RD at 118TH AVE, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
FINAL TOTAL														

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and Intersectional Crashes at HERMAN RD, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 27

SER# / INVEST	SP E D	A L C	U G S	C H L	O R K	W	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00233	N	N	N	N	N		01/13/2011	17	SW HERMAN RD	ALLEY		N	N	RAIN	S-1TURN	01	NONE 0	STRGHT										012	16
CITY							TH	246	SW 119TH AVE	NE	(NONE)	NONE	N	WET	TURN		PRVTE	NE-SW									000		00
							5A			08			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	23	M	OTH-Y		042	025		16
											(02)													N-RES					
																02	NONE 1	TURN-R										
																	PRVTE	NE-N									019	012	00
																	SEMI TOW		01	DRVR	NONE	38	M	OR-Y		000	000		00
																								OR>25					
05544	Y	N	N				05/13/2009	17	SW HERMAN RD	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01	UNKN 9	TURN-R											08,01
NONE							WE	0	SW TUALATIN RD	N		TRF SIGNAL	N	WET	TURN		UNKN	E -N									000		00
							3P			06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y		001,047,080	017		08,01
																								OR<25					
																02	NONE 0	STRGHT										
																	PRVTE	N -S									006		00
																	PSNGR CAR		01	DRVR	NONE	42	M	OR-Y		000	000		00
																								OR>25					
00228	N	N	N	N	N		01/14/2013	17	SW HERMAN RD	INTER	3-LEG	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07
CITY							MO	0	SW TUALATIN RD	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
							2P			06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		043,026	000		07
																								OR<25					
																02	NONE 0	STOP										
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		000	000		00
																								OR<25					
00847	N	N	N	N	N		02/14/2011	17	SW HERMAN RD	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
CITY							MO	0	SW TUALATIN RD	CN		TRF SIGNAL	N	WET	TURN		PRVTE	N -S									000		00
							6A			01	1		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		000	000		00
																								OR>25					
																02	NONE 0	TURN-L										
																	PRVTE	S -W									000		00
																	PSNGR CAR		01	DRVR	NONE	26	F	OR-Y		020	000		04
																								OR<25					
05912	N	N	N	N	N		10/29/2012	17	SW HERMAN RD	INTER	3-LEG	N	N	CLD	BIKE													110	04,18
CITY							MO	0	SW TUALATIN RD	CN		TRF SIGNAL	N	DRY	TURN			-											
							6P			01	1		N	DUSK	INJ			TURN-R	01	BIKE	INJC	12	M		I INRD	020	088	110	04,18
																		N W										
																01	NONE 0	STRGHT										
																	PRVTE	E -W									000		00
																	PSNGR CAR		01	DRVR	NONE	40	M	OR-Y		000	000		00
																								OR<25					
07770	N	N	N	N	N		08/09/2013	17	SW HERMAN RD	ALLEY		N	N	CLR	ANGL-OTH	01	NONE 0	BACK											10
STATE							FR	532	SW TUALATIN RD	SW	(NONE)	UNKNOWN	N	DRY	BACK		PRVTE	N -E									018		00
							1P			07			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	62	M	OR-Y		011	000		10
											(02)													OR<25					
																02	NONE 0	STRGHT										
																	PRVTE	E -W									000		00
																	PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		000	000		00
																								OR<25					
02736	N	Y	N				05/26/2013	17	SW HERMAN RD	INTER	CROSS	N	Y	CLD	FIX OBJ	01	NONE 0	TURN-R										043	08
CITY							SU	0	SW TETON AVE	SW		TRF SIGNAL	N	DRY	FIX		PRVTE	SW-S									000	043	00

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and Intersectional Crashes at HERMAN RD, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 27

SER# / INVEST	SPEED	ALCOHOL	DRUGS	SCHOOL BUS	WORK ZONE	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	A/S/E	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
						11P			09	2		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	28	M		SUSP OR>25		001,081	000		08
02544	N	N	N			05/16/2013	17	SW HERMAN RD	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											082	07
NONE						TH	0	SW TETON AVE	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE										000		00
						2P			06	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	21	M		OR-Y OR<25		026	000	082	07
															02	NONE 0	STOP												
																PRVTE	SW-NE										011		00
																PSNGR CAR		01	DRVR	NONE	71	M		OR-Y OR<25		000	000		00
00401	N	Y	N	N	N	01/23/2009	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT												03
CITY						FR	0	SW TETON AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	E -W										000		00
						7P			02	1		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	45	F		OR-Y OR<25		021	000		03
															02	NONE 0	STRGHT												
																PRVTE	S -N										015		00
																PSNGR CAR		01	DRVR	INJC	41	M		OR-Y OR<25		000	000		00
02453	N	N	N			05/19/2010	17	SW HERMAN RD	INTER	CROSS	N	N	RAIN	O-1TURN	01	NONE 0	TURN-L												02
CITY						WE	0	SW TETON AVE	CN		STOP SIGN	N	WET	TURN		PRVTE	NE-S										015		00
						12P			03	2		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	45	F		OR-Y OR<25		004,028	000		02
															02	NONE 0	STRGHT												
																PRVTE	SW-NE										015		00
																PSNGR CAR		01	DRVR	NONE	27	F		OR-Y OR<25		000	000		00
07569	N	N	N			12/15/2010	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT												04
NO RPT						WE	0	SW TETON AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NE-SW										000		00
						12P			01	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	64	M		OR-Y OR<25		097	000		00
															02	NONE 0	TURN-L												
																PRVTE	N -NE										000		00
																PSNGR CAR		01	DRVR	NONE	43	M		OR-Y OR<25		097	000		00
02049	N	N	N	N	N	04/24/2013	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	STRGHT												04
CITY						WE	0	SW TETON AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	SW-NE										000		00
						2P			03	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	27	M		OR-Y OR<25		000	000		00
															02	NONE 0	TURN-L												
																PRVTE	NE-S										000		00
																PSNGR CAR		01	DRVR	NONE	31	F		OR-Y OR<25		020,004	000		04
05038	N	N	N	N	N	09/10/2013	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 1	TURN-L												02
CITY						TU	0	SW TETON AVE	CN		FLASHBCN-A	N	DRY	TURN		PRVTE	SW-N										000		00
						4P			02	2		N	DAY	INJ		SEMI TOW		01	DRVR	NONE	39	M		OR-Y OR<25		028	000		02
															02	NONE 0	STRGHT												
																PRVTE	NE-SW										000		00
																PSNGR CAR		01	DRVR	INJB	26	M		OR-Y OR<25		000	000		00

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and Intersectional Crashes at HERMAN RD, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 27

SER# / INVEST	SP	ALC	DRSWK	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02284	N	N	N	05/03/2011	17	SW HERMAN RD	STRGHT		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										059,037,054	16
CITY				TU	250	SW 108TH AVE	SE	(NONE)	NONE	N	DRY	FIX		PRVTE	NE-SW									000	054,062,100	00
				10P			07			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	22	M	OR-Y		080,081	025		16
								(02)													OR>25					
04827	Y	N	N N N	09/13/2012	17	SW HERMAN RD	STRGHT		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										054	32,01
CITY				TH	1085	SW 108TH AVE	SW	(NONE)	UNKNOWN	N	DRY	FIX		PRVTE	NE-SW									000	054	00
				12P			07			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	32	M	SUSP		052,047,081	017		32,01
								(02)													OR<25					
05385	N	N	N N N	10/12/2010	17	SW HERMAN RD	STRGHT		N	N	CLR	O-1STOP	01	NONE 0	BACK										092	10,26
CITY				TU	150	SW 118TH AVE	NE	(NONE)	UNKNOWN	N	DRY	BACK		PRVTE	NE-SW									000	092	26
				7A			07			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		011,026	000		10,26
								(02)													OR<25					
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		01	DRVR	INJC	38	F	OR-Y		000	000		00
																					OR<25					
01733	Y	N	N Y	02/20/2009	17	SW HERMAN RD	STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											01
NONE				FR	50	SW 118TH AVE	E	(NONE)	OFCR/FLAG	N	DRY	REAR		PRVTE	SW-NE									000		00
				2P			05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	35	M	OR-Y		047,026	000		01
								(02)													OR>25					
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		01	DRVR	INJC	32	M	OTH-Y		000	000		00
																					N-RES					
02769	N	N	N N N	05/27/2013	16	SW HERMAN RD	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07
CITY				MO	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
				1P			06	2		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	35	M	OR-Y		026	000		07
																					OR<25					
													02	NONE 0	STOP											
														PRVTE	E -W									011		00
														PSNGR CAR		01	DRVR	INJB	38	M	OR-Y		000	000		00
																					OR>25					
													02	NONE 0	STOP											
														PRVTE	E -W									011		00
														PSNGR CAR		02	PSNG	INJB	36	F			000	000		00
03929	Y	N	N	08/11/2009	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											01
NONE				TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
				2P			06	2		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	62	F	OR-Y		047,026	000		01
																					OR<25					
													02	NONE 0	STOP											
														PRVTE	W -E									011		00
														PSNGR CAR		01	DRVR	INJB	65	F	OR-Y		000	000		00
																					OR>25					
													02	NONE 0	STOP											
														PRVTE	W -E									011		00
														PSNGR CAR		02	PSNG	INJB	74	M			000	000		00
													02	NONE 0	STOP											
														PRVTE	W -E									011		00
														PSNGR CAR		03	PSNG	INJB	09	M			000	000		00

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and Intersectional Crashes at HERMAN RD, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 27

SER# / INVEST	SPE	ALC	DRS	UCK	OWH	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00070	N	N	N	N	N	01/05/2011	16	SW HERMAN RD	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
CITY						WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	W -E										000		00
						9A			03	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	64	F	OR-Y OR>25		020	000		04
															01	NONE 0	STRGHT											
																PRVTE	W -E									000		00
																PSNGR CAR		02	PSNG	NO<5	04	F			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	N -S									000		00
																PSNGR CAR		01	DRVR	NONE	18	M	N-VAL OR<25		000	000		00
00906	N	N	N	N	N	02/20/2013	16	SW HERMAN RD	INTER	CROSS	N	N	RAIN	O-1TURN	01	NONE 0	STRGHT											02
CITY						WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN		PRVTE	S -N									000		00
						3P			04	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	27	M	OR-Y OR<25		028	000		02
															02	NONE 0	TURN-L											
																PRVTE	N -E									000		00
																PSNGR CAR		01	DRVR	NONE	69	M	OR-Y OR<25		004	000		00
04215	N	N	N			08/02/2013	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	STRGHT											02
NO RPT						FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S									000		00
						7A			01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	M	OR-Y OR<25		000	000		00
															02	NONE 0	TURN-L											
																PRVTE	S -W									000		00
																PSNGR CAR		01	DRVR	NONE	28	M	OR-Y OR<25		028	000		02
03704	N	N	N	N	N	07/26/2010	17	SW HERMAN RD	STRGHT		N	N	CLR	S-OTHER	01	NONE 0	STRGHT											08
NONE						MO	120	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	E -W									000		00
						2P			08			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	38	M	OR-Y OR<25		000	000		00
										(02)																		
															02	NONE 0	U-TURN											
																PRVTE	E -E									000		00
																PSNGR CAR		01	DRVR	NONE	68	M	OR-Y OR<25		008	000		08
00689	Y	N	N			02/10/2009	17	SW HERMAN RD	INTER	3-LEG	N	N	SNOW	S-1STOP	01	NONE 0	STRGHT											01
NO RPT						TU	0	SW 129TH AVE	CN		STOP SIGN	N	ICE	REAR		PRVTE	W -E									001		00
						7A			03	0		N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	32	F	OR-Y OR<25		047,026	000		01
															02	NONE 0	STOP											
																PRVTE	W -E									012		00
																PSNGR CAR		01	DRVR	NONE	41	F	OR-Y OR<25		000	000		00
05493	Y	N	N	N	N	09/28/2013	17	SW HERMAN RD	STRGHT		N	Y	RAIN	FIX OBJ	01	NONE 0	STRGHT										079	30
COUNTY						SA	200	SW 129TH AVE	E	(NONE)	UNKNOWN	N	WET	FIX		PRVTE	W -E									000	079	00
						3P			07			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	26	M	SUSP OR<25		050,081	017		30
										(02)																		
03583	N	N	N			07/21/2009	19	SW HERMAN RD	INTER	3-LEG	N	N	UNK	O-1STOP	01	UNKN 0	BACK											10

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and Intersectional Crashes at HERMAN RD, City of Tualatin, Washington County, 01/01/2009 to 12/31/2013

Total crash records: 27

SER# / INVEST	S P E D	A L C	U G S	C H L	O R K	W	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
NONE							TU	0	SW 125TH CT	N		STOP SIGN	N	UNK	BACK		PRVTE	S -N									000		00
							10A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	OR-Y OR<25		011,026	000		10
																02	NONE 0	STOP									011		00
																	PRVTE	S -N											
																	PSNGR CAR		01	DRVR	NONE	44	M	OR-Y OR<25		000	000		00
00224	N	Y	N	N	N		01/13/2013	17	SW HERMAN RD	STRGHT		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										062,010	27
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Ruth T LLC Building #6

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EXHIBITS

A. Application form and fact sheet
B. Signed Affidavit of Posting
C. CWS Service Provider Letter (Pre-Screen)
D. Neighborhood/Developer Meeting Materials
E. Republic Services Approval Letter
F. Assessor's Map
G. Lighting Cut Sheets

ATTACHED SEPARATELY:

(5) Traffic Analysis Report
(1) 8.5"x11" Plans
(5) 11"x17" Plans
(5) 24"x36" Plans

I. PROJECT SUMMARY

Applicant: Ruth T LLC
Attention: David Silvey
PO Box 205
Tualatin, OR 97062

Applicant's Representative/ Project Contact: Silco Commercial Construction
Rory Antis
rantis@silco.info

8316 N. Lombard #451
Portland, OR 97203
(503) 286-8691

Plan District Designation: MG (General Manufacturing)

Site Addresses: 12171 & 12225 SW Herman Road
Tualatin, Oregon

Site Size: 1.91 Acres

Tax Map/Lots: 2S122C000606 & 2S122C000602

Request: Architectural Review (Architectural Review Board)

Applicable Criteria:

TDC Chapter 61: General Manufacturing Planning District
- Section 61.020 Permitted Uses

TDC Chapter 73: Community Design Standards
- Architectural Review Approval
  - Section 73.050 Criteria and Standards (1)
- Design Standards
  - Section 73.160 Standards (3)(c)
  - Section 73.210 Objectives
  - Section 73.220 Standards
  - Section 73.200 Structure Design - Commercial, Industrial, Public and Semi-Public Uses
  - Section 73.225 Mixed Solid Waste and Source Separated Recyclables Storage Areas for New or Expanded Multi-Unit Residential, Including Townhouses, Commercial, Industrial, Public and Semi-Public Development
  - Section 73.226 Objectives
  - Section 73.227 Standards
- Landscaping
  - Section 73.240 Landscaping General Provisions (3, 11, 13)
  - Section 73.250 Tree Preservation
  - Section 73.260 Tree and Plant Specifications

Section 73.270 Grading
Section 73.280 Irrigation System Required
Section 73.290 Re-vegetation in Un-landscaped Areas
Section 73.310 Landscape Standards – Commercial, Industrial, Public and Semi-Public Uses
Off-Street Parking Lot Landscaping
Section 73.320 Off-Street Parking Lot Landscaping Standards
Section 73.340 Off-Street Parking Lot and Loading Area Landscaping - Commercial, Industrial, Public and Semi-Public Uses, and Residential and Mixed Use Residential Uses within the Central Design District
Section 73.360 Off-Street Parking Lot Landscape Islands - Commercial, Industrial, Public, and Semi-Public Uses
Section 73.370 Off-Street Parking and Loading
Section 73.380 Off-Street Parking Lots (6)
Section 73.390 Off-Street Loading Facilities
Section 73.400 Access

TDC Chapter 34: Special Regulations
Tree Removal Criteria
Section 34.230 Criteria

II. INTRODUCTION AND PROPOSAL

This application package includes narrative, plans, drawings, and additional documentation in support of an Architectural Review (AR) for an industrial buildings at 12171 SW Herman Road. Ruth T LLC is the developer and owner.

SITE DESCRIPTION

The subject site is specifically described as map 2S122C0 lots 606 and 602. The site and surrounding properties are industrially developed and zoned MG – General Manufacturing Planning District.

Part of the subject site was previously used as a residence. The existing buildings will be demolished, and the site will be graded as reviewed and approved by the City of Tualatin, Clean Water Services, and Oregon DEQ, according to 1200-C permit.

The site fronts SW Herman Road.

PROPOSAL

The building will be 25,000 SF.
There is a tenant scheduled to lease the building.

The proposed development will be an aesthetic asset to the neighborhood. The landscape design and architectural features will blend with the surrounding developments.
The buildings will be concrete tilt-up, but will have windows to provide an office appearance along the front and rear facades. The entry feature will be protruded for articulation along the front façade. The overall appearance for this building will be business-like.

A scoping meeting for this project was held with the City of Tualatin on June 22, 2015, and a pre-application conference was held on August 17, 2015. A neighborhood/developer meeting was held on September 4, 2015; mailing labels, invitation letter, affidavit of mailing, certification of posting, and meeting sign-in sheet are attached to this application as Exhibit D.

Figure II.1 Aerial Map

III. DEVELOPMENT CODE COMPLIANCE

The proposed development complies with City of Tualatin Development Code standards, as shown below. As mentioned above, this application requests AR approval for a new 25,000 SF warehouse/manufacturing/office development on the 1.91-acre site.

Site Area (SF)	**78,270**
Building Area (SF)	**25,000**
Building Coverage On Lot (%)	**31.94**
Landscape Area (SF)	**16,401**
Landscape %	**20.95**
Standard Parking	**44**
Accessible Parking	**2**
Van/Carpool	**2**
Dock Door Count	**2**
Drive-In Door Count	**2**

ON-SITE DEVELOPMENT

This application proposes one building of 25,000 SF. There is a tenant for the building. The building is designed for warehouse/manufacturing uses with supporting office (see attached site plan, C2.1, for specific breakdowns of uses for each building). The site is zoned MG – General Manufacturing and the proposed uses are permitted outright.

The building will be 30' tall and will be tilt-up concrete with a decorative scoring pattern and paint scheme (see attached colored elevations). Storefront entrance systems and windows are proposed along the building façade to help break up the scale of the buildings. The loading docks are on each side of the building. The trash and recycling area is adjacent to the westerly loading dock. The location and design of the trash and recycling areas for each building have been approved by Republic Services, the solid waste hauler (see Exhibit G, letter from Frank Lonergan).

As shown in the table above, 46 parking spaces will be provided to serve the building users (2 accessible and 2 vanpool/carpool). Parking lot landscaping and perimeter landscape materials are proposed in accordance with City code standards.

Several joint water quality and detention areas are proposed on the south and west sides of the site, designed to treat the impervious areas created by the four proposed buildings. A series of pipes and catch basins will collect runoff from the parking area and discharge into the pond, promoting water quality and detention for the development.

OFF-SITE DEVELOPMENT

Street Improvements

The proposed development will be served by SW Herman Road. The only work that will be done in the ROW is the removal of the existing residential driveway approach and installing new sidewalk and curb.

PUBLIC FACILITIES

Stormwater System

The proposed stormwater system is designed to treat and detain runoff to City of Tualatin and Clean Water Services (CWS) requirements. Runoff will be discharged in two locations into existing catch basins with 12" storm drain line, one located near the southwest corner of the site, the other near the center of the south property line.

Treatment will be provided by vegetated facilities. Three vegetated facilities are located on the property to provide both treatment and detention of runoff. These areas are heavily vegetated and a significant component of the site's landscaping.

Detention of runoff to pre-developed rates will be provided by curb cuts and the vegetated facilities. Overflow risers at the vegetated facilities will control the release rate from those areas.

The storm drain system has been designed to comply with the requirements for future subdivision of the property as shown on the plans. Each of the future parcels will comply, individually, with city and CWS drainage requirements.

See attached utility plan (C6) for details.

Sanitary Sewer System

Sanitary sewer service will be provided by one connection to existing sanitary sewer at southwest corner of property. All sanitary sewer service will be gravity drained. No pumps will be required.

Streets

Vehicle access to the site will come from SW Herman Road. Truck access will be at both driveways on SW Herman Road

IV. APPROVAL CRITERIA

This application addresses the necessary approval standards of the Tualatin Development Code relevant to Architectural Review for industrial development. As described in the following narrative, the proposal meets the standards of TDC *Chapter 61: General Manufacturing Planning District (MG)* and TDC *Chapter 73: Community Design Standards*.

The following tables identify applicable development standards and how the proposed development satisfies each (see the complete table on the attached site plan, C2, for full calculations).

	City of Tualatin (MG District)	Proposed (Site Total)
Setback Requirements		
Front Yard Side Yard Rear Yard	30’ 0’ to 50’ 0’ to 50’	62.45’ 36.75’ and 53.72’ 45.33’
Parking and Circulation	10’ Street 5’ Interior	9’-4” Street 5’ Interior
Maximum Structure Height	60’	33’
Landscaping	15% of total site area	20.95%
Minimum Parking (per 1000 GSF) Warehousing Manufacturing General Office	 0.3 1.6 2.7	
Maximum Parking (per 1000 GSF) Warehousing Manufacturing General Office	Zone B 0.5 None 4.1	 0 None 11
Minimum Bicycle Parking	Warehousing/Manufacturing: 2, or 0.1 per 1,000 GSF, whichever is greater Office: 2, or 0.5 per 1,000 GSF, whichever is greater	2
Percentage of Bicycle Parking to be Covered	First 5 spaces or 30% of parking spaces, whichever is greater	100%

CHAPTER 61: GENERAL MANUFACTURING PLANNING DISTRICT

Section 61.020 Permitted Uses:

No building, structure or land shall be used, except for the following uses as restricted in TDC 61.021.

(1) All uses permitted by TDC 60.020 in the Light Manufacturing Planning District.

Response: The proposed use associated with this development is warehousing and distribution with supporting office; these uses are allowed in the MG district. While future tenants have not been identified, the development will serve warehousing and distribution uses. This standard is met.

CHAPTER 73: COMMUNITY DESIGN STANDARDS

Architectural Review Approval

Section 73.050 Criteria and Standards (1)

(1) In exercising or performing his or her powers, duties, or functions, the Planning Director shall determine whether there is compliance with the following:

(a) The proposed site development, including the site plan, architecture, landscaping, parking and graphic design, is in conformance with the standards of this and other applicable City ordinances insofar as the location, height, and appearance of the proposed development are involved;

(b) The proposed design of the development is compatible with the design of other developments in the general vicinity; and

(c) The location, design, size, color and materials of the exterior of all structures are compatible with the proposed development and appropriate to the design character of other developments in the vicinity.

Response: The proposed development is consistent with the existing industrial development on all sides; all zoned MG and similarly developed. The proposed development has been designed as a high quality and long lasting development, similar to other Ruth T, LLC properties. The development will be compatible with surrounding industrial properties. As shown below and on the enclosed plans, the proposed development meets the applicable standards of the City of Tualatin Development Code. This standard is met.

(2) In making his or her determination of compliance with the above requirements, the Planning Director shall be guided by the objectives and standards set forth in this chapter. If the architectural review plan includes utility facilities or public utility facilities, then the City Engineer shall determine whether those aspects of the proposed plan comply with applicable standards.

Response: This application includes architectural features as well as utility facilities and public improvements. Silco's team has worked closely with the City of Tualatin to plan utilities in a manner consistent with City code and beneficial for both the subject site and the surrounding area. This standard is met.

(3) In determining compliance with the requirements set forth, the Planning Director shall consider the effect of his or her action on the availability and cost of needed housing...

Response: The proposed development does not include housing. This standard does not apply.

(4) As part of Architectural Review, the property owner may apply for approval to cut trees in addition to those allowed in TDC 34.200. The granting or denial of a tree cutting permit shall be based on the criteria in TDC 34.230.

Response: The proposed project currently contains 6 trees (after demo and erosion control activity completed through those previously issued permits). The existing trees will be protected during construction. Additional trees will be planted after the site is developed. *Section 34.230 Criteria* is addressed in this narrative.

(5) Conflicting Standards. In addition to the MUCOD requirements, the requirements in TDC Chapter 73 (Community Design Standards) and other applicable Chapters apply…

Response: The subject site is not within the MUCOD. This standard does not apply.

Design Standards

Section 73.160 Standards (3)(c)

(1) Pedestrian and Bicycle Circulation:

(b) For Industrial Uses:

(i) a walkway shall be provided from the main building entrance to sidewalks in the public right-of-way and other on-site buildings and accessways. The walkway shall be a minimum of 5 feet wide and constructed of concrete, asphalt, or a pervious surface such as pavers or grasscrete, but not gravel or woody material, and be ADA compliant, if applicable.

(ii) Walkways through parking areas, drive aisles and loading areas shall have a different appearance than the adjacent paved vehicular areas.

(iii) Accessways shall be provided as a connection between the development's walkway and bikeway circulation system and an adjacent bike lane;

(iv) Accessways may be gated for security purposes;

(v) Outdoor Recreation Access Routes shall be provided between the development's walkway and bikeway circulation system and parks, bikeways and greenways where a bike or pedestrian path is designated.

Response: An 8' wide painted walkway will connect the main entrance of the building to the public ROW, as shown in the attached plans. Within the site, walkways will be 5' wide. This standard is met.

(c) Curb ramps shall be provided wherever a walkway or accessway crosses a curb.

Response: Curb ramps will be provided, as shown on the attached site plan (C2.1), where the walkway crosses a curb or drive aisle. This standard is met.

(d) Accessways shall be a minimum of 8 feet wide and constructed in accordance with the Public Works Construction Code if they are public accessways, and if they are private accessways they shall be constructed of asphalt, concrete or a pervious surface such as pervious asphalt or concrete, pavers or grasscrete, but not gravel or woody material, and be ADA compliant, if applicable.

Response: As shown on the attached site plan, 8' wide striped accessway will be provided between the building and SW Herman Road. This standard is met.

(e) Accessways to undeveloped parcels or undeveloped transit facilities need not be constructed at the time the subject property is developed. In such cases the applicant for development of a parcel adjacent to an undeveloped parcel shall enter into a written

agreement with the City guaranteeing future performance by the applicant and any successors in interest of the property being developed to construct an accessway when the adjacent undeveloped parcel is developed. The agreement shall be subject to the City's review and approval.

Response: No accessways to undeveloped parcels or transit facilities are proposed. This standard does not apply.

(f) Where a bridge or culvert would be necessary to span a designated greenway or wetland to provide a connection to a bike or pedestrian path, the City may limit the number and location of accessways to reduce the impact on the greenway or wetland.

Response: There are no wetlands on the site. This standard does not apply.

(g) Accessways shall be constructed, owned and maintained by the property owner.

Response: All accessways will be constructed by the applicant and will be owned and maintained by the owner. This standard is met.

(2) Drive-up Uses

Response: The use proposed does not include a drive-up facility. This section does not apply.

(3) Safety and Security

(a) Locate windows and provide lighting in a manner which enables tenants, employees and police to watch over pedestrian, parking and loading areas.

Response: In order to create a safe environment, the proposed development includes exterior building lighting as well as parking lot lighting (see attached site plan and lighting cut sheets). As shown in the attached architectural plans, windows will be located on at least three elevations of all buildings, thus facing most of the parking areas and facing as many pedestrian, drive aisle, and loading areas as possible. This standard is met.

(b) In commercial, public and semi-public development and where possible in industrial development, locate windows and provide lighting in a manner which enables surveillance of interior activity from the public right-of-way.

Response: The proposed industrial development will be oriented to the street and public right-of-way along SW Herman Road; the building frontage is on Herman Road, additional storefront window systems allow building users the ability to view abutting pedestrian and parking areas. Windows will be visible from the adjacent building to the North. In addition (see lighting plan (ES1), site lighting will illuminate the building frontage and the parking area in between the building and right-of-way. This standard is met.

(c) Locate, orient and select on-site lighting to facilitate surveillance of on-site activities from the public right-of-way without shining into public rights-of-way or fish and wildlife habitat areas.

Response: No fish or wildlife habitat areas exist near the site. As shown on the lighting plan (ES1), site lighting will illuminate the buildings, loading areas and parking areas allowing these areas to be seen from the right-of-way. This standard is met.

(d) Provide an identification system which clearly locates buildings and their entries for patrons and emergency services.

Response: As shown in the attached plans (see 3.0), building addresses will be mounted at building corner near the entrance, clearly visible for building users and from the adjacent right of way. This standard is met.

(e) Shrubs in parking areas must not exceed 30 inches in height. Tree canopies must not extend below 8 feet measured from grade.

Response: As shown in the attached landscape plans (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade, and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

(f) Above ground sewer or water pumping stations, pressure reading stations, water reservoirs, electrical substations, and above ground natural gas pumping stations shall provide a minimum 6' tall security fence or wall.

Response: The site does not include any of these elements. This standard does not apply.

(4) Service, Delivery and Screening

(a) On and above grade electrical and mechanical equipment such as transformers, heat pumps and air conditioners shall be screened with sight obscuring fences, walls or landscaping.

Response: As shown in the attached plans, no on-grade electrical or mechanical equipment is proposed. As shown on the attached plans, all mechanical units will be placed at least 20' back from the edge of the roof, concealed from the line of sight from the street level. This standard does not apply, but is met.

(b) Outdoor storage, excluding mixed solid waste and source separated recyclables storage areas listed under TDC 73.227, shall be screened with a sight obscuring fence, wall, berm or dense evergreen landscaping.

Response: As shown on the attached plans, the site does not include any outdoor storage except trash and recycling enclosures. This standard does not apply.

(c) Above ground pumping stations, pressure reading stations, water reservoirs; electrical substations, and above ground natural gas pumping stations shall be screened with sight obscuring fences or walls and landscaping.

Response: The site does not include any of these elements. This standard does not apply.

(5) The Federal Americans with Disabilities Act (ADA) applies to development in the City of Tualatin. Although TDC, Chapter 73 does not include the Oregon Structural Specialty Code's (OSSC) accessibility standards as requirements to be reviewed during the Architectural Review process, compliance with the OSSC is a requirement at the Building Permit step. It is strongly recommended all materials submitted for Architectural Review show compliance with the OSSC.

Response: The site plan and building are generated with the knowledge that ADA and OSSC standards must be met during the building permit process. This standard is met.

(6) (a) All industrial, institutional, retail and office development on a transit street designated in TDC Chapter 11 (Figure 11-5) shall provide either a transit stop pad on-site, or an on-site or public sidewalk connection to a transit stop along the subject property's frontage on the transit street.

Response: The proposed project is not on a transit street. This standard does not apply.

(b) In addition to (a) above, new retail, office and institutional uses abutting major transit stops as designated in TDC Chapter 11 (Figure 11-5) shall…

Response: The site is not abutting a major transit stop shown in the figure. This standard does not apply.

Section 73.210 Objectives

(1) Minimize disruption of natural site features such as topography, trees and water features.

Response: The site is currently partially developed and has been used most recently for a residence. There are no natural features such as water features; several trees remain on the site after demolition through the previous demolition and erosion control permits. These trees will be protected during construction. The site's natural contours will be minimally disturbed during the development of the site. This standard is met.

(2) Provide a composition of building elements which is cohesive and responds to use needs, site context, land form, a sense of place and identity, safety, accessibility and climatic factors. Utilize functional building elements such as arcades, awnings, entries, windows, doors, lighting, reveals, accent features and roof forms, whenever possible, to accomplish these objectives.

Response: Generous glazing along the street-facing façades, in combination with extruded storefront entrance systems, will clearly highlight the main entrances for the buildings. Additional windows will be provided along the corner façades at the rear of the building to emphasize corners and provide visual interest where potential office areas may occur. All proposed window areas allow building users to view the abutting parking areas. Other building elements, such as reveals, roof forms, and parapets, will be consistent among the park, similar to other such buildings in Tualatin, and will create a cohesive design. The reveals are spaced to create a human scale, align with building elements, create an overall balanced façade, and are consistent with the buildings nearby. The roof forms will be screened by the parapets; that look is cohesive amongst other tilt concrete buildings in the area. This standard is met.

(3) Where possible, locate loading and service areas so that impacts upon surrounding areas are minimized. In industrial development loading docks should be oriented inward to face other buildings or other loading docks. In commercial areas loading docks should face outward towards the public right-of-way or perimeter of the site or both.

Response: As shown in the attached plans (see C2), the loading areas on the site will all be oriented toward the building to the north. Loading docks will be accessed primarily via the two entries to the site; both entries are on SW Herman Road. This standard is met.

(4) Enhance energy efficiency in commercial and industrial development through the use of landscape and architectural elements such as arcades, sunscreens, lattice, trellises, roof overhangs and window orientation.

Response: The provided landscape will improve energy efficiency for the proposed building; where possible, trees will be located on the south and west sides of the buildings to provide shade. Modern, efficient insulation will be used in all buildings according to the ComCheck energy modeling tool, incompliance with the Oregon Energy Code. This standard is met.

(5) Locate and design entries and loading/service areas in consideration of climatic conditions such as prevailing winds, sun and driving rains.

Response: Windows and entries were located on the site for function and accessibility. This standard is met.

(6) Give consideration to organization, design and placement of windows as viewed on each elevation having windows. Surveillance over parking areas from the inside, as well as visual surveillance from the outside in, should be considered in window placement.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, drive aisle, and loading areas as possible. Windows will be visible from the sidewalk on Herman Road and from the building to the North. This standard is met.

(7) Select building materials which contribute to the project's identity, form and function, as well as to the surrounding environment.

Response: The building materials (concrete tilt-up with reveals, storefront window glazing, and decorative elements such as paint schemes emphasizing the entrances and storefront) are typical of and suitable for similar industrial buildings in the region and area. The materials contribute to the industrial identity of the area with the surrounding industrial uses while providing an attractive site.. See attached colored perspectives (Exhibit I) for renderings. This standard is met.

(8) Select colors in consideration of lighting conditions and the context under which the structure is viewed, the ability of the material to absorb, reflect or transmit light and the color's functional role (e.g., to identify and attract business, aesthetic reasons, image-building).

Response: The blue and tan color scheme selected for the proposed buildings will create a visually appealing development. The color selection and placement will create a visual balance and add emphasis to the entrances and storefronts of the building. The color scheme is similar to the building to the North. See attached colored elevations (Exhibit I). This standard is met.

(9) Where possible, locate windows and provide lighting in a manner which enables tenants, employees and police to watch over pedestrian, parking and loading areas.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, and drive aisle areas as possible. Windows will be visible from the sidewalk (at Herman Road). This standard is met.

(10) Where practicable locate windows and provide lighting in a manner which enables surveillance of interior activity from the public right-of-way or other public areas.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, and drive aisle areas as possible. Windows will be visible from the sidewalk (at Herman Road). In addition, exterior lighting will be located around the site at strategic locations to provide lighting at walkways and near building windows, allowing pedestrians and other users of the right-of-way to clearly view the building and dock areas (see attached plans). This standard is met.

Section 73.220 Standards

(1) Safety and Security

(a) Locate, orient and select on-site lighting to facilitate surveillance of on-site activities from the public right-of-way or other public areas without shining into public rights-of-way or fish and wildlife habitat areas.

Response: As shown in the attached plans, the building will be oriented toward street frontage (SW Herman Road). In order to create a safe environment, the proposed development includes exterior building lighting as well as parking lot lighting (see attached lighting plan (ES1) and lighting cut sheets). Site lighting will illuminate the building frontage and the parking area in between the building and right-of-way. No fish or wildlife habitat areas exist near the site. This standard is met.

(b) Provide an identification system which clearly identifies and locates buildings and their entries.

Response: As shown in the attached plans (3.0), the building address will be mounted at building corner near entrance, clearly visible for building users and from the adjacent right of way. This standard is met.

(c) Shrubs in parking areas shall not exceed 30 inches in height, and tree canopies must not extend below 8 feet measured from grade.

Response: As shown in the attached landscape plans (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

Section 73.226 Objectives

(1) Screen elements such as garbage and recycling containers from view.

Response: As shown on the attached plans, one trash/recycling area is proposed for the building, providing easy access and maneuverability for the solid waste hauler. It will be placed within the loading and maneuvering areas and will be screened by sight-obscuring painted concrete masonry unit walls and chain-link gates with sight obscuring slats, as well as sight-obscuring evergreen shrubs. This standard is met.

(2) Ensure storage areas are centrally located and easy to use.

Response: As shown on the attached plans, the trash enclosure will be located at the northwest corner of the building, providing convenient access for both building users and the trash hauler. The trash enclosures is located near exit doors, loading areas, and parking areas and drive aisles, and have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(3) Meet dimensional and access requirements for haulers.

Response: Republic Services, the trash hauler for the site, requires 21'x9' (interior dimensions) enclosures with no center posts, in addition to 35"–40" openings for glass carts and user access. Trash containers will be typically 3–4 cubic yard size and are 8' wide and 4'–5' deep. As shown on the attached plans (see details on 6.1), trash enclosures will be 21'-6” by 9’-8”, and all include 3'-6” wide openings for carts and pedestrian users. These have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(4) Designed to mitigate the visual impacts of storage areas.

Response: As shown on the attached plans, trash enclosures will be placed to the interior of the site within the loading and maneuvering areas and will be screened by sight-obscuring painted concrete masonry unit walls and chain-link gates with sight obscuring slats, as well as sight-obscuring evergreen shrubs. This standard is met.

(5) Provide adequate storage for mixed solid waste and source separated recyclables.

Response: As shown, the trash enclosures will accommodate both recycling; glass recycling, and garbage containers. All trash enclosures will accommodate typical Republic Services trash and recycling containers (trash containers will be typically 8' wide and 4'–5' deep). This standard is met. According to City standards, 10 SF of garbage storage per 1,000 SF of building will be provided for each building, as described in Section 73.227 (2) (a) (v), and have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(6) Improve the efficiency of collection of mixed solid waste and source separated recyclables.

Response: According to Republic Services and City standards, the trash enclosures are designed to efficiently accommodate both trash and recycling containers, and allow convenient access by hauler vehicles. These have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

Section 73.227 Standards

(1) The mixed solid waste and source separated recyclables storage standards shall apply to all new or expanded multi-family residential developments containing five or more units and to new or expanded commercial, industrial, public and semi-public development.

Response: The project is a new industrial development. These standards apply and are addressed below.

(2) Minimum Standards Method.

(a) The size and location of the storage area(s) shall be indicated on the site plan. Compliance with the requirements set forth below are reviewed through the Architectural Review process.

(i) The storage area requirement is based on the area encompassed by predominant use(s) of the building (e.g., residential, office, retail, wholesale/warehouse/manufacturing, educational/institutional or other) as well as the area encompassed by other distinct uses. If a building has more than one use and that use occupies 20 percent or less of the gross leasable area (GLA) of the building, the GLA occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one use and that use occupies more than 20 percent of the GLA of the building, then the storage area requirement for the whole building shall be the sum of the area of each use.

Response: As shown on the attached plans, the building will have one tenant.

The calculation below in section 73.227(2)(a)(v) explains the required solid waste storage area for the building. This standard is met.

(ii) Storage areas for multiple uses on a single site may be combined and shared.

Response: While no tenants are proposed at this time, it is anticipated that each building will contain a mix of warehouse, office, and manufacturing uses. One or two trash enclosures are proposed for each building. This standard is met.

(iii) The specific requirements are based on an assumed storage area height of 4 feet for mixed solid waste and source separated recyclables. Vertical storage higher than 4 feet, but no higher than 7 feet may be used to accommodate the same volume of storage in a reduced floor space (potential reduction of 43 percent of specific requirements). Where vertical or stacked storage is proposed, submitted plans shall include drawings to illustrate the layout of the storage area and dimensions for containers.

Response: No stacked or vertical storage is proposed. This standard does not apply.

(iv) Multi-family residential developments containing 5-10 units shall provide a minimum storage area of 50 square feet. Multi-family residential developments containing more than 10 units shall provide 50 square feet plus an additional 5 square feet per unit for each unit above 10.

Response: The project does not include any multi-family residential development. This standard does not apply.

(v) Commercial, industrial, public and semi-public developments shall provide a minimum storage area of 10 square feet plus: Office - 4 square feet/1000 square feet gross leasable area (GLA); Retail - 10 square feet/1000 square feet GLA;
Wholesale/ Warehouse/ Manufacturing - 6 square feet/1000 square feet GLA;
Educational and institutional - 4 square feet/1000 square feet GLA;
and other – 4 square feet/1000 square feet GLA.

Response: As shown in the table below and in the attached plans (see C2.1), the enclosure proposed will be more than adequate for the building and use. This standard is met.

Trash Enclosure Requirements		
Use	Trash Enclosure (SF)	
	Required	Provided
Office	10.74	
Manufacturing	133.89	
Warehouse	0	
Total	**144.63**	**207.83**

Response: As shown on the attached plans, trash/recycling area will be 207.83 SF and is proposed for the building, providing easy access and maneuverability for the solid waste hauler. It will be placed within the loading and maneuvering areas and will be screened by sight obscuring painted concrete masonry unit walls and chain-link gates with sight-obscuring slats, as well as sight-obscuring evergreen shrubs. The trash enclosure will be 21'-6" by 9'-8", as shown on the attached plans and details (see C2 and details on 6.1). The local garbage hauler, Republic Services, has reviewed and approved the proposed design (see Exhibit G, letter from Frank Lonergan). This standard is met.

(5) Franchised Hauler Review Method. The franchised hauler review method provides for a coordinated review of the pro-posed site plan by the franchised hauler serving the subject property. This method can be used when there are unique conditions associated with the site, use, or waste stream that make compliance with any of the three other methods impracticable. The objective of this method is to match a specific hauler program (types of equipment, frequency of collection, etc.) to the unique characteristic(s) of the site or development. The applicant shall coordinate with the franchised hauler to develop a plan for storage and collection of mixed solid waste and source separated recyclables to be

generated. A narrative describing how the proposed site meets one or more unique conditions, plus site plan and architectural drawings showing the size and location of storage area(s) required to accommodate anticipated volumes shall be submitted for Architectural Review. Additionally, a letter from the franchised hauler shall be submitted with the application that de-scribes the level of service to be provided by the hauler, including any special equipment and collection frequency, which will keep the storage area from exceeding its capacity. For purposes of this subsection the following constitute unique conditions:

(a) Use of either of the three other methods of compliance would interfere with the use of the proposed development by reducing the productive space of the proposed development, or make it impossible to comply with the minimum off-street parking requirements of the underlying planning district, or

(b) The site is of an irregular shape or possesses steep slopes that do not allow for access by collection vehicles typically used by the franchised hauler to serve uses similar in size and scope to the proposed use, or

(c) The proposed use will generate unique wastes that can be stacked, folded, or easily consolidated without the need for specialized equipment, such as a compactor, and can therefore be stored in less space than is required by the Minimum Standards Method. If the application does not demonstrate that the franchised hauler method requires less space, through the Architectural Review process the minimum standards method may be required. The franchised hauler method shall be reviewed and approved as part of the Architectural Review process.

Response: The franchised hauler, Republic Services has reviewed and approved the design and location of the trash/recycling enclosure. Republic Services is the current franchise hauler for the proposed tenant. This standard is met.

(6) Location, Design and Access Standards for Storage Areas.

(a) Location Standards

(i) To encourage its use, the storage area for source separated recyclables may be collocated with the storage area for mixed solid waste.

Response: As shown in the attached plans (see details on 6.1), the trash enclosure areas will include space for recyclables as well as trash. This standard is met.

(ii) Indoor and outdoor storage areas shall comply with Building and Fire Code requirements.

Response: As shown in the attached plans (see details on 6.1), the trash enclosure area will comply with Building and Fire Code requirements and will be constructed entirely of non-combustible materials. This standard is met.

(iii) Storage area space requirements can be satisfied with a single location or multiple locations, and can combine both interior and exterior locations.

Response: As shown in the attached plans and described above, one trash enclosure will be provided to serve the building; this will be located in an exterior location. This standard is met.

(iv) Exterior storage areas shall not be located within a required front yard setback or in a yard adjacent to a public or private street.

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in the loading and drive areas; none are located in the required setbacks or directly adjacent to public streets. In addition, the trash enclosure will be screened with evergreen arbor vitae shrubs. The location has been approved by Republic Services, as shown in Exhibit G. This standard is met.

(v) Exterior storage areas shall be located in central and visible locations on the site to enhance security for users.

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in easily accessible, location for building users. This standard is met.

(vi) Exterior storage areas can be located in a parking area, if the proposed use provides parking spaces required through the Architectural Review process. Storage areas shall be appropriately screened according to TDC 73.227(6)(b)(iii).

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in the loading and drive areas adjacent to parking areas. All required parking spaces will be provided in the parking lots. Trash enclosures will be screened by sight obscuring painted concrete masonry unit walls and chain-link gates as well as sight-obscuring evergreen shrubs. This standard does not apply and is met.

(vii) Storage areas shall be accessible for collection vehicles and located so that the storage area will not obstruct pedestrian or vehicle traffic movement on site or on public streets adjacent to the site.

Response: As shown in the attached plans (see C2), all trash enclosure areas will be located in easily accessible locations along internal maneuvering areas; use of this area will not obstruct the required drive aisle width and no pedestrian paths cross their access areas. According to Republic Services standards, the trash enclosure has at least 50' clearance, so trucks can maneuver easily. This standard is met.

(b) Design Standards

(i) The dimensions of the storage area shall accommodate containers consistent with current methods of local collection at the time of Architectural Review approval.

Response: As shown on the attached plans, and discussed in this narrative, the trash enclosure meets the size requirements of the City and hauler, Republic Services. The site will meet the Minimum Standards method for trash storage, as discussed in this narrative's response to Section 73.227 (2) (A). This standard is met.

(ii) Storage containers shall meet Fire Code standards and be made and covered with water proof materials or situated in a covered area.

Response: Storage containers will be provided by Republic Services and will be standard trash and recyclable storage receptacles, made of and covered with waterproof metal and/or plastic. This standard is met.

(iii) Exterior storage areas shall be enclosed by a sight obscuring fence or wall at least 6feet in height. In multi-family, commercial, public and semi-public developments evergreen plants shall be placed around the enclosure walls,

excluding the gate or entrance openings. Gate openings for haulers shall be a minimum of 10 feet wide and shall be capable of being secured in a closed and open position. A separate pedestrian access shall also be provided in multi-family, commercial, public and semi-public developments.

Response: As shown on the plans, trash/recycling areas will be screened by sight-obscuring painted concrete masonry unit walls and metal gates as well as sight-obscuring evergreen shrubs surrounding the trash and recycling units. Gate openings will be 18' wide. The project is not a multi-family, commercial, public, or semi-public development. This standard is met.

(iv) Exterior storage areas shall have either a concrete or asphalt floor surface.

Response: As shown in the attached plans (see details on 6.1), the trash enclosures will have concrete footings and concrete slab bases. This standard is met.

(v) Storage areas and containers shall be clearly labeled to indicate the type of material accepted.

Response: Storage containers will be provided by Republic Services and will be standard trash and recyclable storage receptacles, clearly labeled. This standard is met.

(c) Access Standards

(i) Access to storage areas can be limited for security reasons. However, the storage areas shall be accessible to users at convenient times of the day, and to hauler personnel on the day and approximate time they are scheduled to provide hauler service.

Response: According to Republic Services standards, trash enclosures will have gates that open 120 to 180 degrees and have locking mechanisms (some, at full overlap, low landscaped areas and curbs; this is allowed by the hauler). Gates can be latched when closed, but storage areas will be accessible to haulers and pedestrians through gates and the pedestrian/cart access openings. This standard is met.

(ii) Storage areas shall be designed to be easily accessible to hauler trucks and equipment, considering paving, grade, gate clearance and vehicle access. A minimum of 10 feet horizontal clearance and 8 feet vertical clearance is required if the storage area is covered.

Response: As shown on the attached plans (see C2), the trash enclosure areas will be placed within the loading and maneuvering areas and will provide easy access and maneuverability for the solid waste hauler. The Trash enclosures will not be covered. This standard is met.

(iii) Storage areas shall be accessible to collection vehicles without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius shall be provided to allow vehicles to safely exit the site in a forward motion.

Response: As shown on the attached plans, all trash enclosures will be located in the maneuvering areas near each building but not adjacent to the public streets; no use of the public street will be required for their use. More than one access point is available for each. This standard is met.

Landscaping

Section 73.240 Landscaping General Provisions (3), (11, 13)

(3) The minimum area requirement for landscaping for uses in CO, CR, CC, CG, ML and MG Planning Districts shall be fifteen (15) percent of the total land area to be developed, except within the Core Area Parking District, where the minimum area requirement for landscaping shall be 10 percent. When a dedication is granted in accordance with the planning district provisions on the subject property for a fish and wildlife habitat area, the minimum area requirement for landscaping may be reduced by 2.5 percent from the minimum area requirement as determined through the AR process.

Response: As shown in the attached Landscape Plan, 20.95% of the site will be landscaped. This standard is met.

(11) Any required landscaped area shall be designed, constructed, installed, and maintained so that within three years the ground shall be covered by living grass or other plant materials. (The foliage crown of trees shall not be used to meet this requirement.) A maximum of 10% of the landscaped area may be covered with un-vegetated areas of bark chips, rock or stone. Disturbed soils are encouraged to be amended to an original or higher level of porosity to regain infiltration and stormwater storage capacity.

Response: All landscaped areas will be covered with living plant materials, including trees, shrubs, and groundcover. Bark mulch will cover ground in the landscaped areas between plantings, suppressing weeds and retaining moisture. No areas will be covered exclusively in bark chips, rock, or stone. There are no disturbed soils on the site. This standard is met.

(13) Landscape plans for required landscaped areas that include fences should carefully integrate any fencing into the plan to guide wild animals toward animal crossings under, over, or around transportation corridors.

Response: No fences are proposed for the project. This standard does not apply.

Section 73.250 Tree Preservation

(1) Trees and other plant materials to be retained shall be identified on the landscape plan and grading plan.

Response: Some trees will be retained. See Landscape Plan.

(2) During the construction process:

(a) The owner or the owner's agents shall provide above and below ground protection for existing trees and plant materials identified to remain.

Response: Trees will be protected above and below ground during construction.

(b) Trees and plant materials identified for preservation shall be protected by chain-link or other sturdy fencing placed around the tree at the drip line.

Response: Trees to remain will be identified for preservation and shall be protected by a sturdy fence.

(c) If it is necessary to fence within the drip line, such fencing shall be specified by a qualified arborist as defined in TDC 31.060.

Response: The fencing will be at or near the drip line. If for any reason the fencing cannot be at the drip line a qualified arborist will be contacted for direction.

(d) Neither top soil storage nor construction material storage shall be located within the drip line of trees designated to be preserved.

Response: Neither topsoil or construction material will be located within the drip line of trees designated to be retained. The trees will be fenced to protect them from such storage.

(e) Where site conditions make necessary a grading, building, paving, trenching, boring, digging, or other similar encroachment upon a preserved tree's drip-line area, such grading, paving, trenching, boring, digging, or similar encroachment shall only be permitted under the direction of a qualified arborist. Such direction must assure that the health needs of trees within the preserved area can be met.

Response: If encroachment on the tree drip line is necessary a qualified arborist will be consulted before work is started to ensure the health of the tree.

(f) Tree root ends shall not remain exposed.

Response: If tree roots are exposed they will not be left uncovered.

(3) Landscaping under preserved trees shall be compatible with the retention and health of said tree.

Response: The landscaping under the existing trees shall be installed as to not disrupt the health of the existing tree.

(4) When it is necessary for a preserved tree to be removed in accordance with TDC 34.210 the landscaped area surrounding the tree or trees shall be maintained and replanted with trees that relate to the present landscape plan, or if there is no landscape plan, then trees that are complementary with existing, nearby landscape materials. Native trees are encouraged

Response: 6 trees on the site are designated to be preserved. The existing development on the site will be removed through the previous demolition and erosion control permits. See landscape Plan for additional tree and landscaping materials.

(5) Pruning for retained deciduous shade trees shall be in accordance with National Arborist Association "Pruning Standards For Shade Trees," revised 1979.

Response: The preserved deciduous shade trees shall be pruned as needed. This standard is met.

(6) Except for impervious surface areas, one hundred percent (100%) of the area preserved under any tree or group of trees retained in the landscape plan (as approved through the Architectural Review process) shall apply directly to the percentage of landscaping required for a development.

Response: The existing trees are accounted for in the landscape totals. This standard is applied.

Section 73.260 Tree and Plant Specifications

(1) The following specifications are minimum standards for trees and plants:

(a) Deciduous Trees:

Deciduous shade and ornamental trees shall be a minimum one and one-half Inch (1 1/2") caliper measured six inches (6") above ground, balled and burlapped. Bare root trees will be acceptable to plant during their dormant season. Trees shall be characteristically shaped specimens.

(b) Coniferous Trees.

Coniferous trees shall be a minimum five feet (5') in height above ground, balled and burlapped. Bare root trees will be acceptable to plant during their dormant season. Trees shall be well branched and characteristically shaped specimens.

(c) Evergreen and Deciduous Shrubs.

Evergreen and deciduous shrubs shall be at least one (1) to five (5) gallon size. Shrubs shall be characteristically branched. Side of shrub with best foliage shall be oriented to public view.

(d) Groundcovers.

*Groundcovers shall be fully rooted and shall be well branched or leafed. English ivy (*Hedera helix*) is considered a high maintenance material which is detrimental to other landscape materials and buildings and is therefore prohibited.*

(e) Lawns.

Lawns shall consist of grasses, including sod, or seeds of acceptable mix within the local landscape industry. Lawns shall be 100 percent coverage and weed free.

Response: As shown in the attached landscape plans (L1), the proposed development includes a variety of appropriate landscaping elements including deciduous trees, coniferous trees, evergreen and deciduous shrubs, and groundcovers. No lawns are proposed. As described on the landscape plans, the proposed tree, shrub, and groundcover varieties will meet the dimensional standards and care described above. These standards are met.

(2) Landscaping shall be installed in accordance with the provisions of Sunset New Western Garden Book (latest edition), Lane Publishing Company, Menlo Park, California or the American Nurserymen Association Standards (latest edition).

Response: Landscaping will be installed in accordance with the *Sunset New Western Garden Book* standards and has been designed by a professional landscape architect. This standard is met.

(3) The following guidelines are suggested to ensure the longevity and continued vigor of plant materials:

(a) Select and site permanent landscape materials in such a manner as to produce a hardy and drought-resistant landscaped area.

(b) Consider soil type and depth, spacing, exposure to sun and wind, slope and contours of the site, building walls and overhangs, and compatibility with existing native vegetation preserved on the site or in the vicinity.

Response: Hardy, drought-resistant plants, appropriate to the site and region, have been selected for the site. The project contractor will test and amend the soil as needed. These guidelines are addressed.

(4) All trees and plant materials shall be healthy, disease-free, damage-free, well-branched stock, characteristic of the species.

Response: All plant materials will be new and healthy. This standard is met.

(5) All plant growth in landscaped areas of developments shall be controlled by pruning, trimming or otherwise so that:

(a) It will not interfere with designated pedestrian or vehicular access; and

(b) It will not constitute a traffic hazard because of reduced visibility.

Response: The selected plant materials are appropriate for the site and climate, and will not interfere with visibility or movement. In clear vision areas, no landscaping will exist within the 30"–8' clear area. Responsibility for maintenance of landscaping is accepted by the property owner. This standard is met.

Section 73.270 Grading

(1) After completion of site grading, top-soil is to be restored to exposed cut and fill areas to provide a suitable base for seeding and planting.

Response: Topsoil will be stockpiled during excavation to be used for backfill of landscape areas. Additionally, amendments will be added to the topsoil at that time. This standard is met.

(2) All planting areas shall be graded to provide positive drainage.

Response: As shown on the attached grading plans (see C3), the site is designed to drain to the provided stormwater ponds and storm drains on the southern edge of the property on SW Herman Road. Planting areas will be graded consistently with the rest of the site. This standard is met.

(3) Neither soil, water, plant materials nor mulching materials shall be allowed to wash across roadways or walkways.

Response: All soil, plant, and mulching materials will be contained in landscape areas and surrounded by curbing, and will not cross roadways or walkways. Water on the site's impervious areas will drain directly to storm drains. (See attached plans, C3 and C6) This standard is met.

(4) Impervious surface drainage shall be directed away from pedestrian walkways, dwelling units, buildings, outdoor private and shared areas and landscape areas except where the landscape area is a water quality facility.

Response: As shown on the attached grading plans (see C3 and C6), drainage on impervious surfaces will be directed to storm drains distributed across the site, and three stormwater facility ponds on the southern portion of the site on will provide water quality capacity for the entire site. This standard is met.

Section 73.280 Irrigation System Required

Except for townhouse lots, landscaped areas shall be irrigated with an automatic underground or drip irrigation system.

Response: As shown in the attached plans (see L2), the landscaped areas will be irrigated. This standard is met.

Section 73.290 Re-vegetation in Un-landscaped Areas

The purpose of this section is to ensure erosion protection, and in appropriate areas to encourage soil amendment, for those areas not included within the landscape percentage requirements so native plants will be established, and trees will not be lost.

(1) Where vegetation has been removed or damaged in areas not affected by the landscaping requirements and that are not to be occupied by structures or other improvements, vegetation shall be replanted.

Response: The existing vegetation adjoining the property within the planters will be removed and replanted to match the site plantings. This standard is met.

(2) Plant materials shall be watered at intervals sufficient to ensure survival and growth for a minimum of two growing seasons.

Response: An irrigation system is proposed for the newly planted areas. See irrigation plan (L2).

(3) The use of native plant materials is encouraged to reduce irrigation and maintenance demands.

Response: Native plants are proposed for use throughout the site plantings as well as the adjoining planters. This standard is met.

(4) Disturbed soils should be amended to an original or higher level of porosity to regain infiltration and stormwater storage capacity.

Response: All landscaped areas, where required, will be filled with native materials compacted to a level less than areas of structural fill. All landscape areas, including stormwater facilities, will be provided a final layer of amended topsoil that will help facilitate retention of stormwater. This standard is met.

Section 73.310 Landscape Standards – Commercial, Industrial, Public and Semi-Public Uses

(1) A minimum 5'-wide landscaped area must be located along all building perimeters which are viewable by the general public from parking lots or the public right-of-way, excluding loading areas, bicycle parking areas and pedestrian egress/ingress locations…

Response: As shown on the attached C2 sheet, a minimum 5' wide landscaped area will be constructed around all building perimeters. This standard is met.

(2) Areas exclusively for pedestrian use that are developed with pavers, bricks, etc., and contain pedestrian amenities, such as benches, tables with umbrellas, children's play areas, shade trees, canopies, etc., may be included as part of the site landscape area requirement.

Response: The provided walkways are exclusively for pedestrian use, and contain amenities such as shade trees. These are included in the landscape area requirement. This standard is understood.

(3) All areas not occupied by buildings, parking spaces, driveways, drive aisles, pedestrian areas or undisturbed natural areas shall be landscaped.

Response: As shown on the attached plans, all areas not identified above are proposed to be landscaped with a variety of materials. This standard is met.

Off-Street Parking Lot Landscaping

Section 73.320 Off-Street Parking Lot Landscaping Standards

(2) Application. Off-street parking lot landscaping standards shall apply to any surface vehicle parking or circulation area.

Response: As shown on the attached landscape plans, all vehicle parking and circulation areas will be landscaped to off-street parking lot landscaping standards and meet the above goals. This standard is met.

Section 73.340 Off-Street Parking Lot and Loading Area Landscaping - Commercial, Industrial, Public and Semi-Public Uses, and Residential and Mixed Use Residential Uses within the Central Design District

(1) A clear zone shall be provided for the driver at ends of on-site drive aisles and at driveway entrances, vertically between a maximum of 30 inches and a minimum of 8 feet as measured from the ground level,

Response: As shown in the attached landscape plan (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

(2) Perimeter site landscaping of at least 5 feet in width shall be provided in all off-street parking and vehicular circulation areas (including loading areas). For conditional uses in multi-family residential planning districts the landscape width shall be at least 10 feet except for uses allowed by ***TDC 40.030(3), 40.030(5)(j), 40.030(5)(m), 40.030(5)(n)*** *and* ***41.030(2)****.*

Response: As shown in the attached plans (see C2.1, perimeter landscape areas of 5' to more than 20' will be provided around all parking, circulation, and loading areas. This standard is met.

(a) The landscape area shall contain:

(i) Deciduous trees an average of not more than 30 feet on center. The trees shall meet the requirements of ***TDC 73.360(7)****.*

(ii) Plantings which reach a mature height of 30 inches in three years which provide screening of vehicular headlights year round.

(iii) Shrubs or ground cover, planted so as to achieve 90 percent coverage within three years.

(iv) Native trees and shrubs are encouraged.

Response: As shown on the attached landscape plans, landscape areas will contain a mix of all of the above plantings. Deciduous trees will be planted at less than 30' on center. Shrubs (of a variety that will reach a mature height of 30" or more in three years) and ground cover will be spaced appropriately to achieve at least 90% coverage within three years. Plantings will include a mixture of native and drought-tolerant appropriate plants to achieve biodiversity and longevity. This standard is met.

(b) Where off-street parking areas on separate lots are adjacent to one another and are connected by vehicular access, the landscaped strips required in subsection (2) of this section are not required.

Response: The site to the north shares a driveway. No landscape strip is provided between the properties. This standard is understood.

Section 73.360 Off-Street Parking Lot Landscape Islands - Commercial, Industrial, Public, and Semi-Public Uses

(1) A minimum of 25 square feet per parking stall shall be improved with landscape island areas which are protected from vehicles by curbs. These landscape areas shall be dispersed throughout the parking area [see 73.380(3)]. Landscape square footage requirements shall not apply to parking structures and underground parking.

Response: As shown on the attached plans (L1), 49 parking spaces are proposed; therefore, 1,225 SF of landscape island areas is required. This standard is met through the standard 18' long landscape islands located every 8 or fewer parking spaces, as well as through the landscaped areas at the ends of parking bays. This includes any landscape area continued through the horizontal (bumper) line of the parking spaces as a "landscape island area." Across the site, 4,253 SF of "landscape island areas" will be provided in the parking lot. This standard is met.

(2) All landscaped island areas with trees shall be a minimum of 5 feet in width (60 inches from inside of curb to curb) and protected with curbing from surface runoff and damage by vehicles. Landscaped areas shall contain groundcover or shrubs and deciduous shade trees.

Response: As shown in the attached plans, all areas considered toward the landscape island area requirement are at 5' in width or greater; all provide ample room for the proposed trees and plantings. As shown in the attached landscape plan (L1), all landscape island areas will be covered with trees, shrubs, and groundcover. This standard is met.

(3) Provide a minimum of one deciduous shade tree for every four (4) parking spaces to lessen the adverse impacts of glare from paved surfaces and to emphasize circulation patterns…

Response: For the 49 parking spaces proposed, 13 deciduous shade trees are required. As shown on the landscape plan, 15 deciduous trees will be planted within the parking area. This standard is met.

(4) Landscaped islands shall be utilized at aisle ends to protect parked vehicles from moving vehicles and emphasize vehicular circulation patterns. …

Response: As shown on the attached plans, typical landscape islands are proposed spaced every 8 or fewer parking spaces, as well as through landscaped areas at the ends of parking bays. This standard is met.

(5) Required landscaped areas shall be planted so as to achieve 90 percent coverage within three years.

Response: Shrubs and ground cover will be spaced appropriately to achieve at least 90% coverage within three years. This standard is met.

Section 73.370 Off-Street Parking and Loading

(2) Off-Street Parking Provisions.

(a) The following are the minimum and maximum requirements for off-street motor vehicle parking in the City. . .

USE	MAXIMUM MOTOR VEHICLE PARKING REQUIREMENT	MINIMUM MOTOR VEHICLE PARKING REQUIREMENT	BICYCLE Parking Requirements
COMMERCIAL			
(vi) General office	*2.70 spaces per 1,000 sq. ft. of gross floor area*	*Zone A: 3.4 spaces per 1,000 sq. ft. gross floor area* *Zone B: 4.1 spaces per 1,000 sq. ft. gross floor area*	*2, or 0.50 spaces per 1,000 gross sq. ft. whichever is greater*
INDUSTRIAL			
(i) Manufacturing	*1.60 spaces per 1,000 sq. ft. of gross floor area*	*None*	*2, or 0.10 spaces per 1,000 gross sq. ft., whichever is greater*
(ii) Warehousing	*0.30 spaces per 1,000 sq. ft. of gross floor area*	*0.4 spaces per 1,000 sq. ft. gross floor area*	*2, or 0.10 spaces per 1,000 gross sq. ft., whichever is greater*
(iii) Wholesale establishment	*3.00 spaces per 1,000 sq. ft. of gross floor area*	*None*	*2, or 0.50 spaces per 1,000 gross sq. ft., whichever is greater*

Response: A tenant has been identified, for the proposed building. The tenant will accommodate a mix of manufacturing, warehousing, and office uses (see the table on sheet C2.1 for full details and uses by building). The proposed parking (49 spaces across the site) exceeds minimum requirements (44 spaces), but does not exceed the maximum (465.4 spaces) for these uses and building sizes. Additionally, 2 bicycle parking spaces are proposed; 100% of which will be covered inside the building, meeting the 30% coverage requirement. This standard is met.

(3) Off-Street Vanpool and Carpool Parking Provisions.
The minimum number of off-street Vanpool and Carpool parking for commercial, institutional and industrial uses is as follows:

Number of Required Parking Spaces	***Number of Vanpool Carpool Spaces***
0 to 10	*1*
10 to 25	*2*
26 and greater	*1 for each 25 spaces*

Response: As shown on the attached plans (see C2), 2 carpool/vanpool spaces will be provided. This standard is met.

73.380 Off-Street Parking Lots

(1) Off-street parking lot design shall comply with the dimensional standards set forth in Figure 73-1of this section….

Response: Of the proposed 49 parking spaces, most will be larger-than-standard 9'x19.5' parking stalls (9' wide, 17' long striped paved area plus a 2.5' landscaped overhang protected by bumper). In some areas, stalls will be 9'x18.5' (16' stripes with a 2.5' overhang). This standard is met.

(2) Parking stalls for sub-compact vehicles shall not exceed 35 percent of the total parking stalls required by TDC 73.370(2).

Response: No sub-compact stalls are proposed. This standard is met.

(3) Off-street parking stalls shall not exceed eight continuous spaces in a row without a landscape separation…

Response: As shown on the attached plans, typical landscape islands are proposed to be spaced every 8 or fewer parking spaces, as well as through landscaped areas at the ends of parking bays. This standard is met.

(4) Areas used for standing or maneuvering of vehicles shall have paved asphalt or concrete surfaces maintained adequately for all-weather use and so drained as to avoid the flow of water across sidewalks.

Response: As shown in the attached grading and utility plans (the C3 and C6 plans), water from the paved vehicle areas will drain to storm drains in order to avoid the flow of water across pedestrian walkways; storm lines will flow into the on-site water quality and detention facilities. This standard is met.

(5) Except for parking to serve residential uses, parking areas adjacent to or within residential planning districts or adjacent to residential uses shall be designed to minimize disturbance of residents.

Response: The site does not abut any residential uses. This standard does not apply.

(6) Artificial lighting, which may be provided, shall be deflected to not shine or create glare in a residential planning district, an adjacent dwelling, street right-of-way in such a manner as to impair the use of such way or a Natural Resource Protection Overlay District, Other Natural Areas identified in Figure 3-4 of the Parks and Recreation Master Plan, or a Clean Water Services Vegetated Corridor.

Response: The project site does not abut residential uses. Site lighting is designed to not impair drivers along SW Herman Road. As shown on the attached lighting plan (ES1), footcandle levels will be low at the edges of parking and drive areas abutting the property line and right-of way. This standard is met.

(8) Service drives to off-street parking areas shall be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress, and maximum safety for pedestrians and vehicular traffic on the site.

Response: Service drives are designed to facilitate the flow of traffic and provide maximum safety on this site. This standard is met.

(9) Parking bumpers or wheel stops or curbing shall be provided to prevent cars from encroaching on the street right-of-way, adjacent landscaped areas, or adjacent pedestrian walkways.

Response: As shown on the attached plans, curbing will be provided in front of all parking stalls to protect pedestrians and landscape material (except in front of several ADA stalls, where wheel stops exist to protect the depressed ramp in front of the stalls). This standard is met.

(10) Disability parking spaces and accessibility shall be provided in accordance with applicable federal and state requirements.

Response: As shown on the attached plans (see sheet C2.1), 2 ADA parking spaces will be provided with this development. This standard is met.

(11) On-site drive aisles without parking spaces, which provide access to parking areas with regular spaces or with a mix of regular and sub-compact spaces, shall have a minimum width of 22 feet for two-way traffic and 12 feet for one-way traffic. On-site drive aisles without parking spaces, which provide access to parking areas with only sub-compact spaces, shall have a minimum width of 20 feet for two-way traffic and 12 feet for one-way traffic.

Response: As shown on the attached plans (see C2), drive aisles on the site provide access to parking areas with regular parking spaces. Drive aisles range from 24' to 26' wide; most of them are 26' wide to accommodate the site's expected truck traffic, as well as vehicles and the garbage hauler's trucks. This standard is met.

Section 73.390 Off-Street Loading Facilities

(1) The minimum number of off-street loading berths for commercial, industrial, public and semi-public uses is as follows:

Square Feet of Floor Area	*Number of Berths*
Less than 5,000	*0*
5,000 - 25,000	*1*
25,000 - 60,000	*2*
60,000 and over	*3*

Response: Two off-street loading berths are required for industrial uses with floor area of 25,000 to 60,000 SF; the project includes 25,000 SF of building floor area. As shown on the attached plans the site total is 2 berths. This standard is met.

(2) Loading berths shall conform to the following minimum size specifications.

- *(a) Commercial, public and semi-public uses of 5,000 to 25,000 square feet shall be 12' x 25' and uses greater than 25,000 shall be 12' x 35'*
- *(b) Industrial uses - 12' x 60'*
- *(c) Berths shall have an unobstructed height of 14'*
- *(d) Loading berths shall not use the public right-of-way as part of the required off-street loading area.*

Response: As shown on the attached plans (see the C2 plans), the loading berths are a minimum of 19.5' wide by 70' long. The berths have an unobstructed height. This standard is met.

(3) Required loading areas shall be screened from public view from public streets and adjacent properties by means of sight-obscuring landscaping, walls or other means, as approved through the Architectural Review process.

Response: As shown on the attached plans (see landscape plans), all loading areas will be screened with landscape areas at their ends (not obscuring clear vision areas), planted with sight-obscuring evergreen trees and shrubs. This standard is met.

(4) Required loading facilities shall be installed prior to final building inspection and shall be permanently maintained as a condition of use.

Response: This standard is accepted as a condition of use. This standard is met.

(5) A driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading children shall be located on the site of a school or child day care center having a capacity greater than 25 students.

Response: The proposed development does not include a school or day care. This standard does not apply.

(6) The off-street loading facilities shall in all cases be on the same lot or parcel as the structure they are intended to serve. In no case shall the required off-street loading spaces be part of the area used to satisfy the off-street parking requirements.

Response: The off-street loading spaces are on the same lot as the structure and not part of the off-street parking areas. This standard is met.

(7) Subject to Architectural Review approval, the Community Development Director may allow the standards in this Section to be relaxed within the Central Design District…

Response: The property is not located within the Central Design District. No adjustments to the loading standards are requested. This standard does not apply.

Section 73.400 Access

(1) The provision and maintenance of vehicular and pedestrian ingress and egress from private property to the public streets as stipulated in this Code are continuing requirements for the use of any structure or parcel of real property in the City of Tualatin. Access management and spacing standards are provided in this section of the TDC and TDC Chapter 75. No building or other permit shall be issued until scale plans are presented that show how the ingress and egress requirement is to be fulfilled. If the owner or occupant of a lot or building changes the use to which the lot or building is put, thereby increasing ingress and egress requirements, it shall be unlawful and a violation of this code to begin or maintain such altered use until the required increase in ingress and egress is provided.

Response: The provision and maintenance of vehicular and pedestrian accesses on the site will be maintained throughout construction. This standard is understood and is met.

(2) Owners of two or more uses, structures, or parcels of land may agree to utilize jointly the same ingress and egress when the combined ingress and egress of both uses, structures, or parcels of land satisfies their combined requirements as designated in this code; provided that satisfactory legal evidence is presented to the City Attorney in the form of deeds, easements, leases or contracts to establish joint use. Copies of said deeds, easements, leases or contracts shall be placed on permanent file with the City Recorder.

Response: The owner of this parcel owns the adjoining properties. This standard does not apply as part of this application.

(3) Joint and Cross Access.

(a) Adjacent commercial uses may be required to provide cross access drive and pedestrian access to allow circulation between sites.

Response: There are no commercial uses adjacent to the site. This standard does not apply.

(b) A system of joint use driveways and cross access easements may be required and may incorporate the following:

(I) a continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards.

(ii) a design speed of 10 mph and a maximum width of 24 feet to accommodate two way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;

(iii) stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross access via a service drive;

(iv) a unified access and circulation system plan for coordinated or shared parking areas.

Response: The property is under one owner. There are two existing shared driveways. The properties will allow access according to the above standards. This standard does as part of this application.

(c) Pursuant to this section, property owners may be required to:

(i) Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;

(ii) Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the city and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;

(iii) Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners;

(iv) If (i-iii) above involve access to the state highway system or county road system, ODOT or the county shall be contacted and shall approve changes to (i-iii) above prior to any changes.

Response: These standards will be met if they apply.

(4) Requirements for Development on Less than the Entire Site.

(a) To promote unified access and circulation systems, lots and parcels under the same ownership or consolidated for the purposes of development and [comprising] more than one building site shall be reviewed as one unit in relation to the access standards. The number of access points permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to

phased development plans. The owner and all lessees within the affected area shall comply with the access requirements.

Response: This application addresses the entire site. This standard is met.

(b) All access must be internalized using the shared circulation system of the principal commercial development or retail center. Driveways should be designed to avoid queuing across surrounding parking and driving aisles.

Response: This project does not include a commercial development or retail center. This standard does not apply.

(5) Lots that front on more than one street may be required to locate motor vehicle accesses on the street with the lower functional classification as determined by the City Engineer.

Response:

. This standard does not apply.

*(6) Except as provided in **TDC 53.100**, all ingress and egress shall connect directly with public streets.[Ord. 882-92, § 24,12/14/92]*

Response:

This standard does not apply.

(7) Vehicular access for residential uses shall be brought to within 50 feet of the ground floor entrances or the ground floor landing of a stairway, ramp or elevator leading to dwelling units.

Response: The project does not include any residential uses. This standard does not apply.

(8) To afford safe pedestrian access and egress for properties within the City, a sidewalk shall be constructed along all street frontage, prior to use or occupancy of the building or structure proposed for said property. The sidewalks required by this section shall be constructed to City standards, except in the case of streets with inadequate right-of-way width or where the final street design and grade have not been established, in which case the sidewalks shall be constructed to a design and in a manner approved by the City Engineer. Sidewalks approved by the City Engineer may include temporary sidewalks and sidewalks constructed on private property; provided, however, that such sidewalks shall provide continuity with sidewalks of adjoining commercial developments existing or proposed. When a sidewalk is to adjoin a future street improvement, the sidewalk construction shall include construction of the curb and gutter section to grades and alignment established by the City Engineer.

Response: Sidewalks currently exist on SW Herman Road; this project will include the removal of the existing driveway approach and replace with new curb and sidewalk. This standard is met.

(9) The standards set forth in this Code are minimum standards for access and egress, and may be increased through the Architectural Review process in any particular instance where the standards provided herein are deemed insufficient to protect the public health, safety, and general welfare.

Response: This standard is understood.

(10) Minimum access requirements for residential uses:

Response: The proposed project is for an industrial use. This standard does not apply.

(11) Minimum Access Requirements for Commercial, Public and Semi-Public Uses.

Response: The proposed project is for an industrial use. This standard does not apply.

(12) Minimum Access Requirements for Industrial Uses.
Ingress and egress for industrial uses shall not be less than the following:

Required Parking Spaces	*Minimum Number Required*	*Minimum Pavement Width*	*Minimum Pavement Walkways, Etc.*
1-250	*1*	*36 feet for first 50' from ROW, 24' thereafter*	*No curbs or walkway required*
Over 250	*As required by City Engineer*	*As required by City Engineer*	*As required by City Engineer*

Response: 46 parking spaces are proposed. The project includes 2 vehicular accessways into the site for cars and trucks. This standard is met.

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(13) One-way Ingress or Egress.
When approved through the Architectural Review process, one-way ingress or egress may be used to satisfy the requirements of Subsections (7), (8), and (9). However, the hard surfaced pavement of one-way drives shall not be less than 16 feet for multi-family residential, commercial, or industrial uses.

Response: Neither one-way ingress nor egress is proposed. This standard does not apply.

(14) Maximum Driveway Widths and Other Requirements.

(a) Unless otherwise provided in this chapter, maximum driveway widths shall not exceed 40 feet.

Response: As shown in the attached plans (see dimensions on C2), driveway openings on the site range from 30' to 40' as measured by the City of Tualatin Approach Private Driveway diagram. This standard is met.

(b) Except for townhouse lots, no driveways shall be constructed within 5 feet of an adjacent property line, except when two adjacent property owners elect to provide joint access to their respective properties, as provided by Subsection (2).

Response: As shown on the attached plans, driveways are shared by the same property owner. This standard is met.

(c) There shall be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Engineer.

Response: As shown on the attached plans, all driveways are located at least 327' from one another. This standard is met.

(15) Distance between Driveways and Intersections.
Except for single-family dwellings, the minimum distance between driveways and intersections shall be as provided below. Distances listed shall be measured from the stop bar at the intersection.

(a) At the intersection of collector or arterial streets, driveways shall be located a minimum of 150 feet from the intersection.

Response: As shown on the attached plans (see C2), the westerly most driveway on the site is located a minimum of 350' from the intersection of SW 124th Avenue and Herman Road. This standard is met.

(b) At the intersection of two local streets, driveways shall be located a minimum of 30 feet from the intersection.

Response: The site is not located at the intersection of two local streets. This standard does not apply.

(c) If the subject property is not of sufficient width to allow for the separation between driveway and intersection as provided, the driveway shall be constructed as far from the intersection as possible, while still maintaining the 5-foot setback between the driveway and property line as required by TDC 73.400(14)(b).

Response: The driveways on the site meet the driveway and intersection separation standards. This standard does not apply.

*(d) When considering a public facilities plan that has been submitted as part of an Architectural Review plan in accordance with **TDC 31.071(6)**, the City Engineer may approve the location of a driveway closer than 150 feet from the intersection of collector or arterial streets, based on written findings of fact in support of the decision. The written approval shall be incorporated into the decision of the City Engineer for the utility facilities portion of the Architectural Review plan under the process set forth in **TDC 31.071** through **31.077**.*

Response: No proposed driveways on the site are less than 150' from an intersection. This standard does not apply.

(16) Vision Clearance Area.

*(a) Local Streets - A vision clearance area for all local street intersections, local street and driveway intersections, and local street or driveway and railroad intersections shall be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 10 feet from the intersection point of the right of-way lines, as measured along such lines (see **Figure 73-2** for illustration).*

Response: The site does not abut any local streets. This standard does not apply.

*(b) Collector Streets - A vision clearance area for all collector/arterial street intersections, collector/arterial street and local street intersections, and collector/arterial street and railroad intersections shall be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 25 feet from the intersection point of the right-of-way lines, as measured along such lines. Where a driveway intersects with a collector/arterial street, the distance measured along the driveway line for the triangular area shall be 10 feet (see **Figure 73-2** for illustration).*

Response: As shown in the attached landscape plans (L1), no landscaping between 30" and 8' high will exist in the clear vision areas (10' back from the collector streets the driveways abut, 25' along the streets). This standard is met.

(c) Vertical Height Restriction - Except for items associated with utilities or publicly owned structures such as poles and signs and existing street trees, no vehicular

*parking, hedge, planting, fence, wall structure, or temporary or permanent physical obstruction shall be permitted between 30 inches and 8 feet above the established height of the curb in the clear vision area (see **Figure 73-2** for illustration).*

Response: As shown in the attached landscape plans (L1), landscaping in the driveway entrances and ends of parking aisles will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

(17) Major driveways, as defined in 31.060, in new residential and mixed-use areas are required to connect with existing or planned streets except where prevented by topography, rail lines, freeways, pre-existing development or leases, easements or covenants, or other barriers.

Response: The project is not in a new residential or mixed-use area. This standard does not apply.

CHAPTER 34: SPECIAL REGULATIONS

Tree Removal Criteria

Section 34.230 Criteria

The Community Development Director shall consider the following criteria when approving, approving with conditions, or denying a request to cut trees.

(1) An applicant must satisfactorily demonstrate that any of the following criteria are met:

(a) The tree is diseased, and

(i) The disease threatens the structural integrity of the tree; or

(ii) The disease permanently and severely diminishes the esthetic value of the tree; or

(iii) The continued retention of the tree could result in other trees being infected with a disease that threatens either their structural integrity or aesthetic value.

(b) The tree represents a hazard which may include but not be limited to:

(i) The tree is in danger of falling;

(ii) Substantial portions of the tree are in danger of falling.

(c) It is necessary to remove the tree to construct proposed improvements based on Architectural Review approval, building permit, or approval of a Subdivision or Partition Review.

Response: Criterion (c) applies to this project. As demonstrated in the attached plans (see existing conditions C1 and site plans on C2), following demolition of the existing development, 8 trees will exist on the site and must be removed to accommodate the proposed development and ensure the most efficient use of the site. These trees would be damaged during construction due to their proximity to grading and improvements of the proposed development, and do not blend with the surrounding and proposed landscaping. In addition, by removing and replacing the existing trees on the site, more cohesive and location appropriate plantings can be provided for the project, creating a more visually appealing site.

(2) If none of the conditions in TDC 34.240(1) are met, the Community Development Director shall evaluate the condition of each tree based on the following criteria…

Response: Condition (1) (c) is met. This standard does not apply.

V. SUMMARY

The proposed industrial building meets all applicable Architectural Review standards. The development will be compatible with current and existing surrounding uses, and is designed to comply with the zoning requirements of the General Manufacturing District. This application complies with City requirements, will result in economic growth for the area, and merits approval as requested.

silco
Commercial Construction, Inc.

August 21, 2015

KKB LLC
19100 SW 125th CT
Tualatin, OR 97062-7228

Re: Suburban Door Warehouse at 12171 SW Herman Road, Tualatin, OR 97062

Dear Property Owner:

You are cordially invited to attend a meeting on Friday, September 4, 2015 at 5:15 PM at Suburban Door located at 12365 SW Herman Road, Tualatin, OR 97062. This meeting shall be held to discuss a proposed project located at 12171 SW Herman Road. The nearest cross street is 124th Avenue.
This proposal is to construct a new concrete tilt-up building on the site. The building will be used for warehouse and manufacturing.
The purpose of this meeting is to provide means for the applicant and surrounding property owners to meet and discuss this proposal and identify any issues regarding this proposal.

Regards,

Rory Antis
Project Manager
Silco Commercial Construction Company
503-286-8691 Office
503-537-8002 Cell
rantis@silco.info

NEIGHBORHOOD/DEVELOPER MEETING
AFFIDAVIT OF MAILING

STATE OF OREGON)
) SS
COUNTY OF ~~WASHINGTON~~ MULTNOMAH)

I, Rory Antis, being first duly sworn, depose and say:

That on the 21st day of August, 2015, I served upon the persons shown on Exhibit "A," attached hereto and by this reference incorporated herein, a copy of the Notice of Neighborhood/Developer meeting marked Exhibit "B," attached hereto and by this reference incorporated herein, by mailing to them a true and correct copy of the original hereof. I further certify that the addresses shown on said Exhibit "A" are their regular addresses as determined from the books and records of the Washington County and/or Clackamas County Departments of Assessment and Taxation Tax Rolls, and that said envelopes were placed in the United States Mail with postage fully prepared thereon.

Signature

SUBSCRIBED AND SWORN to before me this 21st day of August, 2016.

OFFICIAL SEAL
CHERYL L EVERS
NOTARY PUBLIC - OREGON
COMMISSION NO. 467800
MY COMMISSION EXPIRES APRIL 28, 2016

Notary Public for Oregon
My commission expires: april 28, 2016

RE: Suburban Door Warehouse 12171 SW Herman Rd. Tualatin, OR 97062

CITY OF TUALATIN
RECEIVED

NOV 06 2015

COMMUNITY DEVELOPMENT
PLANNING DIVISION

Suburban Door Building 5

Neighborhood Meeting

Sign-In Sheet September 4, 2015 5:15 PM

Name:	Property Address:	Signature:
Brian Bisbey	[redacted]	
Rory Antis		
Don Silvey		
Cheryl Silvey		

ARCHITECTURAL REVIEW CERTIFICATION OF SIGN POSTING

NOTICE

ARCHITECTURAL REVIEW AR-[YY]-__

For more information call 503-691-3026 or visit www.tualatinoregon.gov

18"

24"

The applicant shall provide and post a sign pursuant to Tualatin Development Code (TDC) 31.064(2). Additionally, the 18" x 24" sign must contain the application number, and the block around the word "NOTICE" must remain **primary yellow** composed of the **RGB color values Red 255, Green 255, and Blue 0.** Additionally, the potential applicant must provide a flier (or flyer) box on or near the sign and fill the box with brochures reiterating the meeting info and summarizing info about the potential project, including mention of anticipated land use application(s). Staff has a Microsoft PowerPoint 2007 template of this sign design available through the Planning Division homepage at <www.tualatinoregon.gov/planning/land-use-application-sign-templates>.

NOTE: For larger projects, the Community Development Department may require the posting of additional signs in conspicuous locations.

As the applicant for the RUTH T. LLC BUILDING #6 project, I hereby certify that on this day, October 26, 2015 sign(s) was/were posted on the subject property in accordance with the requirements of the Tualatin Development Code and the Community Development Department - Planning Division.

Applicant's Name: Rory Antis
(PLEASE PRINT)

Applicant's Signature: Rory Antis

Date: 10/26/2015

Clean Water Services File Number
15-002708

Clean Water Services

Sensitive Area Pre-Screening Site Assessment

1. Jurisdiction: Tualatin

2. Property Information *(example 1S234AB01400)*
Tax lot ID(s): 2S122CO 00602 00606

OR Site Address: 12225 SW Herman Road
City, State, Zip: Tualatin, OR 97062
Nearest Cross Street: SW 124th

3. Owner Information
Name: David Silvey
Company: Ruth T, LLC
Address: PO Box 205
City, State, Zip: Tualatin, OR 97062
Phone/Fax: 503-286-8691 - Contractor-Silco
E-Mail: davesilvey@msn.com

4. Development Activity *(check all that apply)*
- ☐ Addition to Single Family Residence (rooms, deck, garage)
- ☐ Lot Line Adjustment
- ☐ Minor Land Partition
- ☐ Residential Condominium
- ☐ Commercial Condominium
- ☐ Residential Subdivision
- ☐ Commercial Subdivision
- ☑ Single Lot Commercial
- ☐ Multi Lot Commercial

Other

5. Applicant Information
Name: Gary Darling
Company: DL Design Group, Inc
Address: 400 East Evergreen Blvd. Suite 114
City, State, Zip: Vancouver, WA 98660
Phone/Fax: 503-644-4628
E-Mail: gld@dleng.net

6. Will the project involve any off-site work? ☐ Yes ☑ No ☐ Unknown
Location and description of off-site work

7. Additional comments or information that may be needed to understand your project need SPL for mass grading and 1200CN

This application does NOT replace Grading and Erosion Control Permits, Connection Permits, Building Permits, Site Development Permits, DEQ 1200-C Permit or other permits as issued by the Department of Environmental Quality, Department of State Lands and/or Department of the Army COE. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.

By signing this form, the Owner or Owner's authorized agent or representative, acknowledges and agrees that employees of Clean Water Services have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related to the project site. I certify that I am familiar with the information contained in this document, and to the best of my knowledge and belief, this information is true, complete, and accurate.

Print/Type Name Gary Darling Print/Type Title Principal

Signature Gary Darling Date August 21, 2015

FOR DISTRICT USE ONLY

- ☐ Sensitive areas potentially exist on site or within 200' of the site. **THE APPLICANT MUST PERFORM A SITE ASSESSMENT PRIOR TO ISSUANCE OF A SERVICE PROVIDER LETTER.** If Sensitive Areas exist on the site or within 200 feet on adjacent properties, a Natural Resources Assessment Report may also be required.
- ☐ Based on review of the submitted materials and best available information Sensitive areas do not appear to exist on site or within 200' of the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, State, and federal law.
- ☒ Based on review of the submitted materials and best available information the above referenced project will not significantly impact the existing or potentially sensitive area(s) found near the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect additional water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, state and federal law.
- ☐ **This Service Provider Letter is not valid unless _____ CWS approved site plan(s) are attached.**
- ☐ The proposed activity does not meet the definition of development or the lot was platted after 9/9/95 ORS 92.040(2). NO SITE ASSESSMENT OR SERVICE PROVIDER LETTER IS REQUIRED.

Reviewed by Laurie Harris Date 08/27/15

Once complete, email to: **SPLReview@cleanwaterservices.org** • Fax: **(503) 681-4439**
OR mail to: SPL Review, Clean Water Services, 2550 SW Hillsboro Highway, Hillsboro, Oregon 97123

Revised 2/2015

REPUBLIC SERVICES

10295 SW Ridder Road, Wilsonville, OR 97070
O: 503.570.0626 F: 503.982.9307 republicservices.com

September 28, 2015

Rory Antis
Project Manager
Silco Commercial Construction
8316 N Lombard #451
Portland OR 97203

Re: Balzer Painting

Dear Rory;

Thank you, for sending me your site plans for this new development in Tualatin, off of Herman road

My Company: Republic Services of Clackamas & Washington Counties has the franchise agreement to service this area with the City of Tualatin. We provide complete commercial waste removal and recycling services as needed on a weekly basis for this location.

The changes you made for the location & sizes of the enclosure, the opening of the gates, and the permanent opening on the side are very much appreciated. With the changes I do not foresee any problems for my company to be able to provide solid waste and recycling services to this site. Please ensure that there are no parking stalls placed in front of the enclosure on that corner of the building.

Thank you Rory; for your help and concerns for our services prior to this project being developed.

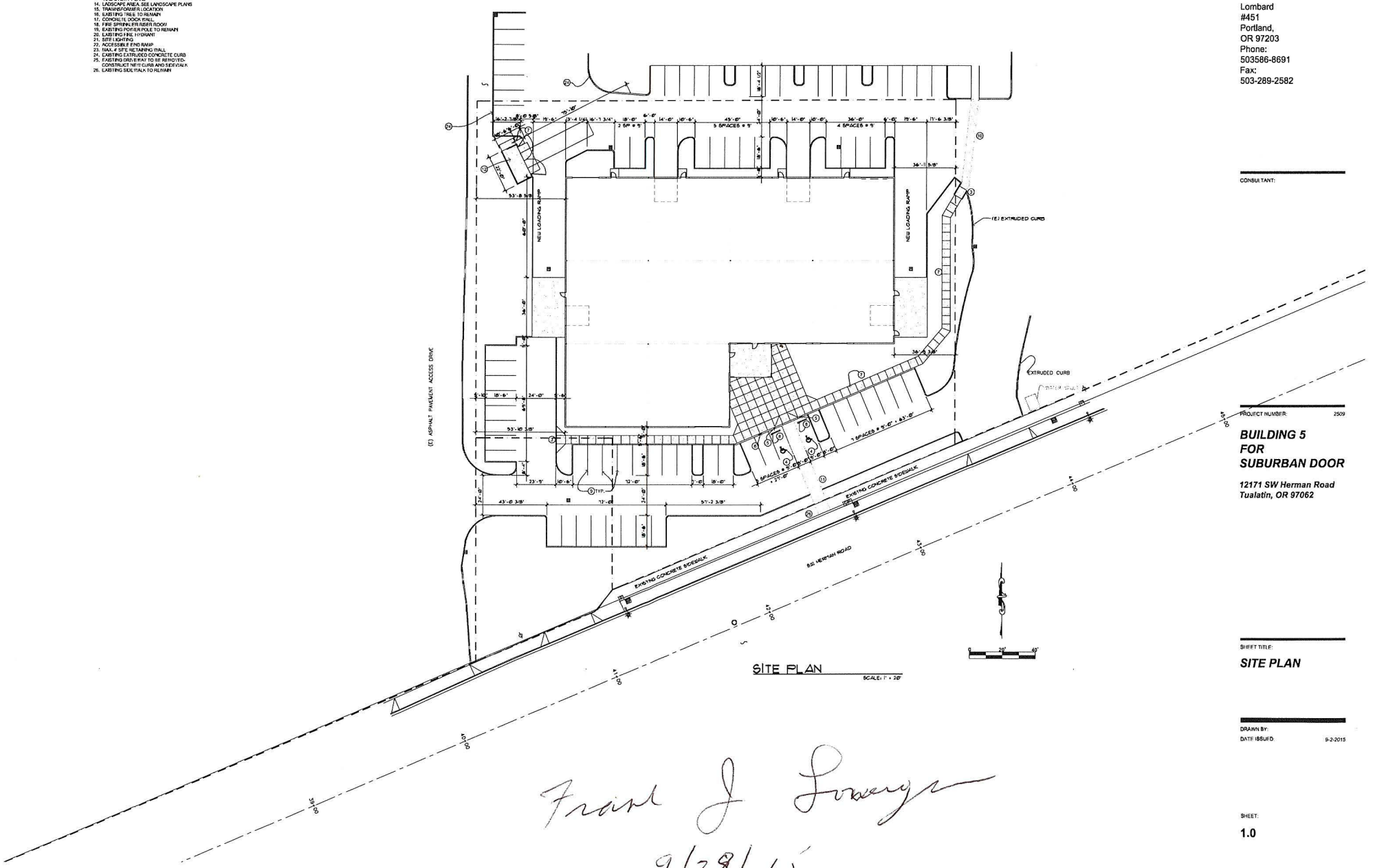
Sincerely,

Frank J. Lonergan

Frank J. Lonergan
Operations Manager
Republic Services Inc.

KEY NOTES:

1. VERTICAL CURB PER X/CA.X
2. ACCESSIBLE CORNER RAMP PER X/CA.X AND X/CA.X
3. ACCESSIBLE RAMP PER X/CA.X
4. ACCESSIBLE PARKING STALL PER X/CA.X
5. ACCESSIBLE PARKING SIGN PER X/CA.X
6. VAN/CARPOOL PARKING SIGN PER X/CA.X
7. CONCRETE SIDEWALK PER 2/CA.X
8. CURB STOP PER X/CA.X
9. 4" WHITE PARKING STRIPE
10. 5.5' PEDESTRIAN CROSSWALK
11. 8' WIDE PEDESTRIAN ACCESS WAY
12. TRASH ENCLOSURE PER DETAIL X/CA.X
13. WATER QUALITY FACILITY, SEE GRADING AND UTILITY PLANS
14. LADSCAPE AREA, SEE LANDSCAPE PLANS
15. TRANSFORMER LOCATION
16. EXISTING TREE TO REMAIN
17. CONCRETE DOCK WALL
18. FIRE SPRINKLER RISER ROOM
19. EXISTING POWER POLE TO REMAIN
20. EXISTING FIRE HYDRANT
21. SITE LIGHTING
22. ACCESSIBLE END RAMP
23. MAX. 4' SITE RETAINING WALL
24. EXISTING EXTRUDED CONCRETE CURB
25. EXISTING DRIVEWAY TO BE REMOVED. CONSTRUCT NEW CURB AND SIDEWALK
26. EXISTING SIDEWALK TO REMAIN



SITE PLAN

SCALE: 1" = 20'

Frank J Lowery

9/28/15

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N.
Lombard
#451
Portland,
OR 97203
Phone:
503586-8691
Fax:
503-289-2582

CONSULTANT:

PROJECT NUMBER: 2509

BUILDING 5 FOR SUBURBAN DOOR

12171 SW Herman Road
Tualatin, OR 97062

SHEET TITLE:

SITE PLAN

DRAWN BY:

DATE ISSUED: 9-2-2015

SHEET:

1.0

Springwater Arboriculture LLC
CCB#158098
4547 S.E. Brae St. Milwaukie, OR 97222 (503) 631-4760

Silco Commercial Construction, Inc.
8316 N Lombard Ave. #451
Portland, OR 97203
(503) 286-8691

August 3, 2015
Tree Assessment

This Tree Assessment was done at the request of Don Silvey, for a proposed construction project at 12171 SW Herman Rd., Tualatin, OR 97062. The species, condition and trunk diameter for all trees at least 8" at standard height (dbh). Smaller diameter trees are also included because of proximately to construction impact zone and high preservation value. The subject trees are listed in the attached tree table. Trees are numbered in this report and tagged with corresponding numbers in the field. The following trees are present:

Douglas Fir (Pseudotsuga menziesii) DF in report
Red Maple (Acer rubrum) RM in report
Flowering Pear (Pyrus calleryana) FP in Report
Pacific Madrone (Arbutus menziesii) PM in report.
Hooker Willow (Salix Hookeriana) HW in report
Oregon White Oak (Quercus garryana) OWO in report
Big leaf Maple (Acer Macrophyllum) BLM

Summary

There are 42 total trees of interest on this site. 26 trees can be reasonably protected during construction. Trees 11, 12, 13, 14, 15, 20, 21, 29, 30 and 34 are either located in the building footprint or proximity to building footprint makes preservation unreasonable. Trees 18, 19, 25, 27, 28 and 32 are either dead, dying, diseased or dangerous and preservation is not recommended. There are no Heritage trees located on this site.

Prepared by,

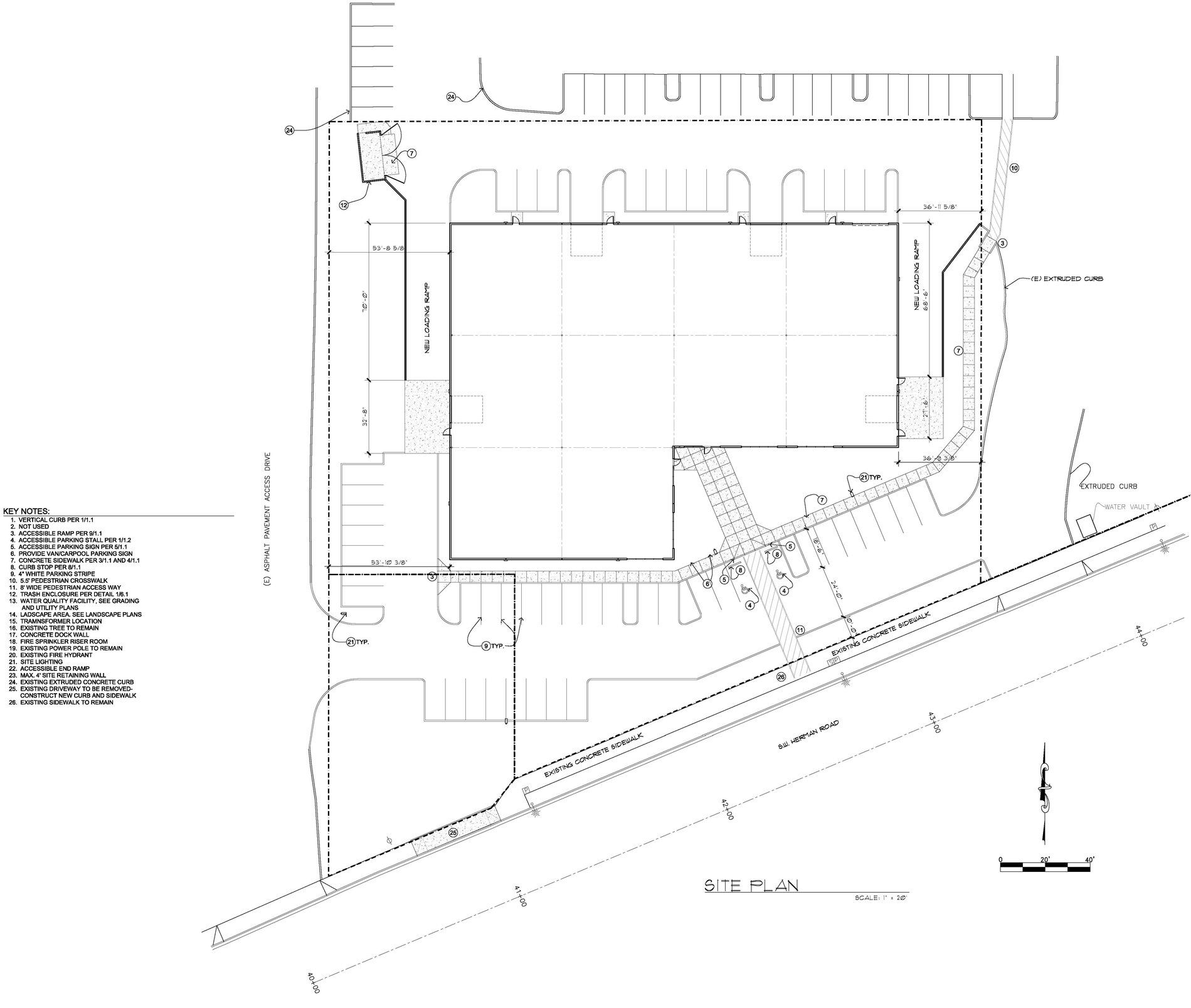
Andrew Craig
ISA Certified Arborist PN5927
Certified Tree Risk Assessor CTRA 328
ISA Tree Risk Qualified

#	species	dbh	condition	action	impact
1	RM	5"	fair	protect	low
2	RM	9"	fair	protect	low
3	FP	8"	fair	protect	low
4	OWO	24"	good	protect	moderate
5	DF	28"	good	protect	moderate
6	OWO	15"	fair	protect	low
7	DF	28"	fair	protect	low
8	DF	30"	good	protect	low
9	OWO	18"	good	protect	low
10	OWO	30"	good	protect	moderate
11	DF	24"	good	remove	
12	OWO	16"	good	remove	
13	OWO	12"	poor	remove	
14	DF	30"	fair	remove	
15	PM	7"	good	remove	
16	DF	30"	good	protect	low
17	PM	8"	good	protect	low
18	HW	14"	poor	remove	
19	HW	12"	poor	remove	
20	PM	18"	good	remove	
21	DF	30"	good	remove	
22	OWO	20"	good	protect	moderate
23	OWO	28"	good	protect	moderate
24	DF	7"	fair	protect	low
25	OWO	10"	poor	remove	
26	OWO	15"	good	protect	low
27	OWO	14"	poor	remove	
28	OWO	16"	poor	remove	
29	OWO	24"	fair	remove	
30	DF	18"	fair	remove	
31	DF	16"	fair	protect	low

32	OWO	12"	poor	remove	
33	DF	20"	good	protect	low
34	DF	30"	good	remove	
35	PM	8"	fair	protect	low
36	OWO	14"	good	protect	low
37	OWO	22"	good	protect	low
38	BLM	16"	good	protect	low
39	BLM	18"	good	protect	low
40	RM	10"	fair	protect	low
41	RM	6"	fair	protect	low

AR-15-0027

To lessen the bulk of the notice of application and to address privacy concerns, this sheet substitutes for the photocopy of the mailing labels. A copy is available upon request.



SITE PLAN

SCALE: 1" = 20'

KEY NOTES:

1. VERTICAL CURB PER 1/1.1
2. NOT USED
3. ACCESSIBLE RAMP PER 9/1.1
4. ACCESSIBLE PARKING STALL PER 1/1.2
5. ACCESSIBLE PARKING SIGN PER 5/1.1
6. PROVIDE VAN/CARPOOL PARKING SIGN
7. CONCRETE SIDEWALK PER 3/1.1 AND 4/1.1
8. CURB STOP PER 8/1.1
9. 4" WHITE PARKING STRIPE
10. 5.5' PEDESTRIAN CROSSWALK
11. 8' WIDE PEDESTRIAN ACCESS WAY
12. TRASH ENCLOSURE PER DETAIL 1/6.1
13. WATER QUALITY FACILITY, SEE GRADING AND UTILITY PLANS
14. LADSCAPE AREA. SEE LANDSCAPE PLANS
15. TRAMNSFORMER LOCATION
16. EXISTING TREE TO REMAIN
17. CONCRETE DOCK WALL
18. FIRE SPRINKLER RISER ROOM
19. EXISTING POWER POLE TO REMAIN
20. EXISTING FIRE HYDRANT
21. SITE LIGHTING
22. ACCESSIBLE END RAMP
23. MAX. 4' SITE RETAINING WALL
24. EXISTING EXTRUDED CONCRETE CURB
25. EXISTING DRIVEWAY TO BE REMOVED- CONSTRUCT NEW CURB AND SIDEWALK
26. EXISTING SIDEWALK TO REMAIN

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2509*

RUTH T LLC
BUILDING #6

12171 SW Herman Road
Tualatin, OR 97062

SHEET TITLE:

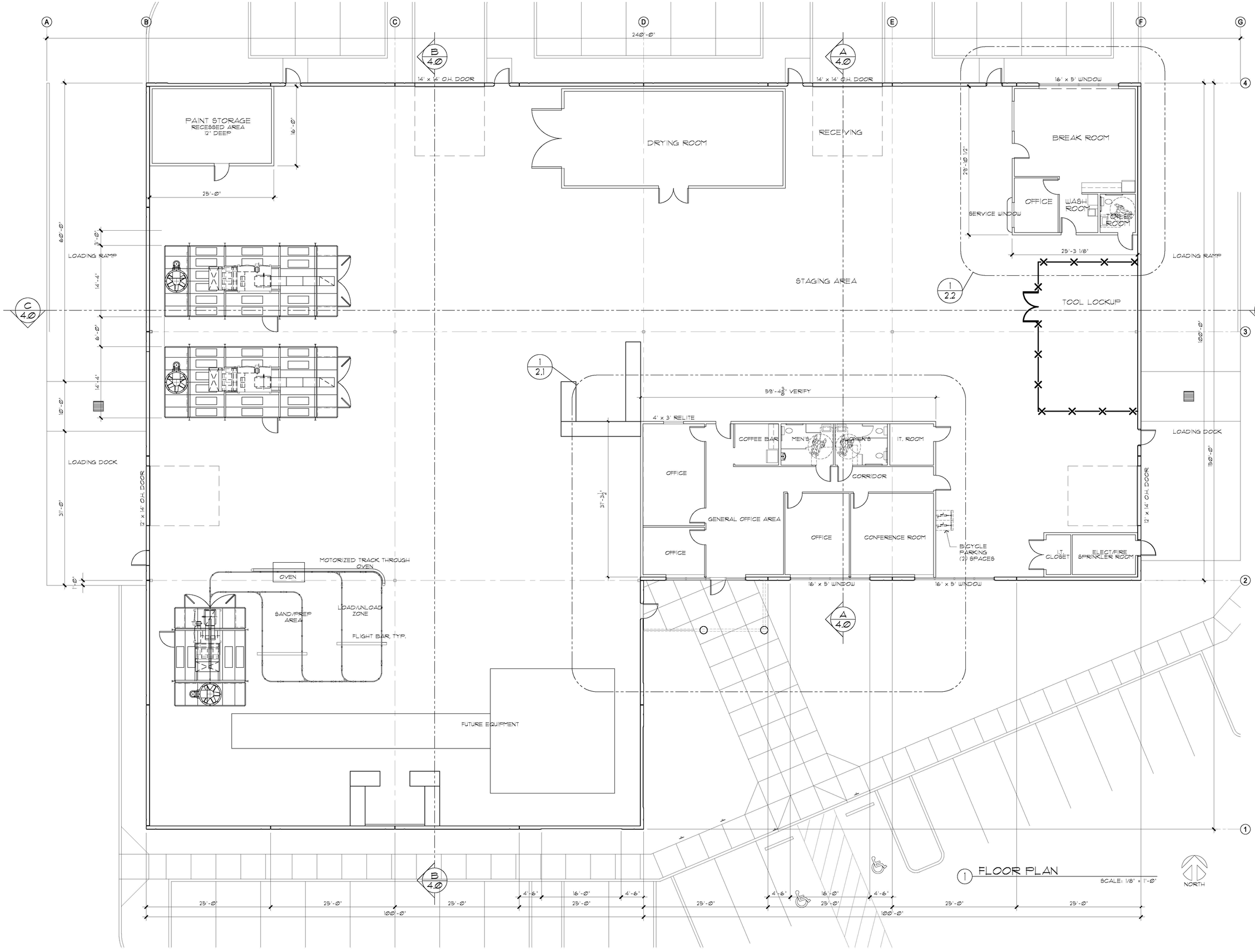
SITE PLAN

DRAWN BY:

DATE ISSUED: *10-9-2015*

SHEET:

1.0



silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

CLIENT:

DAVID SILVEY
HERMAN PROPERTIES,
DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

SHEET TITLE:

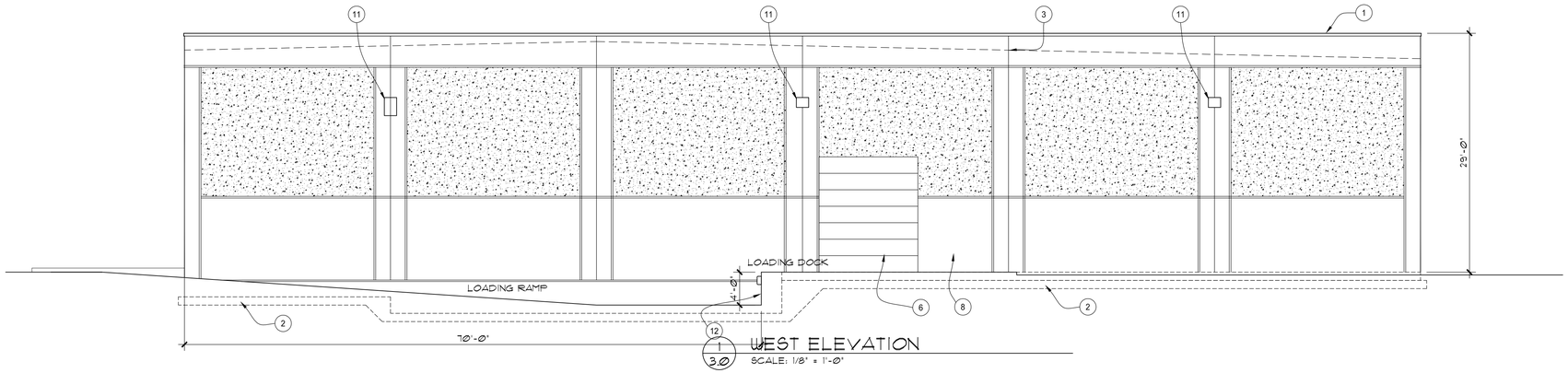
FLOOR PLAN

DRAWN BY: *RRA*

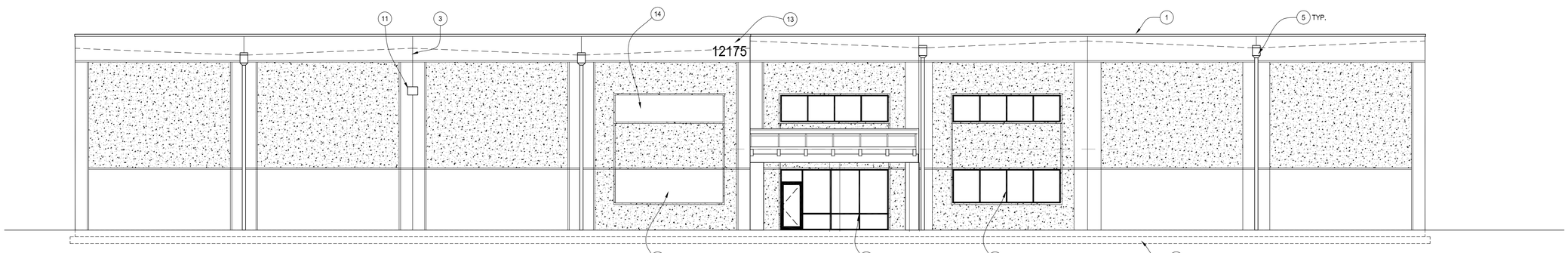
DATE ISSUED: *10/9/2015*

SHEET:

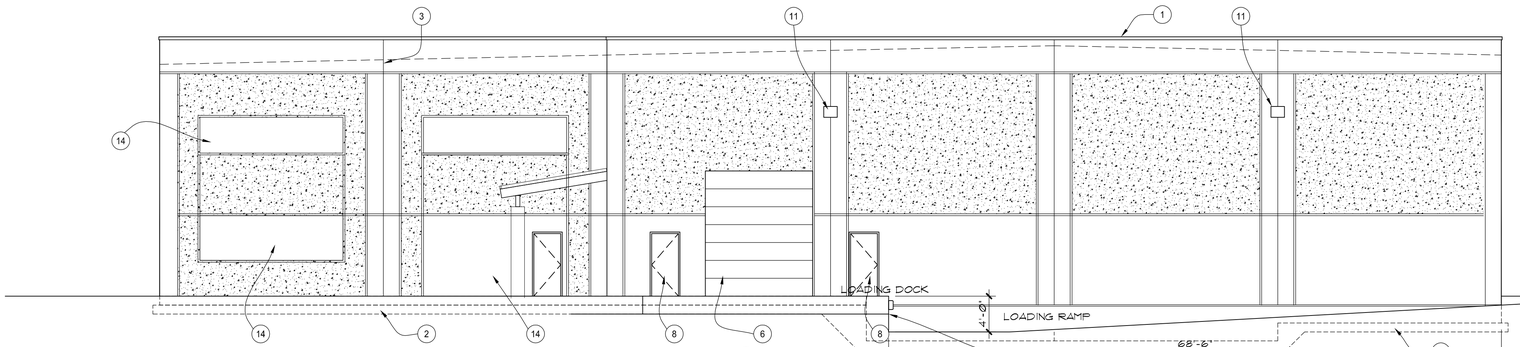
2.0



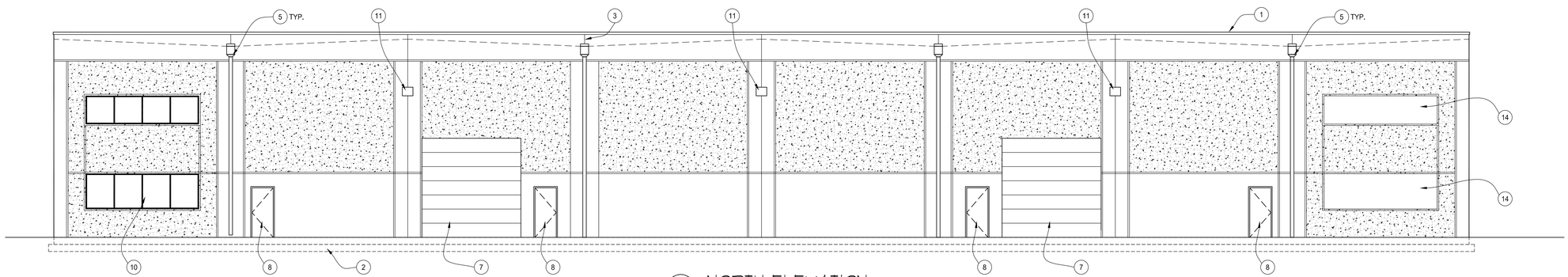
1 3.0 WEST ELEVATION
SCALE: 1/8" = 1'-0"



2 3.0 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



3 3.0 EAST ELEVATION
SCALE: 1/8" = 1'-0"



4 3.0 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

GENERAL NOTES:
A. VERIFY AND CONFIRM ALL DIMENSIONS AND CONDITIONS

KEYNOTES:
1. FLASHING
2. FOOTING PER STRUCTURAL
3. PANEL JOINT
4. LINE OF ROOF BEYOND
5. SCUPPER AND DOWNSPOUT
6. 12'x14' O.H. HIGH-LIFT DOOR
7. 14'x14' O.H. HIGH-LIFT DOOR
8. 3'x7' INSULATED HM PERSONNEL DOOR
9. STOREFRONT ENTRY SYSTEM
10. STOREFRONT WINDOW
11. WALL PACK LIGHT
12. CONCRETE DOCK RETAINING WALL
13. BUILDING ADDRESS (18" HIGH NUMBERS)
14. FUTURE WINDOW

PAINT SCHEDULE:
P-1: COLOR TBD
P-2: COLOR TBD (BLUE)

silco
COMMERCIAL CONSTRUCTION COMPANY
8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

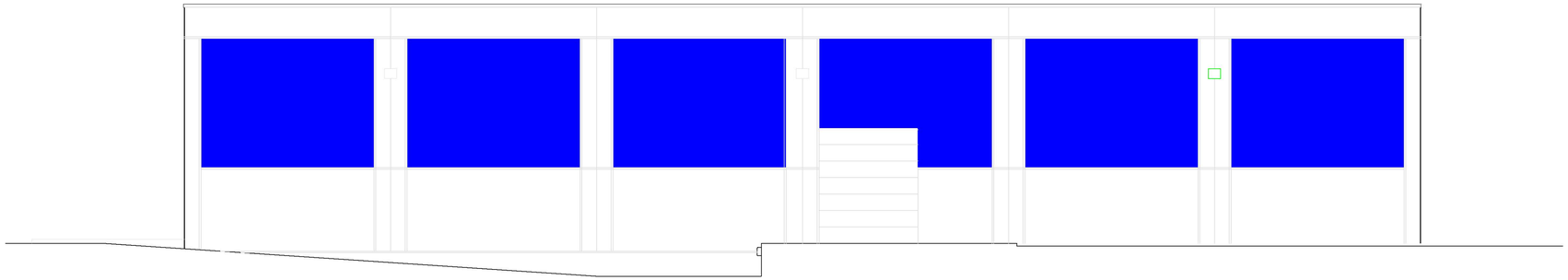
CLIENT:
DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

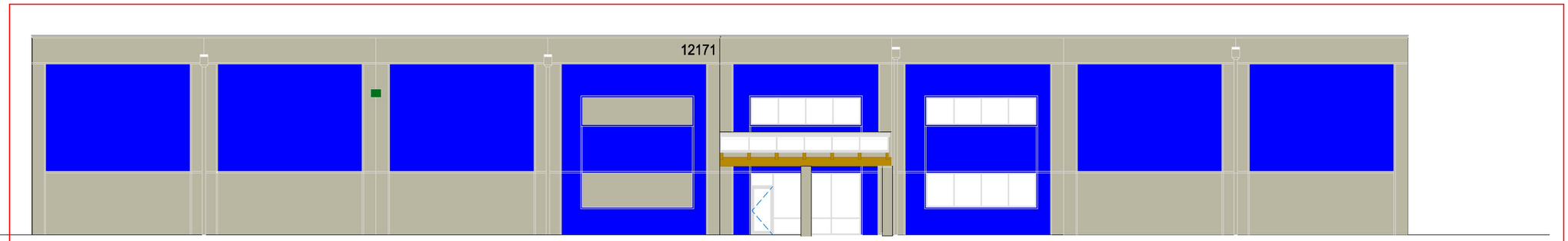
SHEET TITLE:
EXTERIOR ELEVATIONS

DRAWN BY: *RRA*
DATE ISSUED: *10/9/2015*

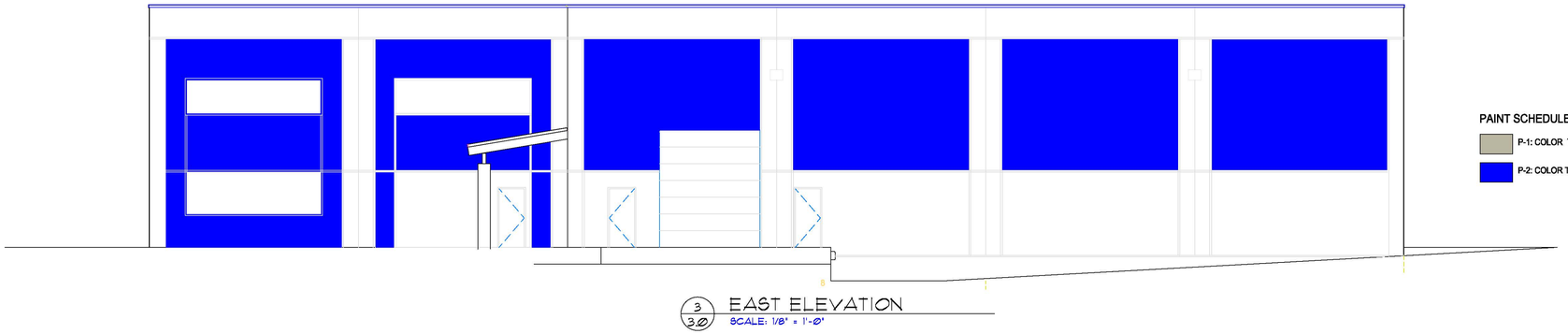
SHEET:
3.0



1 / 3.0 WEST ELEVATION
SCALE: 1/8" = 1'-0"

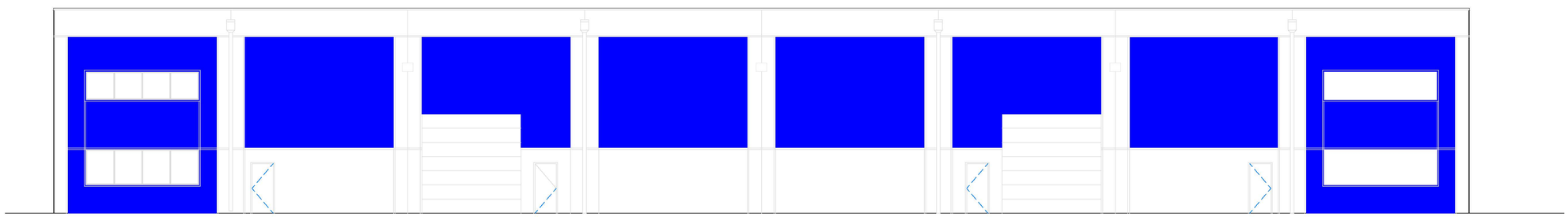


2 / 3.0 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



PAINT SCHEDULE:
- P-1: COLOR TBD (TAN)
- P-2: COLOR TBD (BLUE)

3 / 3.0 EAST ELEVATION
SCALE: 1/8" = 1'-0"



4 / 3.0 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

silco
COMMERCIAL CONSTRUCTION COMPANY
8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

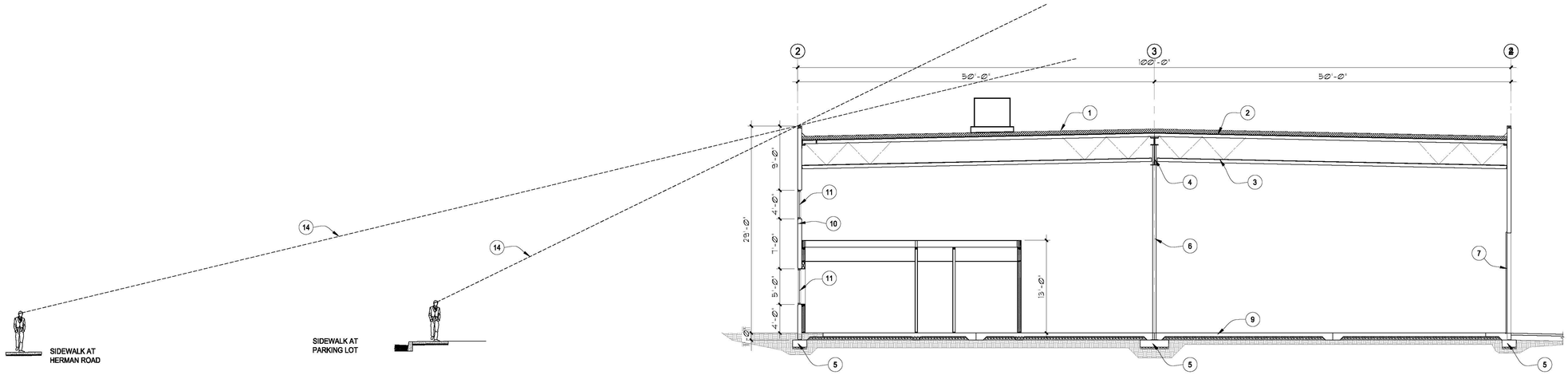
CLIENT:
DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

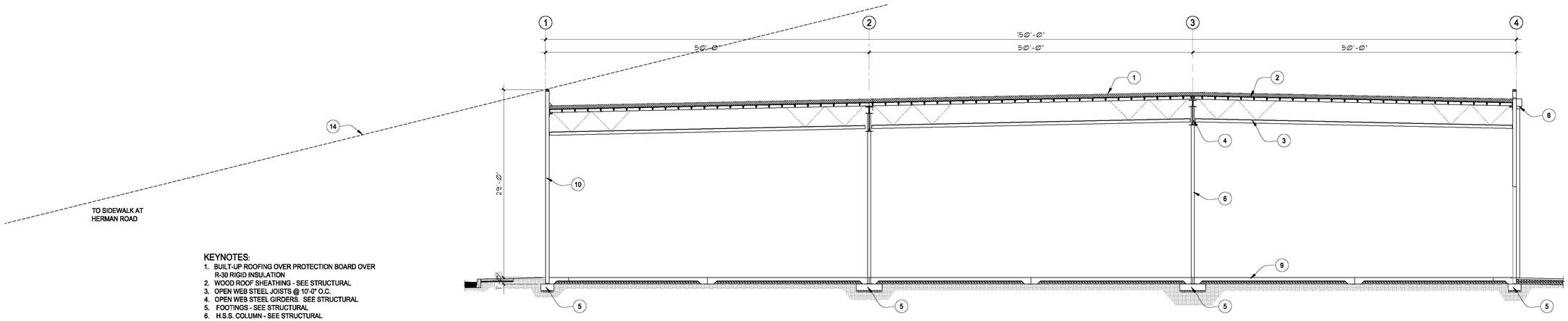
SHEET TITLE:
EXTERIOR ELEVATIONS

DRAWN BY: *RRA*
DATE ISSUED: *10/9/2015*

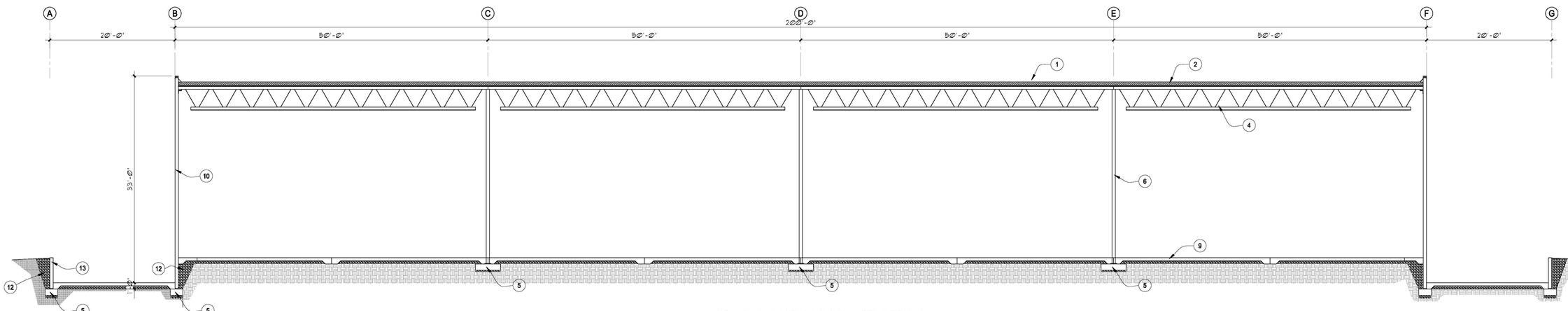
SHEET:
3.0 C



A/4.0 CROSS SECTION
SCALE: 1/8" = 1'-0"



B/4.0 CROSS SECTION
SCALE: 1/8" = 1'-0"



C/4.0 LONGITUDINAL SECTION
SCALE: 1/8" = 1'-0"

KEYNOTES:
1. BUILT-UP ROOFING OVER PROTECTION BOARD OVER R-30 RIGID INSULATION
2. WOOD ROOF SHEATHING - SEE STRUCTURAL
3. OPEN WEB STEEL JOISTS @ 10'-0" O.C.
4. OPEN WEB STEEL GIRDERS. SEE STRUCTURAL
5. FOOTINGS - SEE STRUCTURAL
6. H.S.S. COLUMN - SEE STRUCTURAL
7. 14'x14' O.H. HIGH-LIFT DOOR
8. SCUPPER AND DOWNSPOUT. SEE DETAIL
9. 5 1/2" CONCRETE SLAB ON GRADE OVER 6" COMPACTED CRUSHED ROCK
10. CONCRETE TILT-UP WALLS
11. STOREFRONT WINDOW
12. COMPACTED GRANULAR FILL
13. CONCRETE DOCK RETAINING WALL
14. SITELINE- PARAPET PROVIDES SCREEN FOR HVAC UNITS AND MECHANICAL VENTS.

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

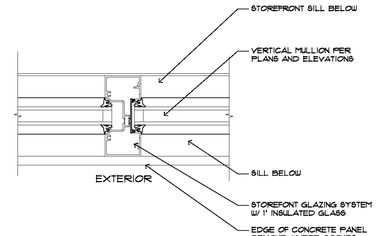
CLIENT:
DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

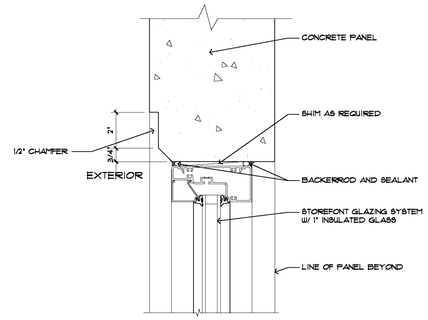
SHEET TITLE:
CROSS SECTION

DRAWN BY: *RRA*
DATE ISSUED: *10/9/2015*

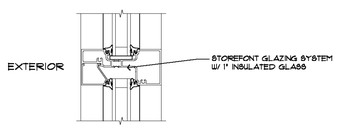
SHEET:
4.0



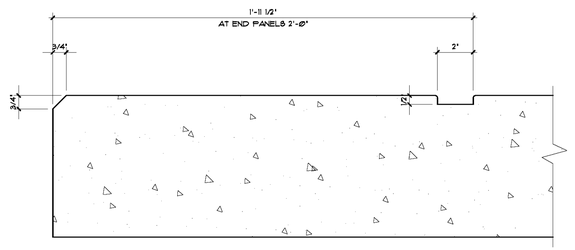
5 / 6.0 WINDOW MULLION
SCALE: 3" = 1'-0"



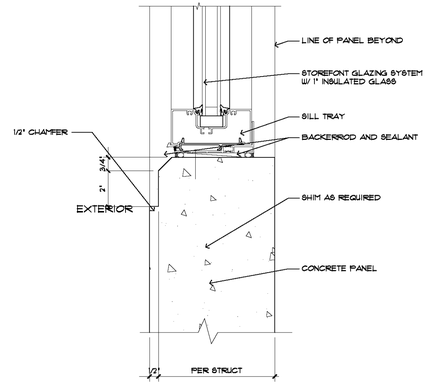
1 / 6.0 WINDOW HEAD
SCALE: 3" = 1'-0"



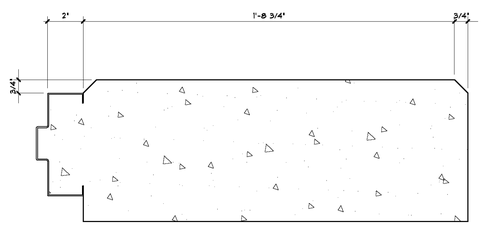
2 / 6.0 WINDOW HORIZONTAL
SCALE: 3" = 1'-0"



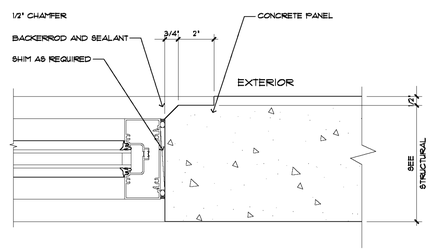
7 / 6.0 PANEL REVEAL
SCALE: 3" = 1'-0"



2 / 6.0 WINDOW SILL
SCALE: 3" = 1'-0"



8 / 6.0 HM DOOR JAMB
SCALE: 3" = 1'-0"



4 / 6.0 WINDOW JAMB
SCALE: 3" = 1'-0"

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

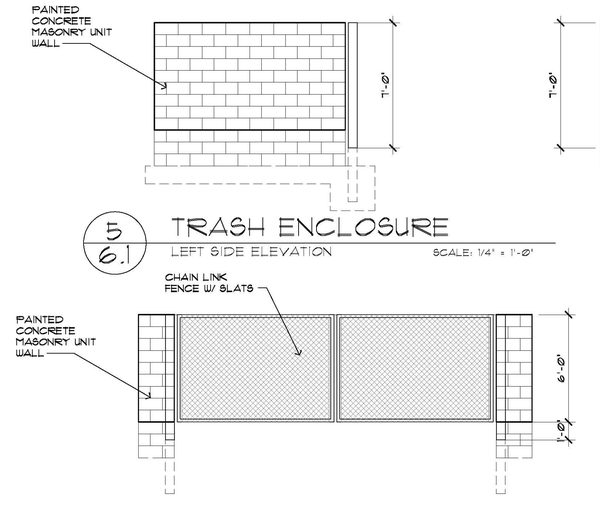
CLIENT:
DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

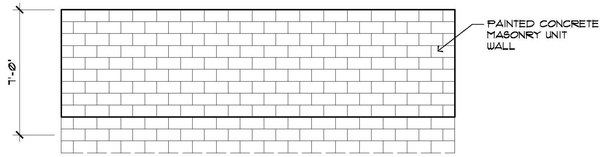
SHEET TITLE:
DETAILS

DRAWN BY: *RRA*
DATE ISSUED: *10/9/2015*

SHEET:
6.0

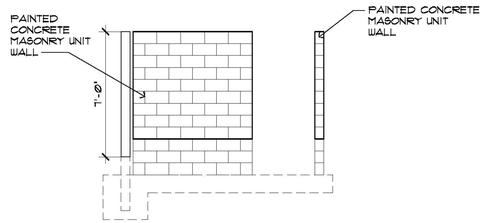


5/6.1 TRASH ENCLOSURE
LEFT SIDE ELEVATION SCALE: 1/4" = 1'-0"

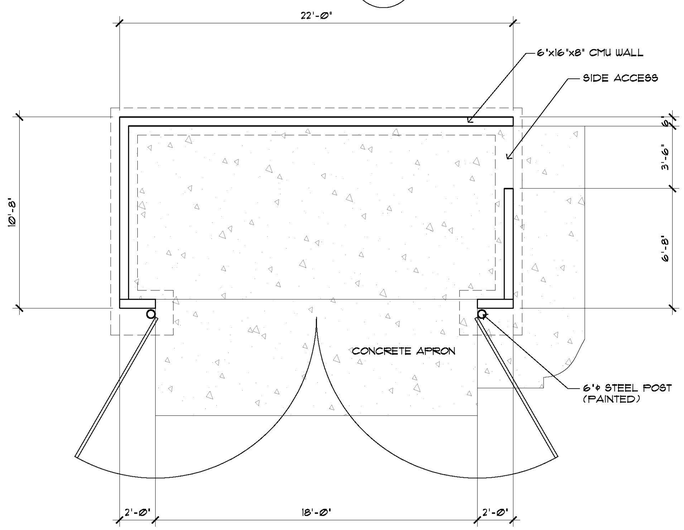


3/6.1 TRASH ENCLOSURE
REAR ELEVATION SCALE: 1/4" = 1'-0"

4/6.1 TRASH ENCLOSURE
FRONT ELEVATION SCALE: 1/4" = 1'-0"



2/6.1 TRASH ENCLOSURE
RIGHT SIDE ELEVATION SCALE: 1/4" = 1'-0"



1/6.1 TRASH ENCLOSURE PLAN
SCALE: 1/4" = 1'-0"

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2504*

RUTH T LLC
BUILDING #6

12171 S.W. Herman Road
Tualatin, OR 97062

CLIENT:
DAVID SILVEY
HERMAN PROPERTIES, DEVELOPMENT. LLC

P.O. BOX 205
Tualatin, OR 97062

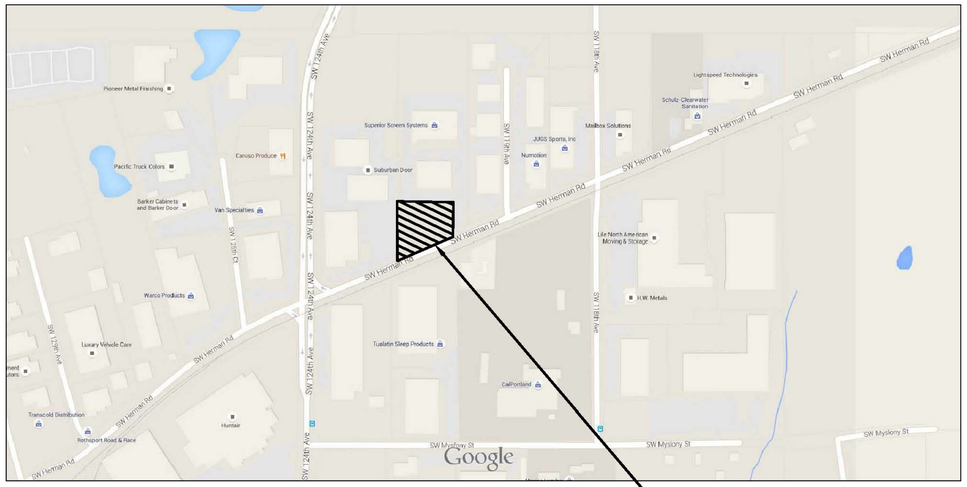
SHEET TITLE:
TRASH ENCLOSURE DETAILS

DRAWN BY: *RRA*
DATE ISSUED: *10/9/2015*

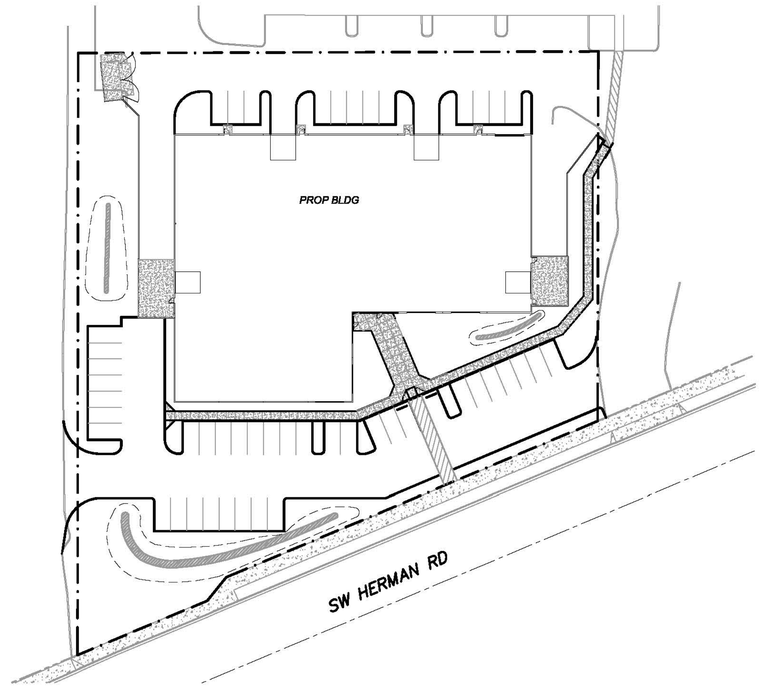
SHEET:
6.1

RUTH T. LLC BUILDING #6

12171 HERMAN RD



VICINITY MAP
N.T.S.



SITE MAP
SCALE: 1" – 40'

APPLICANT
SILCO COMMERCIAL CONSTRUCTION, LLC
8316 N LOMBARD #451
PORTLAND, OR 97203
PH: 503–286–8691
CONTACT: DON SILVEY

OWNER
RUTH T, LLC
PO BOX 205
TUALATIN, OR 97062
PH: 503–286–8691
CONTACT: DAVID SILVEY

LAND SURVEYOR
COLE SURVEYING, LLC
245 NE CONIFER
PO BOX 1211
CORVALLIS, OR 97339
PH: 541–929–5500

CIVIL ENGINEER
DL DESIGN GROUP, INC.
400 EAST EVERGREEN BLVD, SUITE 114
VANCOUVER, WA 98660
PH: 503–644–4628
CONTACT: GARY DARLING, P.E.

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS, CITY OF TUALATIN, CLEAN WATER SERVICES (CWS) R&O 07–20, CONDITIONS OF APPROVAL, UNIFORM BUILDING CODE APPENDIX CHAPTER 33 EXCAVATION AND GRADING, THE AGREEMENT ALLOWING DEVELOPER TO CONSTRUCT PUBLIC IMPROVEMENTS, AND THE OREGON SPECIALTY PLUMBING CODE. SEE SPECIFICATIONS PROVIDED.
2. THE EXCAVATOR MUST COMPLY WITH ALL PROVISIONS OF ORS 757.541 TO 757.571, INCLUDING NOTIFICATION OF ALL OWNERS OF UNDERGROUND FACILITIES AT LEAST 48 HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING ANY EXCAVATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING SEDIMENT TRANSPORT WITHIN THE PROJECT LIMITS, USING RECOGNIZED METHODS FOR EROSION CONTROL AS APPROVED BY CITY OF TUALATIN AND CWS.
4. THE CONTRACTOR IS TO LEAVE THE PROJECT FREE OF DEBRIS AND UNUSED MATERIALS UPON COMPLETION.
5. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY SYSTEMS SUCH AS POWER, TELEPHONE, GAS, CABLE TV, ETC., WITH EACH INDIVIDUAL UTILITY COMPANY, PRIOR TO FINAL INSTALLATION OF THE SYSTEMS.
6. THE CONTRACTOR SHALL MAINTAIN AND PROTECT EXISTING PUBLIC AND PRIVATE UTILITY LINES AND OTHER PUBLIC UTILITY STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL PUBLIC PROPERTY TO ITS ORIGINAL CONDITION UPON COMPLETION OF WORK.
7. TEMPORARY EROSION CONTROL METHODS MUST REMAIN IN PLACE AND BE MAINTAINED UNTIL PERMANENT EROSION CONTROL METHODS ARE IN PLACE AND OPERATIONAL.
8. ALL AREAS TO RECEIVE FILL SHALL BE STRIPPED OF ALL VEGETATION AND OTHER DELETERIOUS MATERIALS. ALL SUCH MATERIALS SHALL BE REMOVED FROM SITE AT THE CONTRACTOR'S EXPENSE.
9. ALL NONMETALLIC SANITARY AND STORM SEWER SERVICE LATERAL PIPING SHALL HAVE AN ELECTRICALLY CONDUCTIVE INSULATED 12 GA. GREEN COPPER TRACER WIRE THE FULL LENGTH OF THE INSTALLED PIPE. PUBLIC LATERALS ARE TO HAVE MAGNETIC TAPE BURIED 18" ABOVE PIPE, AND LABELED SEWER OR STORM.
10. NO MATERIAL SUBSTITUTIONS OR DESIGN CHANGES SHALL BE MADE WITHOUT PRIOR PERMISSION OF THE ENGINEER AND CITY OF TUALATIN.
11. A FULL SET OF THE APPROVED PLANS WITH ALL CURRENT REVISIONS AND AMENDMENTS SHALL BE MAINTAINED ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
12. ALL FILL WITHIN THE BUILDING ENVELOPES SHALL BE PLACED IN 12" LIFTS AND SHALL BE COMPACTED TO AASHTO 95% DENSITY. THE CONTRACTOR SHALL EMPLOY A GEOTECHNICAL ENGINEER TO TEST ALL FILLED LOTS. TEST REPORTS SHALL BE SUBMITTED TO THE CITY OF TUALATIN AND TO THE ENGINEER.

SHEET INDEX

DL DESIGN GROUP INC.
400 EAST EVERGREEN BLVD
Suite 114
VANCOUVER, WA 98660
(360) 836-4723

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-15

RUTH T. LLC BUILDING #6
12171 HERMAN RD. TUALATIN, OREGON
COVER SHEET

REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
Designed By:	GID
Checked By:	GID

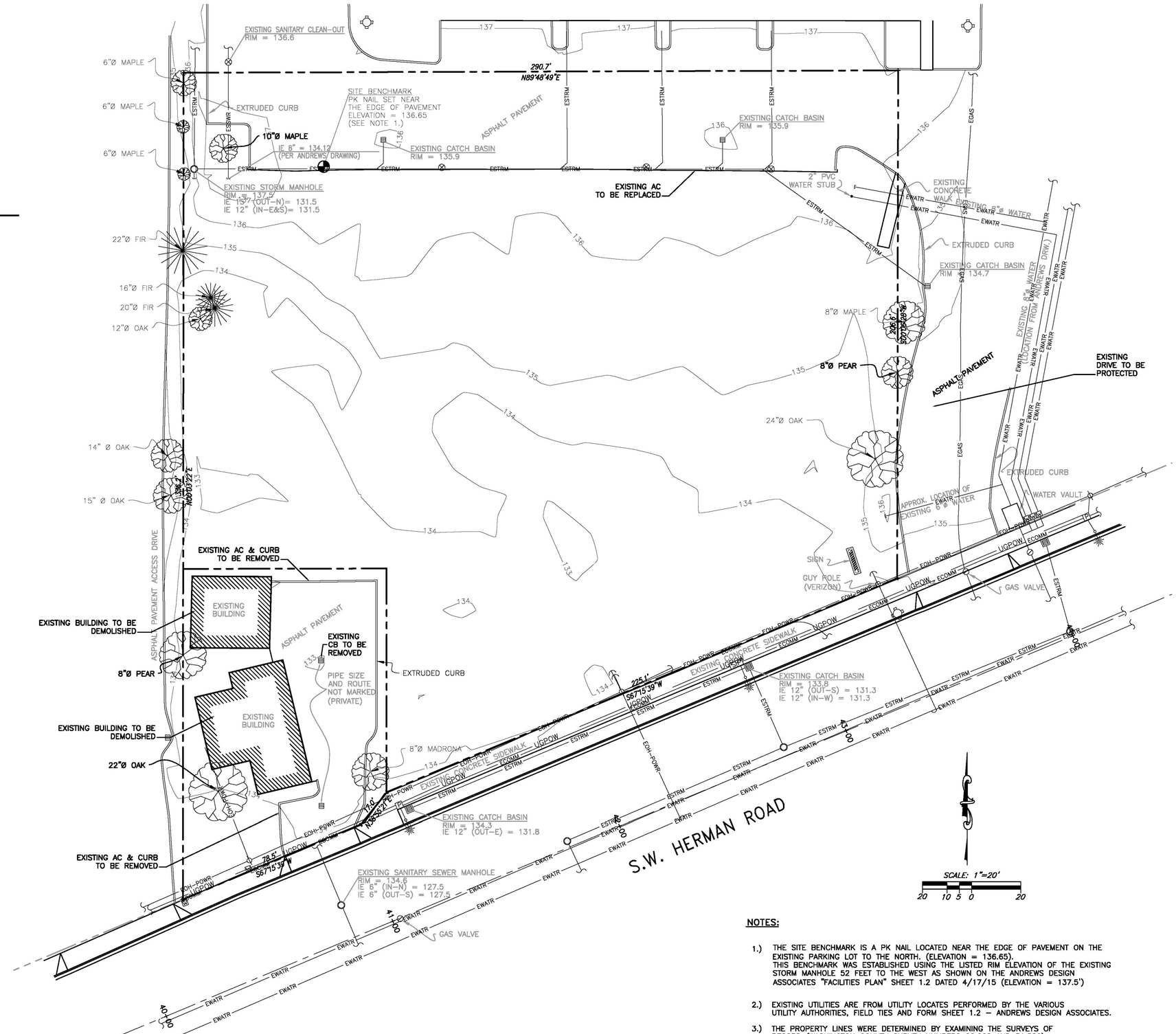
C0

(REF LIST
.tscale: 1
Paltscale: 1
Resolved
OLD-LOGO
SIL002X01
SIL002X11

LEGEND

- MANHOLE
- WATER METER
- WATER VALVE
- JUNCTION BOX AS NOTED
- FIRE HYDRANT
- SIGN
- STREET LIGHT
- CLEANOUT
- CURB INLET
- DECIDUOUS TREE (TRUNK DIAMETER AND DRIP AS DRAWN)
- CONIFER TREE (TRUNK DIAMETER AND DRIP AS DRAWN)

- EGAS — GAS
- EOH-POWR — OVERHEAD POWER
- UGPOW — UNDERGROUND POWER
- ECOMM — UNDERGROUND COMMUNICATIONS
- ESSWR — SANITARY
- ESTRM — STORM
- ECOMM — TELEPHONE
- EWATR — WATER
- CATCH BASIN
- UTILITY POLE



UTILITIY COMPANIES

COMCAST CABLE COMMUNICATIONS
ELECTRIC LIGHTWAVES, INC.
FRONTIER COMMUNICATIONS
NORTHWEST NATURAL GAS
PORTLAND GENERAL ELECTRIC
CITY OF SHERWOOD
CITY OF TUALATIN
CLEANWATER SERVICES
WASHINGTON COUNTY L.U.T.

EXISTING CONDITIONS

SCALE: 1" – 20'

NOTES:

1.) THE SITE BENCHMARK IS A PK NAIL LOCATED NEAR THE EDGE OF PAVEMENT ON THE EXISTING PARKING LOT TO THE NORTH. (ELEVATION = 136.65). THIS BENCHMARK WAS ESTABLISHED USING THE LISTED RIM ELEVATION OF THE EXISTING STORM MANHOLE 52 FEET TO THE WEST AS SHOWN ON THE ANDREWS DESIGN ASSOCIATES "FACILITIES PLAN" SHEET 1.2 DATED 4/17/15 (ELEVATION = 137.5')

2.) EXISTING UTILITIES ARE FROM UTILITY LOCATES PERFORMED BY THE VARIOUS UTILITY AUTHORITIES, FIELD TIES AND FORM SHEET 1.2 – ANDREWS DESIGN ASSOCIATES.

3.) THE PROPERTY LINES WERE DETERMINED BY EXAMINING THE SURVEYS OF RECORD (WASHINGTON COUNTY SURVEY NUMBERS 28,068 AND 31,586) THIS IS NOT A BOUNDARY SURVEY. BOUNDARIES SHOWN ON THIS SURVEY ARE A GRAPHIC REPRESENTATION TO SHOW THE APPROXIMATE LOCATION OF BOUNDARIES TO EXISTING IMPROVEMENTS.

4.) THERE MAY BE ADDITIONAL EASEMENTS AFFECTING THIS SITE. A TITLE SORT REPORT SHOULD BE AQUIRED FROM A TITLE COMPANY IT IDENTIFY ANY ADDITIONAL EASEMENTS AND THE RECORD DOCUMENT WHERE THEY MAY BE FOUND.

5.) TREE TRUNK DIAMETERS ARE MEASURED AS BEST WE COULD. A LARGE MAJORITY OF THE MAJOR TREES HAVE SIGNIFICANT ACCUMULATIONS OF ENGLISH IVY MAKING THE TRUNK INACCESSIBLE.

COLE SURVEYING, LLC

RUTH T. LLC BUILDING #6

12171 HERMAN RD. TUALATIN, OREGON

EXISTING CONDITIONS PLAN

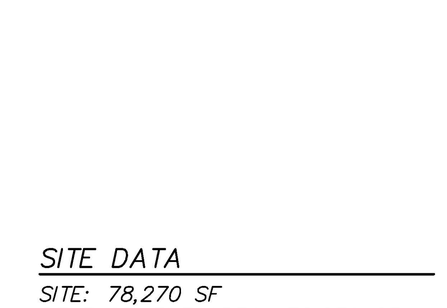
REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
Designed By:	GID
Checked By:	GID

C1

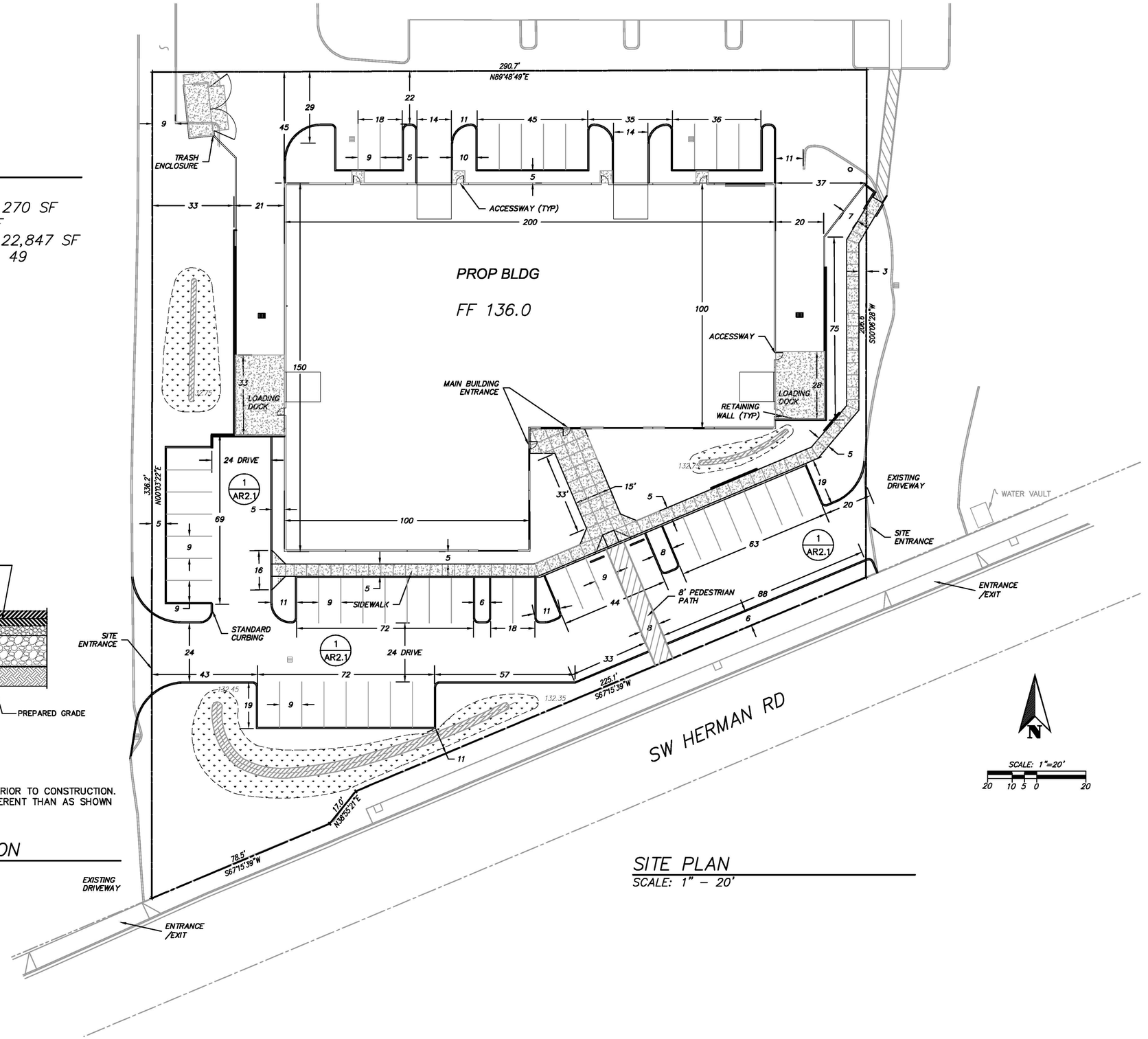
SITE DATA

SITE: 78,270 SF
DEVELOPMENT AREA: 78,270 SF
LANDSCAPING: 16,401 SF
PARKING LOT ASPHALT: 22,847 SF
TOTAL PARKING SPACES: 49
  STANDARD: 47
  DISABILITY: 2
BUILDING: 25,499 SF
  PERIMETER: 700 LF
SIDEWALK: 3,988 SF



NOTE:
VERIFY EXISTING PAVEMENT SECTIONS PRIOR TO CONSTRUCTION. IF EXISTING PAVEMENT SECTION IS DIFFERENT THAN AS SHOWN ABOVE, NOTIFY ENGINEER.

1/AR2.1 PAVEMENT SECTION
NTS



SITE PLAN
SCALE: 1" – 20'

DESIGN GROUP INC.
400 EAST EVERGREEN BLVD
Suite 114
VANCOUVER, WA 98660
(360) 836-4723

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-15

RUTH T. LLC BUILDING #6
12171 HERMAN RD. TUALATIN, OREGON
SITE PLAN

REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
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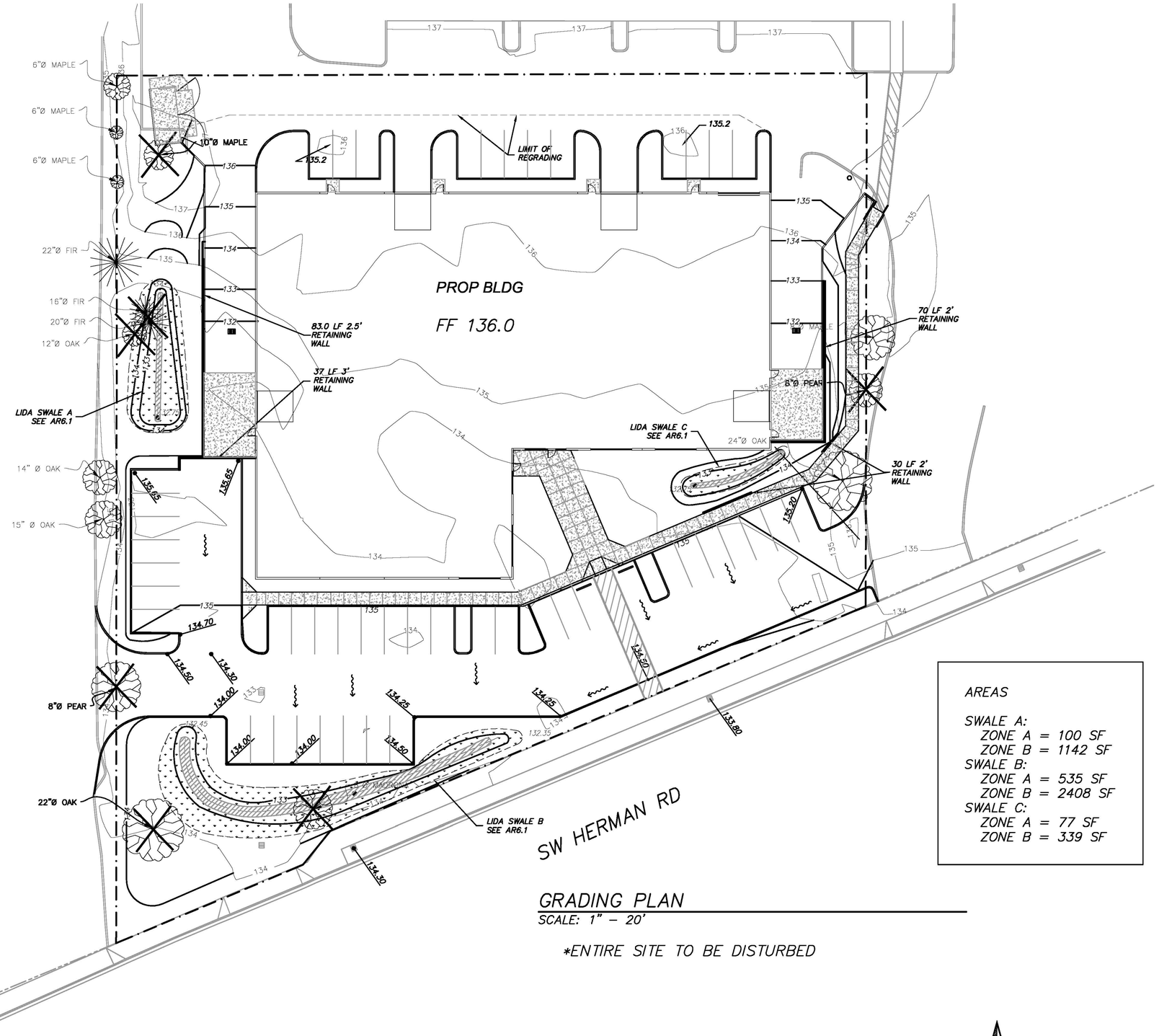
Checked By:	GID

C2



LEGEND

TREE TO BE PROTECTED

TREE TO BE REMOVED

*NOTE: CONTRACTOR TO INSTALL FENCE AROUND THE DRIP LINE OF EXISTING TREES TO BE PROTECTED WITH CHAIN LINK OR OTHER STURDY FENCING DURING CONSTRUCTION.

AREAS

SWALE A:
ZONE A = 100 SF
ZONE B = 1142 SF
SWALE B:
ZONE A = 535 SF
ZONE B = 2408 SF
SWALE C:
ZONE A = 77 SF
ZONE B = 339 SF

GRADING PLAN

SCALE: 1" – 20'

*ENTIRE SITE TO BE DISTURBED

SCALE: 1"=20'
20 10 5 0 20

DESIGN GROUP INC.
400 EAST EVERGREEN BLVD
Suite 114
VANCOUVER, WA 98660
(360) 836-4723

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
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RUTH T. LLC BUILDING #6

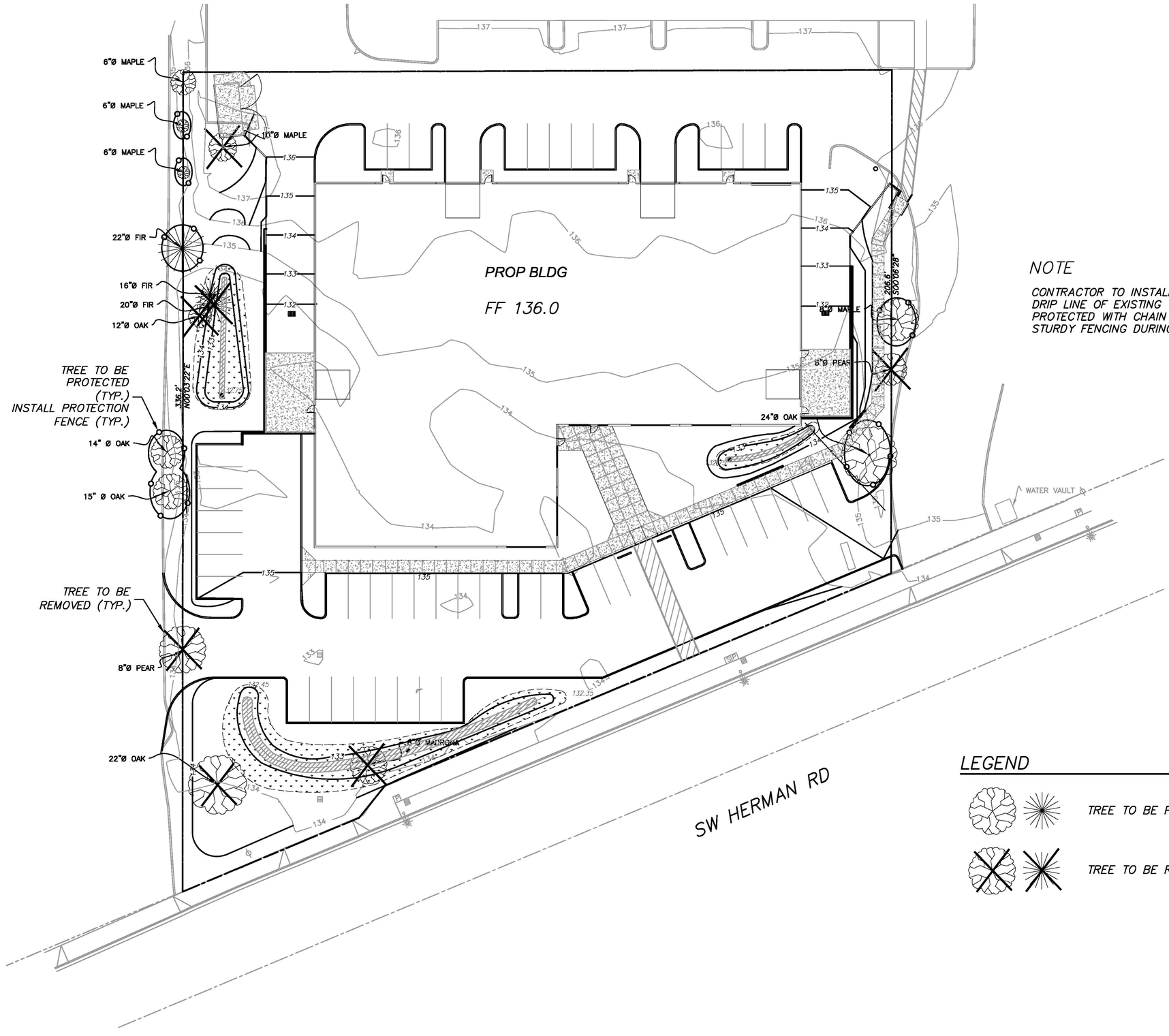
12171 HERMAN RD. TUALATIN, OREGON

GRADING PLAN

REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
Designed By:	GID
Checked By:	GID

C3



NOTE

CONTRACTOR TO INSTALL FENCE AROUND THE DRIP LINE OF EXISTING TREES TO BE PROTECTED WITH CHAIN LINK OR OTHER STURDY FENCING DURING CONSTRUCTION

LEGEND

TREE TO BE PROTECTED

TREE TO BE REMOVED

SCALE: 1"=20'

20 10 5 0 20

DESIGN GROUP INC.
400 EAST EVERGREEN BLVD
Suite 114
VANCOUVER, WA 98660
(360) 836-4723

REGISTERED PROFESSIONAL ENGINEER 19160 OREGON JULY 15, 1997 GARY I. DARLING
EXPIRES 12-31-15

RUTH T. LLC BUILDING #6

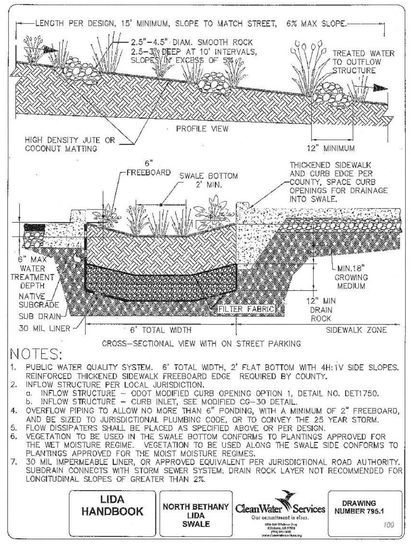
12171 HERMAN RD. TUALATIN, OREGON

TREE PRESERVATION PLAN

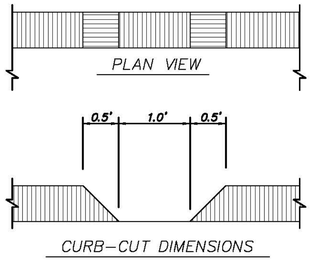
REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
Designed By:	GID
Checked By:	GID

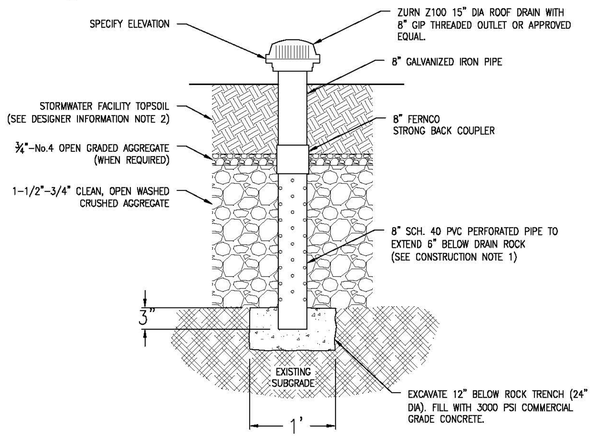
C4



1 AR6.1 LIDA SWALE TYP DETAIL
N.T.S.



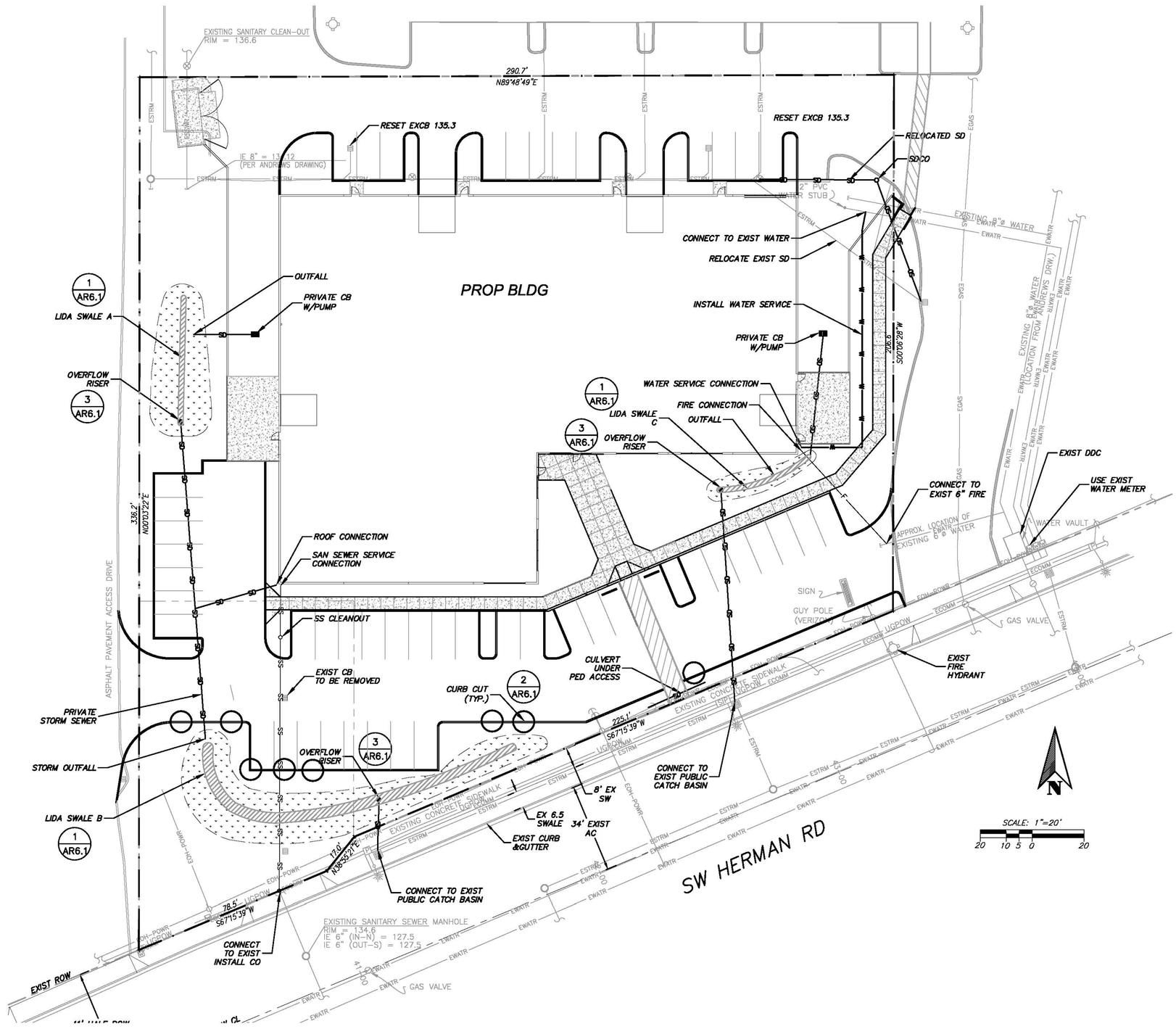
2 AR6.1 CURB CUT DETAIL
N.T.S.



DESIGNER INFORMATION
1. Show overflow drain in swale, planter or curb extension section. Separate swale, planter or curb extension section views may not be needed.
2. Dimension stormwater facility soil and rock layers per your design. See sections SW-301, SW-312 and SW-322.

CONSTRUCTION NOTE
1. Perforate 8" Schedule 40 PVC with ½" holes, 90° degrees around pipe, rows 2" apart. Offset holes in rows by 45°.

3 AR6.1 OVERFLOW RISER DETAIL
N.T.S.



DESIGN GROUP INC.
400 EAST EVERGREEN BLVD
Suite 114
VANCOUVER, WA 98660
(360) 836-4723

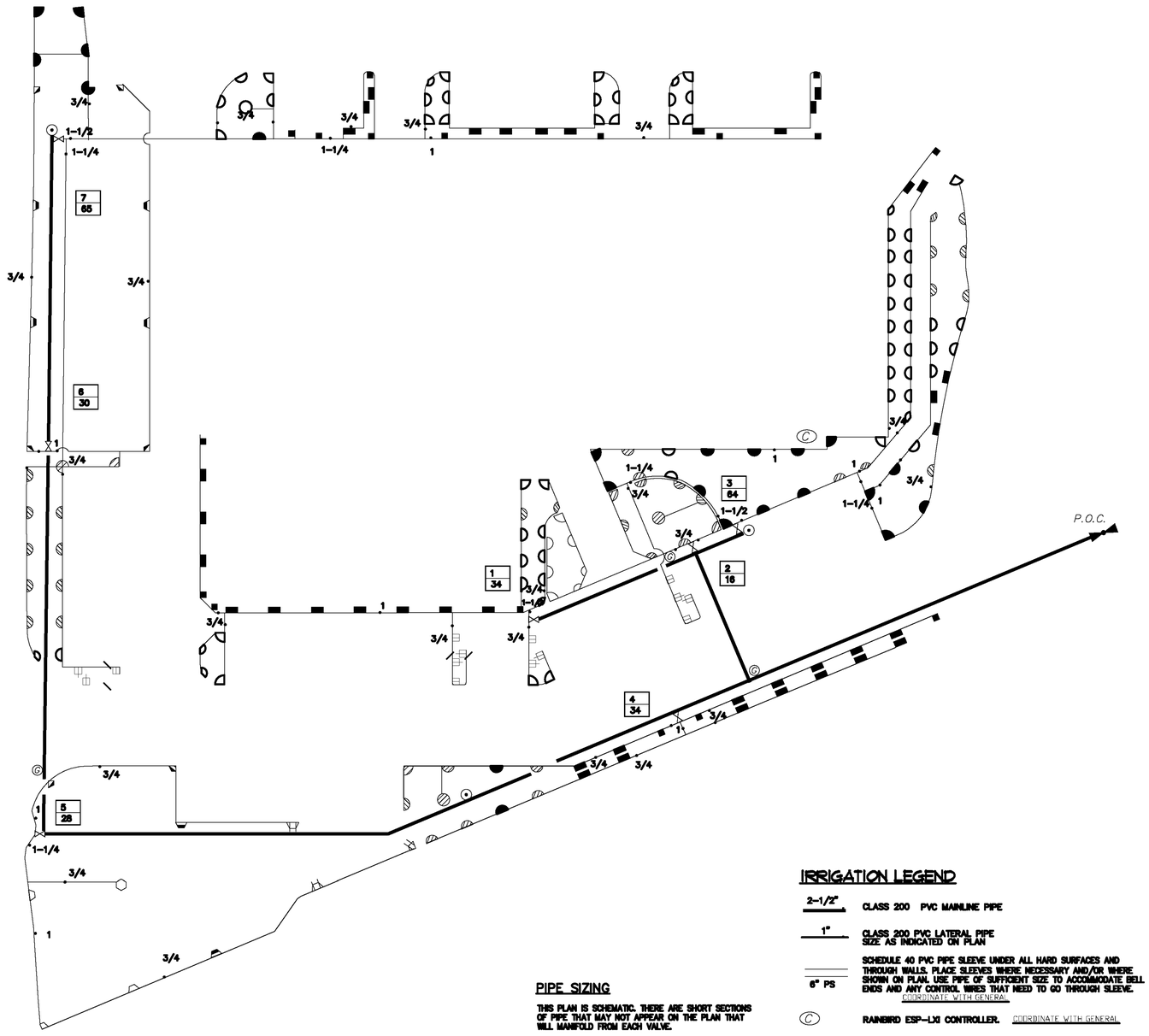
REGISTERED PROFESSIONAL ENGINEER 19160 OREGON JULY 15, 1987 GARY I. DARLING
EXPIRES 12-31-15

RUTH T. LLC BUILDING #6
12171 HERMAN RD. TUALATIN, OREGON
PUBLIC FACILITIES PLAN

REV.	DATE	BY

PROJECT NUMBER	SIL002
Date:	10/14/2015
Scale:	AS SHOWN
Drawn By:	NAB
Designed By:	GID
Checked By:	GID

C6



ROTARY HEAD LEGEND

HUNTER SERIES I-20 ULTRA

NOZZLE SYMBOL	NOZZLE	TYPE	PSI	RADIUS	GPM
	# 3SR	I-20-36S	40	20'-24'	2.7
	# 1.5SR	I-20-ADS	40	20'-24'	1.3
	# 1.5SR	I-20-ADS	40	20'-24'	1.3
	# .75SR	I-20-ADS	40	20'-24'	.7
	# 6	I-20-36S	40	25'-29'	6
	# 4	I-20-ADS	40	25'-29'	4
	# 3	I-20-ADS	40	25'-29'	3
	# 1.5	I-20-ADS	40	25'-29'	1.5
	# 8	I-20-36S	40	30'-33'	8
	# 6	I-20-ADS	40	30'-33'	6
	# 4	I-20-ADS	40	30'-33'	4
	# 2	I-20-ADS	40	30'-33'	2
	# 5	I-20-ADS	40	34'-36'	5
	# 2.5	I-20-ADS	40	34'-36'	2.5

NOTES:

1. RADII ARE LISTED FOR INFORMATION ONLY. SPACE HEADS AS SHOWN ON DRAWINGS.
2. INSTALL (6" POP-UP) FOR SHRUB AND GROUNDCOVER AREAS
   INSTALL (4"POP-UP) FOR LAWNS

SPRAY HEAD LEGEND

RAINBIRD 1800-PRS SERIES, 1.6" PER HOUR

SYMBOL	NOZZLE	PSI	RADIUS	ARC	GPM
	10F	30	10' MAX.	360	1.57
	10H	30	10' MAX.	180	0.79
	10T	30	10' MAX.	120	0.52
	10Q	30	10' MAX.	90	0.39
	12TQ	30	12' MAX.	270	1.95
	12H	30	12' MAX.	180	1.30
	12T	30	12' MAX.	120	0.87
	12Q	30	12' MAX.	90	0.65
	15F	30	15' MAX.	360	3.70
	15TQ	30	15' MAX.	270	2.78
	15H	30	15' MAX.	180	1.85
	15T	30	15' MAX.	120	1.23
	15Q	30	15' MAX.	90	0.93
A	VAN	30	VARIES	VARIES	VARIES
	B15EST	30	6' X 13'	END	0.65
	B15CST	30	6' X 26'	CENTER	1.29
	B15SST	30	6' X 26'	SIDE	1.29
	15SQ	30	23' X 23'	SQUARE	3.73
	15EST	30	4' X 15'	END	0.61
	15CST	30	4' X 30'	CENTER	1.21
	15SST	30	4' X 30'	SIDE	1.21
	17SST	30	9' X 18'	SIDE	1.73
	1402	30	BUBBLER	360	0.5
	5F	30	5' MAX.	360	.41
	5H	30	5' MAX.	180	0.2
	5T	30	5' MAX.	120	0.13
	5Q	30	5' MAX.	90	0.1

HEAD RISER SCHEDULE

AREA	SPRAY HEADS
LAWNS	4" (1804)-PRS
SHRUBS	6" (1806)-PRS

IRRIGATION HEAD NOTES

1. USE SIDE INLETS ON 6" AND 12" SPRAY HEAD RISERS.
2. USE BOTTOM INLETS ON SAM TYPE SPRAY HEADS.
3. RADII ARE LISTED FOR INFORMATION ONLY, USE 5' SPRAYS INSTEAD OF 10' WHERE APPROPRIATE, SPACE HEADS AS SHOWN ON DRAWINGS.
4. ON B15 SPRAYS USE BUCKNER COALBRASS NOZZLES.

IRRIGATION LEGEND

2-1/2"	CLASS 200 PVC MAINLINE PIPE
1"	CLASS 200 PVC LATERAL PIPE SIZE AS INDICATED ON PLAN
6" PS	SCHEDULE 40 PVC PIPE SLEEVE UNDER ALL HARD SURFACES AND THROUGH WALLS. PLACE SLEEVES WHERE NECESSARY AND/OR WHERE SHOWN ON PLAN. USE PIPE OF SUFFICIENT SIZE TO ACCOMMODATE BELL ENDS AND ANY CONTROL WIRES THAT NEED TO GO THROUGH SLEEVE. COORDINATE WITH GENERAL
C	RAINBIRD ESP-LXI CONTROLLER. COORDINATE WITH GENERAL
x / x	(VALVE AND CONTROLLER NUMBER OVER GPM) USE PRS-D OPTION ON SPRAY ZONES WITH P.S.I. EXCEEDING 70 AT P.O.C.
	100-PEB 0-30 G.P.M.
	150-PEB 30-75 G.P.M.
	GATE VALVE "ISOLATION VALVE"
	QUICK COUPLING VALVE
P.O.C.	CONBRACO DOUBLE CHECK 2" SYSTEM BASED ON 2" METER WITH 65 P.S.I. AT P.O.C. "TUALATIN OPERATIONS"

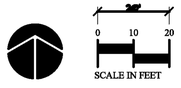
PIPE SIZING

THIS PLAN IS SCHEMATIC. THERE ARE SHORT SECTIONS OF PIPE THAT MAY NOT APPEAR ON THE PLAN THAT WILL MANIFOLD FROM EACH VALVE.

PIPE SHALL BE SIZED ACCORDING TO MANUFACTURES RECOMENDATIONS OR AS SPECIFIED ON PLAN.

FLOW NOT TO EXCEED 5' PER SECOND.

PIPE SIZE	/CLASS 200	GPM	P.S.I./LOSS
. 3/4	3/4" PIPE	1 - 10	4.31
. 1	1" PIPE	10 - 16	3.11
. 1-1/4	1-1/4" PIPE	16 - 26	2.46
. 1-1/2	1 -1/2" PIPE	26 - 36	2.20
. 2	2" PIPE	36 - 56	1.72
. 2-1/2	2-1/2" PIPE	56- 80	1.36



THIS PLAN IS SCHEMATIC. DO NOT BEND MAINLINE PIPE. USE 45° ELBOWS TO MAKE 90° TURNS ON MAINLINE PIPE OVER 2-1/2". PLACE MAINLINE AND SYSTEM COMPONENTS WITHIN PROPERTY LINE. SYSTEM COMPONENTS ARE SHOWN OUTSIDE BEDS FOR GRAPHIC CLARITY.

ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center.(Note: the telephone number for the Oregon Utility Notification Center is (503) 232-1987).

L2 IRRIGATION PLAN

REGISTERED
315
Darrell Mulch
OREGON
10-18-93
LANDSCAPE ARCHITECT

MULCH
DARRELL MULCH
LANDSCAPE ARCHITECTURE
1907 N.E. 66TH AVENUE #168
PORTLAND, OREGON 97213
(503) 222-7416 TEL

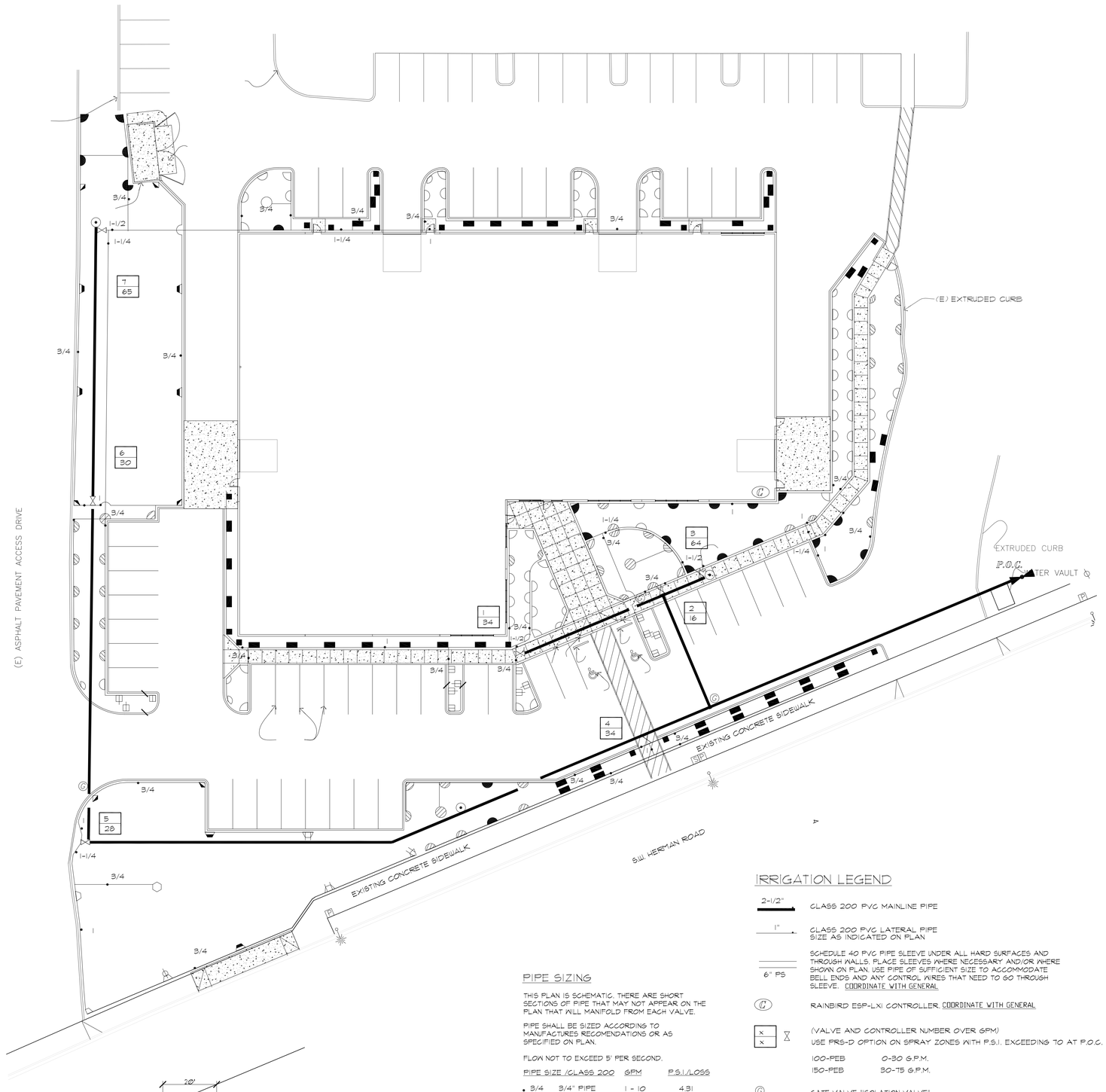
PROJECT:
RUTH T LLC BUILDING # 6

PROJECT LOCATION:
12171 HERMAN ROAD
TUALITIN, OREGON

CLIENT:
SILCO COMMERCIAL CONSTRUCTION, INC.

DATE:	10-15-15
PROJECT NO:	X
DESIGNED:	DM
DRAWN:	DM
CHECKED:	DM
REVISIONS:	

SHEET
L2
2



THIS PLAN IS SCHEMATIC. DO NOT BEND MAINLINE PIPE. USE 45° ELBOWS TO MAKE 90° TURNS ON MAINLINE PIPE OVER 2-1/2". PLACE MAINLINE AND SYSTEM COMPONENTS WITHIN PROPERTY LINE. SYSTEM COMPONENTS ARE SHOWN OUTSIDE BEDS FOR GRAPHIC CLARITY.

PIPE SIZING

THIS PLAN IS SCHEMATIC, THERE ARE SHORT SECTIONS OF PIPE THAT MAY NOT APPEAR ON THE PLAN THAT WILL MANIFOLD FROM EACH VALVE.

PIPE SHALL BE SIZED ACCORDING TO MANFACTURES RECOMENDATIONS OR AS SPECIFIED ON PLAN.

FLOW NOT TO EXCEED 5' PER SECOND.

PIPE SIZE /CLASS 200		GPM	P.S.I./LOSS
• 3/4	3/4" PIPE	1 - 10	4.31
• 1	1" PIPE	10 - 16	3.11
• 1-1/4	1-1/4" PIPE	16 - 26	2.46
• 1-1/2	1 -1/2" PIPE	26 - 36	2.20
• 2	2" PIPE	36 - 56	1.72
• 2-1/2	2-1/2" PIPE	56- 80	1.36

IRRIGATION LEGEND

2-1/2"	CLASS 200 PVC MAINLINE PIPE
1"	CLASS 200 PVC LATERAL PIPE SIZE AS INDICATED ON PLAN
6" PS	SCHEDULE 40 PVC PIPE SLEEVE UNDER ALL HARD SURFACES AND THROUGH WALLS. PLACE SLEEVES WHERE NECESSARY AND/OR WHERE SHOWN ON PLAN. USE PIPE OF SUFFICIENT SIZE TO ACCOMMODATE BELL ENDS AND ANY CONTROL WIRES THAT NEED TO GO THROUGH SLEEVE. COORDINATE WITH GENERAL
C	RAINBIRD ESP-LXI CONTROLLER. COORDINATE WITH GENERAL
x x	(VALVE AND CONTROLLER NUMBER OVER GPM) USE PRS-D OPTION ON SPRAY ZONES WITH P.S.I. EXCEEDING 70 AT P.O.C.
	100-PEB 0-30 G.P.M.
	150-PEB 30-75 G.P.M.
G	GATE VALVE "ISOLATION VALVE"
	QUICK COUPLING VALVE
P.O.C.	CONBRACO DOUBLE CHECK 2" SYSTEM BASED ON 2" METER WITH 65 P.S.I. AT P.O.C. "TUALATIN OPERATIONS"

ROTARY HEAD LEGEND

HUNTER SERIES I-20 ULTRA

NOZZLE SYMBOL	NOZZLE	TYPE	PSI	RADIUS	GPM
	# 35R	I-20-36S	40	20'-24'	2.7
	# 1.5SR	I-20-ADS	40	20'-24'	1.3
	# 1.5SR	I-20-ADS	40	20'-24'	1.3
	# .75SR	I-20-ADS	40	20'-24'	.7
	# 6	I-20-36S	40	25'-29'	6
	# 4	I-20-ADS	40	25'-29'	4
	# 3	I-20-ADS	40	25'-29'	3
	# 1.5	I-20-ADS	40	25'-29'	1.5
	# 8	I-20-36S	40	30'-33'	8
	# 6	I-20-ADS	40	30'-33'	6
	# 4	I-20-ADS	40	30'-33'	4
	# 2	I-20-ADS	40	30'-33'	2
	# 5	I-20-ADS	40	34'-38'	5
	# 2.5	I-20-ADS	40	34'-38'	2.5

NOTES

1. RADII ARE LISTED FOR INFORMATION ONLY. SPACE HEADS AS SHOWN ON DRAWINGS.
2. INSTALL (6" POP-UP) FOR SHRUB AND GROUNDCOVER AREAS INSTALL (4"POP-UP) FOR LAWNS

SPRAY HEAD LEGEND

RAINBIRD 1800-PRS SERIES, 1.8" PER HOUR

SYMBOL	NOZZLE	PSI	RADIUS	ARC	GPM
	10F	30	10' MAX.	360	1.57
	10H	30	10' MAX.	180	0.79
	10T	30	10' MAX.	120	0.52
	10Q	30	10' MAX.	90	0.39
	12TQ	30	12' MAX.	270	1.95
	12H	30	12' MAX.	180	1.30
	12T	30	12' MAX.	120	0.87
	12Q	30	12' MAX.	90	0.65
	15F	30	15' MAX.	360	3.70
	15TQ	30	15' MAX.	270	2.78
	15H	30	15' MAX.	180	1.85
	15T	30	15' MAX.	120	1.23
	15Q	30	15' MAX.	90	0.93
A	VAN	30	VARIES	VARIES	VARIES
	B15EST	30	6' X 15'	END	0.65
	B15CST	30	6' X 26'	CENTER	1.29
	B15SST	30	6' X 26'	SIDE	1.29
	15SQ	30	23' X 23'	SQUARE	3.73
	15EST	30	4' X 15'	END	0.61
	15CST	30	4' X 30'	CENTER	1.21
	15SST	30	4' X 30'	SIDE	1.21
	17SST	30	9' X 18'	SIDE	1.73
	1402	30	BUBBLER	360	0.5
	5F	30	5' MAX.	360	.41
	5H	30	5' MAX.	180	0.2
	5T	30	5' MAX.	120	0.13
	5Q	30	5' MAX.	90	0.1

HEAD RISER SCHEDULE

AREA	SPRAY HEADS
LAWNS	4" (1804)-PRS
SHRUBS	6" (1806)-PRS

IRRIGATION HEAD NOTES

1. USE SIDE INLETS ON 6" AND 12" SPRAY HEAD RISERS.
2. USE BOTTOM INLETS ON SAM TYPE SPRAY HEADS.
3. RADII ARE LISTED FOR INFORMATION ONLY. USE 8' SPRAYS INSTEAD OF 10' WHERE APPROPRIATE, SPACE HEADS AS SHOWN ON DRAWINGS.
4. ON B15 SPRAYS USE BUCKNER COALBRASS NOZZLES.

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L2 IRRIGATION PLAN

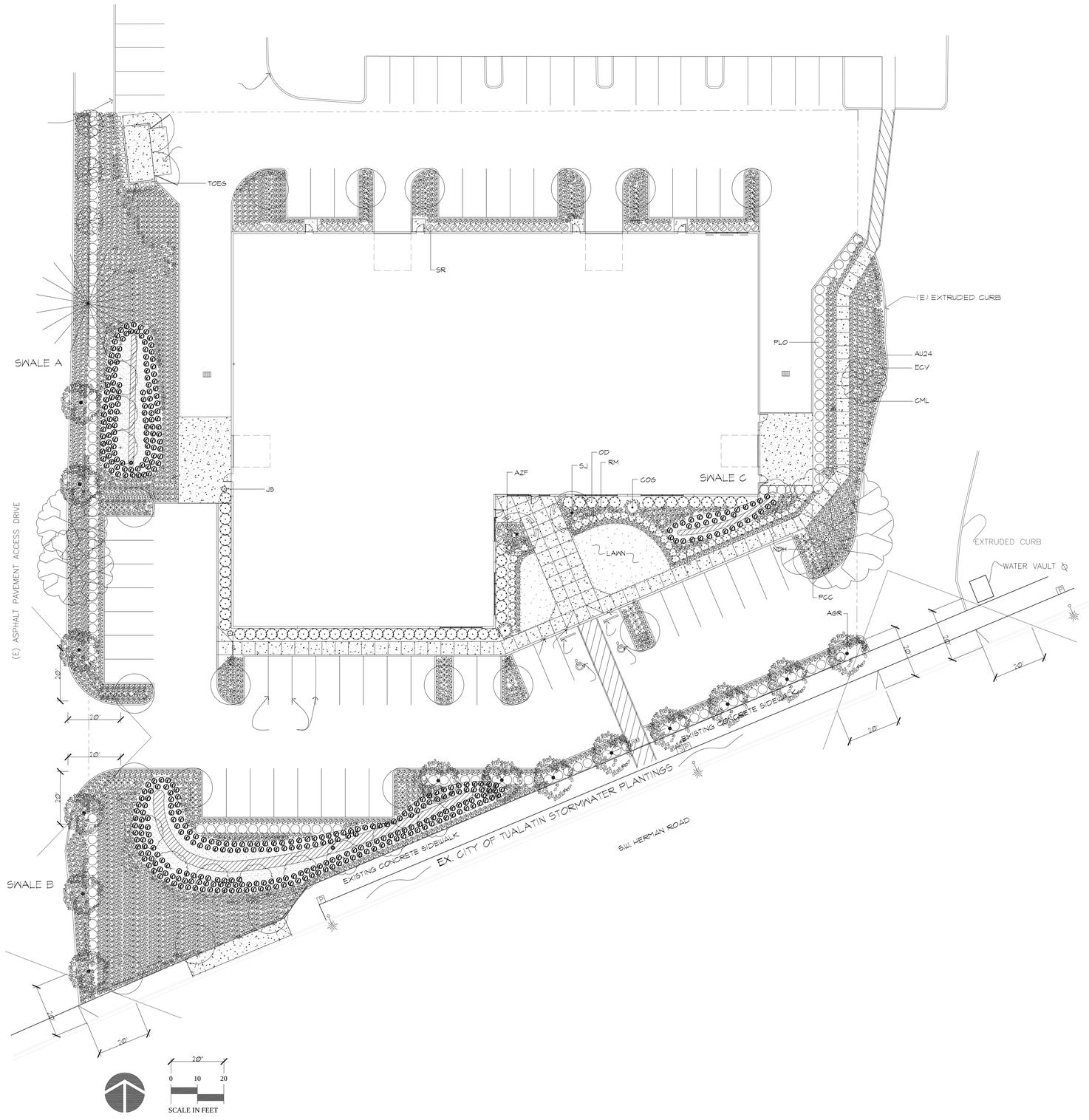
REGISTERED LANDSCAPE ARCHITECT
315
Darrell Mulch
OREGON
10-18-93

MULCH
DARRELL MULCH
LANDSCAPE ARCHITECTURE
1907 N.E. 66TH AVENUE #168
PORTLAND, OREGON 97213
(503) 222-7416 TEL

PROJECT:
RUTH T LLC BUILDING # 6
PROJECT LOCATION:
12171 HERMAN ROAD
TUALITIN, OREGON
CLIENT:
SILCO COMMERCIAL CONSTRUCTION, INC.

DATE:	10-15-15
PROJECT NO:	X
DESIGNED:	DM
DRAWN:	DM
CHECKED:	DM
REVISIONS:	

SHEET
L2
2



PLANT LEGEND "VERIFY ALL QUANTITIES"

SYM.	#	BOTANICAL	COMMON	SIZE
AGR	14	AGER GRISEUM	PAPERBARK MAPLE	1-1/2"CAL
ARA	3	AGER R. "ARMSTRONG" StreetTree	COLUMNAR RED MAPLE	2 IN CAL
AZF	6	AZALEA "FLAME CREEPER"	FLAME CREEPER AZALEA	2 GAL
AU24	3288	ARCHTOSTAPHYLOS UVA URSI-24IN-O.C.	NATIVE KINNIKKINNICK	4 IN 24" O.C.
CML	9	CROCOSMIA M. "LUCIFER"	CROCOSMIA	1 GAL
COG	2	CHAMAECYPARIS N. "PENDULA"	WEEPING ALASKAN CEDAR	6 FT - 8 FT
ECV	23	ERICA CARNEA "VIVELLII"	SPRING HEATHER	1 GAL
JS	2	JUNIPERUS C. "SKYROCKET"	SKYROCKET JUNIPER	5FT - 6FT
NDH	80	NANDINA DOMESTICA 'HARBOUR DWARF'	HARBOUR NANDINA	2 GAL
OD	54	OSMANTHUS DELAVAYI	DELAVAY OSMANTHUS	2 GAL
PCC	16	PYRUS CALLERYANA "CAPITAL"	COLUMNAR FLOWERING PEAR	1-1/2"CAL
PLO	155	PRUNUS L. "OTTO-LUYKEN"	OTTO-LUYKEN LAUREL	15-18 IN
RM	47	ROSA MEIDILAND "SCARLET"	SCARLET MEIDILAND ROSE	2 GAL
SJ	2	STYRAX JAPONICA	JAPANESE SNOWBELL	1-1/2"CAL
SR	44	SARCOCOCCA RUSCIFOLIA	TALL SARCOCOCA	2 GAL
TOES	19	THUJA O. "EMERALD GREEN"	EMERALD GREEN ARBORVITAE	4 FT - 5 FT

LIDA SWALE

SEE CIVIL, SEWER AND STORMWATER FOR SWALE CROSS SECTION

WASHINGTON COUNTY
LIDA SWALE 15 FT MINIMUM// // STORM WATER FACILITY ZONES

BOTTOM OF LIDA SWALE (WET-TO-MOIST ZONE, PER 100 SF)
115 HERBACEOUS PLANTS, 1' ON CENTER SPACING, (1/2-GAL) CONTAINER SIZE

SIDE SLOPES AND TOP OF LIDA SWALE (WET-TO-MOIST TRANSITION ZONE AND DRY ZONE)
1 TREE PER 300 SQ. FT. MINIMUM 2-GAL CONTAINER SIZE BY 2 FT-TALL AND
10 SHRUBS (1-GAL) AND 70 GROUNDCOVERS (1/2-GAL) PER 100 SF

SWALE A / ZONE A 100 SF -- ZONE B 1142 SF

SYM.	#.	BOTANICAL	COMMON	SIZE	PLANTING ZONES
JP	115	JUNCUS PATENTS	COMMON RUSH	1/2 GAL	MOIST
RPU	4	RHAMNUS PURSHIANA	CASCARA	2 GAL	MOIST/DRY
MAG	120	MAHONIA AQUIFOLIUM 'COMPACTA"	OREGON GRAPE	1/2 GAL	DRY
AU24	780	ARCHTOSTAPHYLOS UVA URSI	NATIVE KINNIKKINNICK	1/2 GAL 14" O.C.	DRY

SWALE B / ZONE A 535 SF -- ZONE B 2408 SF

SYM.	#.	BOTANICAL	COMMON	SIZE	PLANTING ZONES
JP	615	JUNCUS PATENTS	COMMON RUSH	1/2 GAL	MOIST
RPU	8	RHAMNUS PURSHIANA	CASCARA	2 GAL	MOIST/DRY
MAG	240	MAHONIA AQUIFOLIUM 'COMPACTA"	OREGON GRAPE	1/2 GAL	DRY
AU24	x	ARCHTOSTAPHYLOS UVA URSI	NATIVE KINNIKKINNICK	1/2 GAL 14" O.C.	DRY

SWALE C / ZONE A 77 SF -- ZONE B339 SF

SYM.	#.	BOTANICAL	COMMON	SIZE	PLANTING ZONES
JP	89	JUNCUS PATENTS	COMMON RUSH	1/2 GAL	MOIST
RPU	1	RHAMNUS PURSHIANA	CASCARA	2 GAL	MOIST/DRY
MAG	34	MAHONIA AQUIFOLIUM 'COMPACTA"	OREGON GRAPE	1/2 GAL	DRY
AU24	287	ARCHTOSTAPHYLOS UVA URSI	NATIVE KINNIKKINNICK	1/2 GAL 14" O.C.	DRY

JUNCUS PATENTS

ARCHTOSTAPHYLOS UVA URSI

RHAMNUS PURSHIANA

MAHONIA AQUIFOLIUM "COMPACTA"

EXISTING DEC. TREES TO REMAIN (TYP.) SEE CIVIL C4

EXISTING CON. TREES TO REMAIN (TYP.) SEE CIVIL C4

ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center.(Note: the telephone number for the Oregon Utility Notification Center is (503) 232-1987).

L1 PLANTING PLAN

AN IRRIGATION DESIGN WILL BE SUBMITTED FOR PERMIT SET

REGISTERED LANDSCAPE ARCHITECT
315
Darrell Mulch
OREGON
10-18-93

MULCH
DARRELL MULCH
LANDSCAPE ARCHITECTURE
1907 N.E. 66TH AVENUE #168
PORTLAND, OREGON 97213
(503) 222-7416 TEL

PROJECT:
RUTH T LLC BUILDING # 6
PROJECT LOCATION:
12171 HERMAN ROAD
TUALITIN, OREGON
CLIENT:
SILCO COMMERCIAL CONSTRUCTION, INC.

DATE:	10-15-15
PROJECT NO:	X
DESIGNED:	DM
DRAWN:	DM
CHECKED:	DM
REVISIONS:	

SHEET
L1
2

LITHONIA LIGHTING®

Catalog Number	TWR2C 400M TB SCWA LPI
Notes	CUTOFF
Type	B

FEATURES & SPECIFICATIONS

INTENDED USE

Ideal for outdoor storage areas, building perimeters and loading docks.

CONSTRUCTION

Rugged, corrosion-resistant die-cast aluminum back housing and hinged door frame. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Lens is thermal and shock-resistant clear tempered glass. Finish is bronze polyester powder paint for lasting durability.

ELECTRICAL

Ballast is constant-wattage autotransformer and 100% factory-tested.

Metal halide: super CWA pulse start ballasts, 88% efficient and EISA compliant, are required for 250-400W (must order SCWA option) Pulse Start for US shipments only. CSA required for probe start shipments to Canada. 250M and 400M do not comply with California Title 20 regulations.

OPTICS

Tempered glass lens. One piece anodized aluminum reflector provides IES cutoff distribution. Optional full cutoff visor available.

Mogul-base lamp included in carton as standard.

INSTALLATION

Housing is configured for mounting directly over a standard 4" outlet box or for surface wiring via any of three convenient 1/2" threaded conduit entry hubs.

LISTING

UL Listed to US and Canadian safety standards. Suitable for wet locations (25ºC maximum ambient temperature).

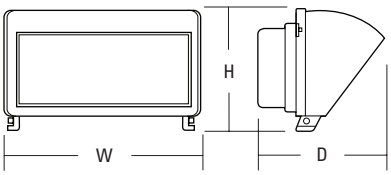
Note: Specifications subject to change without notice.

Cutoff Wall Packs

TWR2C

METAL HALIDE: 250-400W

HIGH PRESSURE SODIUM: 250-400W



NIGHTTIME FRIENDLY™

Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

Specifications

Height: 10 (25.4)
Width: 17-1/8 (43.5)
Depth: 14-1/2 (36.8)
*Weight: 24 lbs. (10.91 kg.)

All dimensions shown in inches (centimeters) unless otherwise noted.
*Weight as configured in example below.

ORDERING INFORMATION

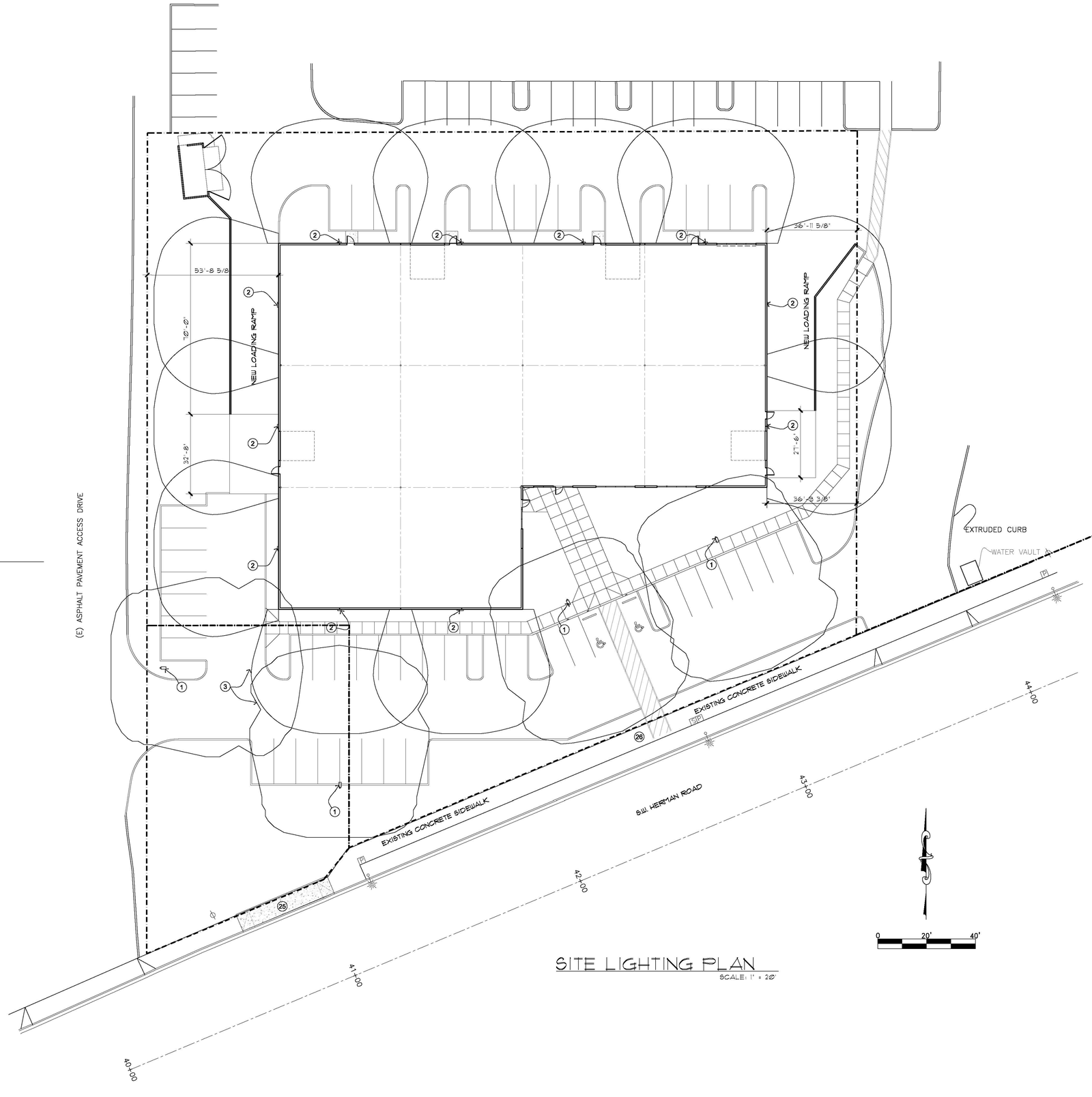
Example: TWR2C 250M TB SCWA LPI

Catalog Number	Wattage	Voltage	Photocell included	Lamp included	Available in Canada
Metal halide					
TWR2C 250M 120 SCWA PE LPI	250	120	Y	Y	Y
TWR2C 250M 277 SCWA PE LPI	250	277	Y	Y	Y
TWR2C 250M 120/347 LPI CSA	250	120/347	N	Y	Y
TWR2C 250M TB SCWA LPI	250	120/208/240/277	N	Y	N
TWR2C 320M 120 SCWA PE LPI	320	120	Y	Y	Y
TWR2C 320M 277 SCWA PE LPI	320	277	Y	Y	Y
TWR2C 320M TB SCWA LPI	320	120/208/240/277	N	Y	N
TWR2C 400M 120 SCWA PE LPI	400	120	Y	Y	Y
TWR2C 400M 277 SCWA PE LPI	400	277	Y	Y	Y
TWR2C 400M 120/347 LPI CSA	400	120/347	N	Y	Y
TWR2C 400M TB SCWA LPI	400	120/208/240/277	N	Y	N
High pressure sodium					
TWR2C 250S 120/347 LPI CSA	250	120/347	N	Y	Y
TWR2C 250S TB LPI	250	120/208/240/277	N	Y	N
TWR2C 400S 120/347 LPI CSA	400	120/347	N	Y	Y
TWR2C 400S TB LPI	400	120/208/240/277	N	Y	N

Accessories: *Order as separate catalog number.*
Shipped separately

TWR2C FCV U	Full cutoff visor
TWR2C WG U	Wireguard

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 800-279-8041 Fax: 770-918-1209 www.lithonia.com



SITE LIGHTING PLAN

SCALE: 1" = 20'

KEY NOTES:

1. LIGHT AND 25' LIGHT POLE
2. WALL LIGHT
3. OUTLINE REPRESENTS ONE FOOT CANDLE

silco

COMMERCIAL CONSTRUCTION COMPANY

8316 N. Lombard #451
Portland, OR 97203
Phone: 503586-8691
Fax: 503-289-2582

CONSULTANT:

PROJECT NUMBER: *2509*

RUTH T LLC BUILDING #6

12171 SW Herman Road
Tualatin, OR 97062

SHEET TITLE:

SITE LIGHTING PLAN

DRAWN BY:

DATE ISSUED: *10-21-2015*

SHEET:

ES1

LITHONIA LIGHTING®

Catalog Number	KAD 400K R4 TB WBD 09
Notes	400W MH PULSE START
Type	A

CONTOUR SERIES

Soft Square Lighting

KAD

METAL HALIDE: 70-400W
HIGH PRESSURE SODIUM: 70-400W
20'TO 35' MOUNTING

Specifications

EPA: 1.2 ft.²

*Weight: 35.9 lbs (16.28 kg)

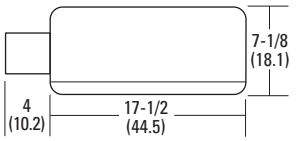
Length: 17-1/2 (44.5)

Width: 17-1/2" (44.5)

Depth: 7-1/8 (18.1)

All dimensions are inches (centimeters) unless otherwise specified.

*Weight as configured in example below.



FEATURES & SPECIFICATIONS

INTENDED USE – Ideal for parking areas, street lighting, walkways and car lots.

CONSTRUCTION – Rugged, die-cast, soft corner aluminum housing with 0.12" nominal wall thickness. Die-cast door frame has impact-resistant,tempered, glass lens that is fully gasketed with one-piece tubular silicone.

Finish: Standard finish is dark bronze (DDB) polyester powder finish, with other architectural colors available.

OPTICS – Anodized, aluminum reflectors: IES full cutoff distributions R2 (asymmetric), R3 (asymmetric), R4 (forward throw) and R5S (square) are interchangeable. High-performance anodized, segmented aluminum reflectors IES full cutoff distributions SR2 (asymmetric), SR3 (asymmetric) and SR4SC (forward throw, sharp cutoff). High-performance reflectors attach with tool-less fasteners and are rotatable and interchangeable.

ELECTRICAL – Ballast: High pressure sodium: 70-150W is high reactance, high power factor. Constant wattage autotransformer for 200-400W. Metal halide: 70-150W is high reactance, high power factor and is standard with pulse-start ignitor technology. "SCWA" not required. Constant wattage autotransformer for 175-400W. Super CWA (pulse start ballast), 88% efficient and EISA legislation compliant, is required for metal halide 151-400W (SCWA option) for US shipments only. CSA, NOM or INTL required for probe start shipments outside of the US. Pulse-start ballast (SCWA) required for 200W, 320W, or 350W. Ballast is 100% factory-tested.

Socket: Porcelain, horizontally oriented medium base socket for 70-150M. Mogul base socket for 175M and above, and 70-400S, with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V.

LISTINGS – UL Listed (standard). CSA Certified (see Options). UL listed for 25°C ambient and wet locations. IP65 rated in accordance with standard IEC 529.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

NIGHTTIME FRIENDLY™
Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

ORDERING INFORMATION

For shortest lead times, configure product using **bolded options**.

Example: KAD 400M R3 TB SCWA SPD04 LPI

KAD	400M			R4		TB	-	WBD 09	
Series	**Wattage**			**Distribution**		**Voltage**	**Ballast**	**Mounting**[12]	
KAD	Metal halide 70M[1,2] **250M**[5] 100M[1] 320M[4] 150M 350M[3,4] 175M[3] **400M**[5,6] 200M[4]	High pressure sodium[1] 70S 100S 150S **250S** **400S**	Ceramic metal halide 70MHC[1,2] 100MHC[1] 150MHC	Standard reflectors R2 IES type II asymmetric[7] **R3** IES type III asymmetric[7] **R4** IES type IV forward throw[7] R5S IES type V square	High performance reflectors[8] SR2 IES type II asymmetric[7] SR3 IES type III asymmetric[7] SR4SC IES type IV forward throw	120 208[9] 240[9] **277** **347** **480**[9] **TB**[10] 23050HZ[11]	(blank) Magnetic ballast CWI Contant wattage isolated[11] Pulse Start HID Ballast/Lamp Systems **SCWA** Super CWA pulse-start ballast NOTE: For shipments to U.S. territories, SCWA must be specified to comply with EISA.	Ships in fixture carton **SPD**___ Square pole RPD___ Round pole WBD___ Wall bracket WWD___ Wood or pole wall Ships separately[13,14] DAD12P Degree arm (pole) DAD12WB Degree arm (wall) WBA Decorative wall bracket[15] KMA Mast arm external fitter KTMB Twin mounting bar	Arm length **04** 4" arm 06 6" arm **09** 9" arm 12 12" arm

Options			Finish[20]		Lamp[21]
Shipped installed in fixture SF Single fuse (120, 277, 347V)[16] DF Double fuse (208, 240, 480V)[16] PD Power tray[17] **PER** NEMA twist-lock receptacle only (no photocontrol) QRS Quartz restrike system[18] QRSTD QRS time delay[18] WTB Terminal wiring block[17]	**CSA** CSA Certified INTL Available MH for probe start shipping outside the U.S. REGC1 California Title 20, effective 1/1/2010 Shipped separately[13] HS House side shield PE1 NEMA twist-lock PE (120, 208, 240V)	PE3 NEMA twist-lock PE (347V) PE4 NEMA twist-lock PE (480V) PE7 NEMA twist-lock PE (277V) SC Shorting cap for PER option VG Vandal guard[19] WG Wire guard[19]	**(blank)** Dark bronze **DWH** White **DBL** Black **DMB** Medium bronze **DNA** Natural aluminum Super Durable Finishes DDBXD Dark bronze DBLXD Black	DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	**LPI** Lamp included **L/LP** Less lamp

Accessories: Tenon Mounting Slipfitter *(RPxx required.)*
Order as seperate catalog number. Must be used with pole mounting.

	Number of fixtures					
Tenon O.D.	One	Two@180°	Two@90°	Three@120°	Three@90°	Four@90°
2-3/8"	T20-190	T20-280	T20-290[22]	T20-320[22]	T20-390[22]	T20-490[22]
2-7/8"	T25-190	T25-280	T25-290[22]	T25-320	T25-390[22]	T25-490[22]
4	T35-190	T35-280	T35-290[22]	T35-320	T35-390[22]	T35-490[22]

Notes

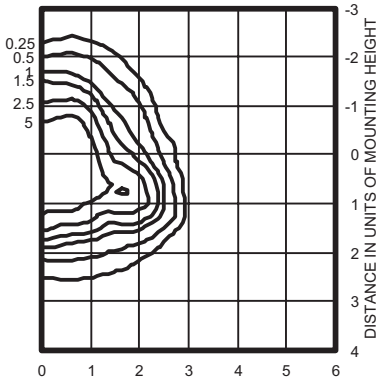
1 Not available with SCWA.
2 Not available with 480V.
3 These wattages do not comply with California Title 20 regulations.
4 Must be ordered with SCWA.
5 These wattages require the REGC1 option to be chosen for shipments into California for Title 20 compliance. 250M REGC1 in not available in 347 or 480V.
6 Reduced jacket ED28 required for SR2, SR3 and SR4SC optics.
7 House-side shield available.
8 High performance reflectors not available with QRSTD.
9 Must specify CWI for use in Canada.
10 Optional multi-tap ballast (120, 208, 240, 277V; in Canada: 120, 277, 347V).
11 Consult factory for available wattages.
12 9" arm is required when two or more luminaires are oriented on a 90° drilling pattern.
13 May be ordered as an accessory.
14 Must specify finish when ordered as an accessory.
15 Available with SPD04 and SPD09.
16 Must specicy voltage. N/A with TB.
17 Only available with SR2, SR3 and SR4SC optics.
18 Max allowable wattage lamp included.
19 Prefix with KAD when ordered as an accessory.
20 See www.lithonia.com/archcolors for additional color options.
21 Must be specified. L/LP not available with MHC.
22 Must use RPD09.

KAD Metal Halide, Arm-mounted Soft Square Cutoff

Coefficient of Utilization ———
Initial Footcandles ——

KAD 400M R2 Test no. 1193083101P

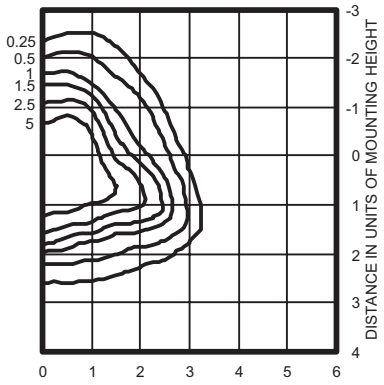
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38000 lumens. Footcandle values based on 20' mounting height.
Classification: Type II, Short, Full Cutoff

KAD 400M R3 Test no. 1192040902P

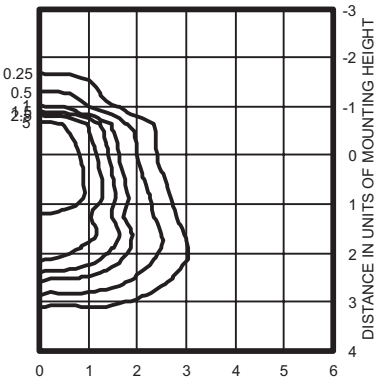
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38,000 lumens. Footcandle values based on 20' mounting height.
Classification: Type II, Short, Full Cutoff

KAD 400M R4 Test no. 1191110101P

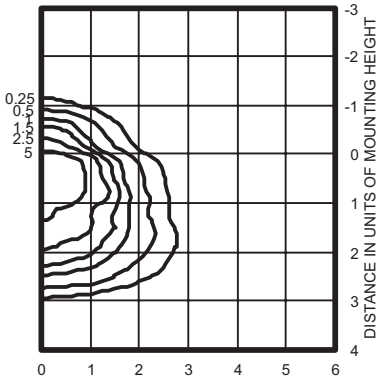
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38,000 lumens. Footcandle values based on 20' mounting height.
Classification: Unclassified (Type III, Very Short), Full Cutoff

KAD 400M R4HS Test no. 1192061101P

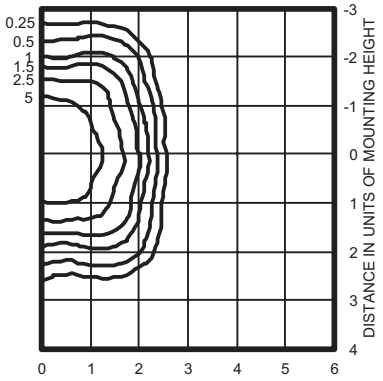
ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38,000 lumens. Footcandle values based on 20' mounting height.
Classification: Unclassified (Type III, Very Short), Full

KAD 400M R5S Test no. 1194040801P

ISOILLUMINANCE PLOT (Footcandle)



400W pulse start metal halide lamp, rated 38000 lumens. Footcandle values based on 20' mounting height.
Classification: Unclassified (Type NC, Very Short), Full Cutoff

Notes

1 Photometric data for other distributions can be accessed at www.lithonia.com.

2 Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory data and actual field measurements. Dimensions and specifications on this sheet are based on the most current available data and are subject to change without notice.

3 For electrical characteristics, consult outdoor technical data specification sheets on www.lithonia.com.

Mounting Height Correction Factor

(Multiply the fc level by the correction factor)
25 ft. = 0.64
35 ft. = 0.32
40 ft. = 0.25

$$\left(\frac{\text{Existing Mounting Height}}{\text{New Mounting Height}}\right)^2 = \text{Correction Factor}$$

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 770.922.9000 Fax: 770-918-1209 www.lithonia.com

LITHONIA LIGHTING®

Catalog Number	SSS 25-4C DM19
Notes	
Type	TYPE A1 POLE

FEATURES & SPECIFICATIONS

INTENDED USE — Square straight steel pole for up to 39-foot mounting height.

CONSTRUCTION — Weldable-grade, hot-rolled, commercial-quality carbon steel tubing with a minimum yield of 55,000 psi (11-gauge), or 50,000 psi (7-gauge). Uniform wall thickness of .1196" or .1793". Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4, 5 and 6 inches.

Anchor base is fabricated from hot-rolled carbon steel plate conforming to ASTM A36, that meets or exceeds a minimum-yield strength of 36,000 psi. Base plate and shaft are circumferentially welded top and bottom. Base cover is finished to match pole.

A handhole having nominal dimensions of 3" x 5" for all shafts. Included is a cover with attachment screws.

Top cap provided with all drill-mount and open top "PT" poles.

Fasteners are high-strength galvanized, zinc-plated or stainless steel.

Finish: Must specify finish.

Grounding: Provision located immediately inside handhole rim. Grounding hardware is not included (provided by others).

Anchor bolts: Top portion of anchor bolt is galvanized per ASTM A-153. Made of steel rod having a minimum yield strength of 55,000 psi.

Note: Specifications subject to change without notice.

Actual performance may differ as a result of end-user environment and application.

Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

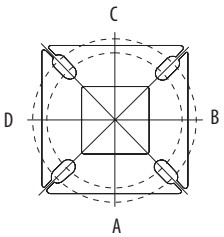
Example: SSS 20 5C DM19 DDB

SSS	25	4C	DM19							DDB
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness**	**Mounting[1]**						**Options**	**Finish[10]**
SSS	10 – 39 feet (See back page.)	(See back page.)	Tenon mounting			AERIS™ Suspend drill mounting[2,3]			Shipped installed	Standard colors
			PT	Open top (includes top cap)		DM19AST_	1 at 90°		L/AB Less anchor bolts	DDB Dark bronze
			T20	2-3/8" O.D. (2" NPS)		DM28AST_	2 at 180°		VD Vibration damper	DWH White
			T25	2-7/8" O.D. (2-1/2" NPS)		DM29AST_	2 at 90°		TP Tamper proof	DBL Black
			T30	3-1/2" O.D. (3" NPS)		DM39AST_	3 at 90°		H1-18Sxx Horizontal arm bracket (1 fixture)[4,5]	DMB Medium bronze
			T35	4" O.D. (3-1/2" NPS)		DM49AST_	4 at 90°		FDLxx Festoon outlet less electrical[4]	DNA Natural aluminum
			Drill mounting[2]			OMERO™ Suspend drill mounting[2,3]			CPL12xx 1/2" coupling[4]	Classic colors
			DM19	1 at 90°		DM19MRT_	1 at 90°		CPL34xx 3/4" coupling[4]	DSS Sandstone
			DM28	2 at 180°		DM28MRT_	2 at 180°		CPL1xx 1" coupling[4]	DGC Charcoal gray
			DM28 PL	2 at 180° with one side plugged		DM29MRT_	2 at 90°		NPL12xx 1/2" threaded nipple[4]	DTG Tennis green
			DM29	2 at 90°		DM39MRT_	3 at 90°		NPL34xx 3/4" threaded nipple[4]	DBR Bright red
			DM39	3 at 90°		DM49MRT_	4 at 90°		NPL1xx 1" threaded nipple[4]	DSB Steel blue
			DM49	4 at 90°					EHHxx Extra handhole[4,6]	Architectural colors (powder finish)[10]
			CSX/DSX/AERIS™/OMERO™ Drill mounting[2]						MAEX Match existiing[7]	
			DM19AS	1 at 90°					USPOM United States point of manufacture[8]	
			DM28AS	2 at 180°					IC Interior coating[9]	
			DM29AS	2 at 90°						
			DM39AS	3 at 90°						
			DM49AS	4 at 90°						

NOTES:

1. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.
2. The drilling template to be used for a particular luminaire depends on the luminaire that is used. Refer to the Technical Data Section of the Outdoor Binder for Drilling Templates.
3. Insert "1" or "2" to designate fixture size; e.g. DM19AST**2**.
4. Specify location and orientation when ordering option.
   For 1st "x": Specify the height in feet above base of pole.
   Example: 5ft = 5 and 20ft = 20
   For 2nd "x": Specify orientation from handhole (A,B,C,D)
   Refer to the Handhole Orientation diagram above.
5. Horizontal arm is 18" x 2-3/8" O.D. tenon standard.
6. Combination of tenon-top and drill mount includes extra handhole.
7. Must add original order number
8. Use when mill certifications are required.
9. Provides enhanced corrosion resistance.
10. Additional colors available; see www.lithonia.com/archcolors or Architectural Colors brochure (Form No. 794.3). Powder finish standard.

HANDHOLE ORIENTATION



Handhole

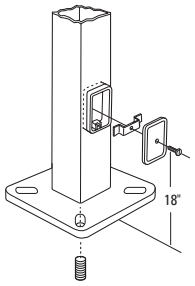
IMPORTANT INSTALLATION NOTES:

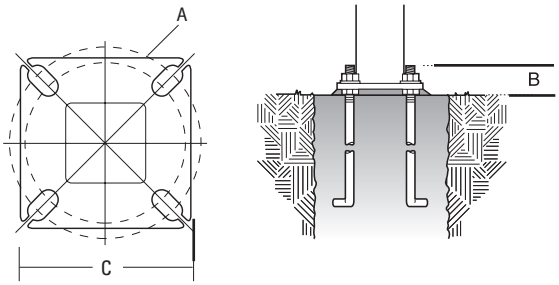
- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

SSS Square Straight Steel Poles

TECHNICAL INFORMATION													
					EPA (ft^2) with 1.3 gust								
Catalog Number	**Nominal mount ht. (ft)**	**Pole Shaft Size (in x ft)**	**Wall Thickness (in)**	**Gauge**	**80 mph**	**Max. weight**	**90 mph**	**Max. weight**	**100 mph**	**Max. weight**	**Bolt Circle (in)**	**Bolt Size (in x in x in)**	**Approximate ship (lbs)**
SSS 10 4C	10	4.0 x 10.0	0.1196	11	30.6	765	23.8	595	18.9	473	8--9	3/4 x 18 x 3	75
SSS 12 4C	12	4.0 x 12.0	0.1196	11	24.4	610	18.8	470	14.8	370	8--9	3/4 x 18 x 3	90
SSS 14 4C	14	4.0 x 14.0	0.1196	11	19.9	498	15.1	378	11.7	293	8--9	3/4 x 18 x 3	100
SSS 16 4C	16	4.0 x 16.0	0.1196	11	15.9	398	11.8	295	8.9	223	8--9	3/4 x 18 x 3	115
SSS 18 4C	18	4.0 x 18.0	0.1196	11	12.6	315	9.2	230	6.7	168	8--9	3/4 x 18 x 3	125
SSS 20 4C	20	4.0 x 20.0	0.1196	11	9.6	240	6.7	167	4.5	150	8--9	3/4 x 18 x 3	140
SSS 20 4G	20	4.0 x 20.0	0.1793	7	14	350	11	275	8	200	8--9	3/4 x 30 x 3	198
SSS 20 5C	20	5.0 x 20.0	0.1196	11	17.7	443	12.7	343	9.4	235	10--12	1 x 36 x 4	185
SSS 20 5G	20	5.0 x 20.0	0.1793	7	28.1	703	21.4	535	16.2	405	10--12	1 x 36 x 4	265
SSS 25 4C	25	4.0 x 25.0	0.1196	11	4.8	150	2.6	100	1	50	8--9	3/4 x 18 x 3	170
SSS 25 4G	25	4.0 x 25.0	0.1793	7	10.8	270	7.7	188	5.4	135	8--9	3/4 x 30 x 3	245
SSS 25 5C	25	5.0 x 25.0	0.1196	11	9.8	245	6.3	157	3.7	150	10--12	1 x 36 x 4	225
SSS 25 5G	25	5.0 x 25.0	0.1793	7	18.5	463	13.3	333	9.5	238	10--12	1 x 36 x 4	360
SSS 30 4G	30	4.0 x 30.0	0.1793	7	6.7	168	4.4	110	2.6	65	8--9	3/4 x 30 x 3	295
SSS 30 5C	30	5.0 x 30.0	0.1196	11	4.7	150	2	50	--	--	10--12	1 x 36 x 4	265
SSS 30 5G	30	5.0 x 30.0	0.1793	7	10.7	267	6.7	167	3.9	100	10--12	1 x 36 x 4	380
SSS 30 6G	30	6.0 x 30.0	0.1793	7	19	475	13.2	330	9	225	11--13	1 x 36 x 4	520
SSS 35 5G	35	5.0 x 35.0	0.1793	7	5.9	150	2.5	100	--	--	10--12	1 x 36 x 4	440
SSS 35 6G	35	6.0 x 35.0	0.1793	7	12.4	310	7.6	190	4.2	105	11--13	1 x 36 x 4	540
SSS 39 6G	39	6.0 x 39.0	0.1793	7	7.2	180	3	75	--	--	11--13	1 x 36 x 4	605

BASE DETAIL





POLE DATA						
Shaft base size	Bolt circle A	Bolt projection B	Base square C	Template description	Anchor bolt description	Anchor bolt and template number
4"C	8-1/2"	2-3/4"–4"	8"	ABTEMPLATE PJ50004	AB18-0	ABSSS-4C
4"G	8-1/2"	2-3/4"–4"	8"	ABTEMPLATE PJ50004	AB30-0	ABSSS-4G
5"	10"–12"	3-3/8"–4"	11"	ABTEMPLATE PJ50010	AB36-0	ABSSS-5
6"	11"–13"	3-3/8"–4"	12-1/2"	ABTEMPLATE PJ50011	AB36-0	N/A

IMPORTANT:

• These specifications are intended for general purposes only. Lithonia reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 800-279-8041 Fax: 770-981-1209 www.lithonia.com

Rev. 08/08/12

Ruth T LLC Building #6

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EXHIBITS

A. Application Form and Fact Sheet
B. Signed Affidavit of Posting
C. CWS Service Provider Letter (Pre-Screen)
D. Neighborhood/Developer Meeting Materials
E. Republic Services Approval Letter
F. Assessor's Map
G. Lighting Cut Sheets

ATTACHED SEPARATELY:

(5) Traffic Analysis
(1) Report Drainage Report and Downstream Analysis
(1) 8.5"x11" Plans
(5) 11"x17" Plans
(5) 24"x36" Plans

~~I.~~
~~II.~~
~~III.~~I. **PROJECT SUMMARY**

Applicant:	Ruth T LLC Attention: David Silvey PO Box 205 Tualatin, OR 97062
Applicant's Representative/ Project Contact:	Silco Commercial Construction Rory Antis rantis@silco.info 8316 N. Lombard #451 Portland, OR 97203 (503) 286-8691
Plan District Designation:	MG (General Manufacturing)
Site Addresses:	12171 & 12225 SW Herman Road Tualatin, Oregon
Site Size:	1.91 Acres
Tax Map/Lots:	2S122C000606 & 2S122C000602
Request:	Architectural Review (Architectural Review Board)
Applicable Criteria:	TDC Chapter 61: General Manufacturing Planning District Section 61.020 Permitted Uses TDC Chapter 73: Community Design Standards Architectural Review Approval Section 73.050 Criteria and Standards (1) Design Standards Section 73.160 Standards (3)(c) Section 73.210 Objectives Section 73.220 Standards Section 73.200 Structure Design - Commercial, Industrial, Public and Semi-Public Uses Section 73.225 Mixed Solid Waste and Source Separated Recyclables Storage Areas for New or Expanded Multi-Unit Residential, Including Townhouses, Commercial, Industrial, Public and Semi-Public Development Section 73.226 Objectives Section 73.227 Standards Landscaping

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Section 34.230 Criteria

Chapter 03-05: Soil Erosion, Surface Water Management, Water Quality Facilities, and Building and Sewers
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Section 3-5-060 Permit Process.
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Section 3-5-100 Permit Fee.
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Section 4-2-020 Access to Hydrants Located on Private Property.
Section 4-2-040 Penalty.

~~I.~~II. INTRODUCTION AND PROPOSAL

This application package includes narrative, plans, drawings, and additional documentation in support of an Architectural Review (AR) for an industrial buildings at 12171 SW Herman Road. Ruth T LLC is the developer and owner.

SITE DESCRIPTION

The subject site is specifically described as map 2S122C0 lots 606 and 602. The site and surrounding properties are industrially developed and zoned MG – General Manufacturing Planning District.

Part of the subject site was previously used as a residence. The existing buildings will be demolished, and the site will be graded as reviewed and approved by the City of Tualatin, Clean Water Services, and Oregon DEQ, according to 1200-C permit.

The site fronts SW Herman Road.

PROPOSAL

The building will be 25,000 SF.
There is a tenant scheduled to lease the building.

The proposed development will be an aesthetic asset to the neighborhood. The landscape design and architectural features will blend with the surrounding developments.
The buildings will be concrete tilt-up, but will have windows to provide an office appearance along the front and rear facades. The entry feature will be protruded for articulation along the front façade. The overall appearance for this building will be business-like.

A scoping meeting for this project was held with the City of Tualatin on June 22, 2015, and a pre-application conference was held on August 17, 2015. A neighborhood/developer meeting was held on September 4, 2015; mailing labels, invitation letter, affidavit of mailing, certification of posting, and meeting sign-in sheet are attached to this application as Exhibit D.

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Figure II.1 Aerial Map

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III. DEVELOPMENT CODE COMPLIANCE

The proposed development complies with City of Tualatin Development Code standards, as shown below. As mentioned above, this application requests AR approval for a new 25,000 SF warehouse/manufacturing/office development on the 1.91-acre site.

Site Area (SF)	**78,270**
Building Area (SF)	**25,000**
Building Coverage On Lot (%)	**31.94**
Landscape Area (SF)	**16,401**
Landscape %	**20.95**
Standard Parking	**44**
Accessible Parking	**2**
Van/Carpool	**2**
Dock Door Count	**2**
Drive-In Door Count	**2**

ON-SITE DEVELOPMENT

This application proposes one building of 25,000 SF. There is a tenant for the building. The building is designed for warehouse/manufacturing uses with supporting office (see attached site plan, C2.1, for specific breakdowns of uses for each building). The site is zoned MG – General Manufacturing and the proposed uses are permitted outright.

The building will be 30' tall and will be tilt-up concrete with a decorative scoring pattern and paint scheme (see attached colored elevations). Storefront entrance systems and windows are proposed along the building façade to help break up the scale of the buildings. The loading docks are on each side of the building. The trash and recycling area is adjacent to the westerly loading dock. The location and design of the trash and recycling areas for each building have been approved by Republic Services, the solid waste hauler (see Exhibit G, letter from Frank Lonergan).

As shown in the table above, 46 parking spaces will be provided to serve the building users (2 accessible and 2 vanpool/carpool). Parking lot landscaping and perimeter landscape materials are proposed in accordance with City code standards.

Several joint water quality and detention areas are proposed on the south and west sides of the site, designed to treat the impervious areas created by the four proposed buildings. A series of pipes and catch basins will collect runoff from the parking area and discharge into the pond, promoting water quality and detention for the development.

OFF-SITE DEVELOPMENT

Street Improvements

The proposed development will be served by SW Herman Road. The only work that will be done in the ROW is the removal of the existing residential driveway approach and installing new sidewalk and curb.

PUBLIC FACILITIES

Stormwater System

The proposed stormwater system is designed to treat and detain runoff to City of Tualatin and Clean Water Services (CWS) requirements. Runoff will be discharged in two locations into existing catch basins with 12" storm drain line, one located near the southwest corner of the site, the other near the center of the south property line.

Treatment will be provided by vegetated facilities. Three vegetated facilities are located on the property to provide both treatment and detention of runoff. These areas are heavily vegetated and a significant component of the site's landscaping.

Detention of runoff to pre-developed rates will be provided by curb cuts and the vegetated facilities. Overflow risers at the vegetated facilities will control the release rate from those areas.

The storm drain system has been designed to comply with the requirements for future subdivision of the property as shown on the plans. Each of the future parcels will comply, individually, with city and CWS drainage requirements.

See attached utility plan (C6) for details.

Sanitary Sewer System

Sanitary sewer service will be provided by one connection to existing sanitary sewer at southwest corner of property. All sanitary sewer service will be gravity drained. No pumps will be required.

Streets

Vehicle access to the site will come from SW Herman Road. Truck access will be at both driveways on SW Herman Road

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IV. APPROVAL CRITERIA

This application addresses the necessary approval standards of the Tualatin Development Code relevant to Architectural Review for industrial development. As described in the following narrative, the proposal meets the standards of TDC *Chapter 61: General Manufacturing Planning District (MG)* and TDC *Chapter 73: Community Design Standards*.

The following tables identify applicable development standards and how the proposed development satisfies each (see the complete table on the attached site plan, C2, for full calculations).

	City of Tualatin (MG District)	Proposed (Site Total)
Setback Requirements		
Front Yard Side Yard Rear Yard	30' 0' to 50' 0' to 50'	62.45' 36.75' and 53.72' 45.33'
Parking and Circulation	10' Street 5' Interior	9'-4" Street 5' Interior
Maximum Structure Height	60'	33'
Landscaping	15% of total site area	20.95%
Minimum Parking (per 1000 GSF) Warehousing Manufacturing General Office	 0.3 1.6 2.7	
Maximum Parking (per 1000 GSF) Warehousing Manufacturing General Office	Zone B 0.5 None 4.1	 0 None 11
Minimum Bicycle Parking	Warehousing/Manufacturing: 2, or 0.1 per 1,000 GSF, whichever is greater Office: 2, or 0.5 per 1,000 GSF, whichever is greater	2
Percentage of Bicycle Parking to be Covered	First 5 spaces or 30% of parking spaces, whichever is greater	100%

CHAPTER 61: GENERAL MANUFACTURING PLANNING DISTRICT

Section 61.020 Permitted Uses:

No building, structure or land shall be used, except for the following uses as restricted in TDC 61.021.

(1) All uses permitted by TDC 60.020 in the Light Manufacturing Planning District.

Response: The proposed use associated with this development is warehousing and distribution with supporting office; these uses are allowed in the MG district. While future tenants have not been identified, the development will serve warehousing and distribution uses. This standard is met.

CHAPTER 73: COMMUNITY DESIGN STANDARDS

Architectural Review Approval

Section 73.050 Criteria and Standards (1)

(1) In exercising or performing his or her powers, duties, or functions, the Planning Director shall determine whether there is compliance with the following:

(a) The proposed site development, including the site plan, architecture, landscaping, parking and graphic design, is in conformance with the standards of this and other applicable City ordinances insofar as the location, height, and appearance of the proposed development are involved;

(b) The proposed design of the development is compatible with the design of other developments in the general vicinity; and

(c) The location, design, size, color and materials of the exterior of all structures are compatible with the proposed development and appropriate to the design character of other developments in the vicinity.

Response: The proposed development is consistent with the existing industrial development on all sides; all zoned MG and similarly developed. The proposed development has been designed as a high quality and long lasting development, similar to other Ruth T, LLC properties. The development will be compatible with surrounding industrial properties. As shown below and on the enclosed plans, the proposed development meets the applicable standards of the City of Tualatin Development Code. This standard is met.

(2) In making his or her determination of compliance with the above requirements, the Planning Director shall be guided by the objectives and standards set forth in this chapter. If the architectural review plan includes utility facilities or public utility facilities, then the City Engineer shall determine whether those aspects of the proposed plan comply with applicable standards.

Response: This application includes architectural features as well as utility facilities and public improvements. Silco's team has worked closely with the City of Tualatin to plan utilities in a manner consistent with City code and beneficial for both the subject site and the surrounding area. This standard is met.

(3) In determining compliance with the requirements set forth, the Planning Director shall consider the effect of his or her action on the availability and cost of needed housing...

Response: The proposed development does not include housing. This standard does not apply.

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(4) As part of Architectural Review, the property owner may apply for approval to cut trees in addition to those allowed in TDC 34.200. The granting or denial of a tree cutting permit shall be based on the criteria in TDC 34.230.

Response: The proposed project currently contains 6 trees (after demo and erosion control activity completed through those previously issued permits). The existing trees will be protected during construction. Additional trees will be planted after the site is developed. *Section 34.230 Criteria* is addressed in this narrative.

(5) Conflicting Standards. In addition to the MUCOD requirements, the requirements in TDC Chapter 73 (Community Design Standards) and other applicable Chapters apply…

Response: The subject site is not within the MUCOD. This standard does not apply.

Design Standards

Section 73.160 Standards (3)(c)

(1) Pedestrian and Bicycle Circulation:

(b) For Industrial Uses:

(i) a walkway shall be provided from the main building entrance to sidewalks in the public right-of-way and other on-site buildings and accessways. The walkway shall be a minimum of 5 feet wide and constructed of concrete, asphalt, or a pervious surface such as pavers or grasscrete, but not gravel or woody material, and be ADA compliant, if applicable.

(ii) Walkways through parking areas, drive aisles and loading areas shall have a different appearance than the adjacent paved vehicular areas.

(iii) Accessways shall be provided as a connection between the development's walkway and bikeway circulation system and an adjacent bike lane;

(iv) Accessways may be gated for security purposes;

(v) Outdoor Recreation Access Routes shall be provided between the development's walkway and bikeway circulation system and parks, bikeways and greenways where a bike or pedestrian path is designated.

Response: An 8' wide painted walkway will connect the main entrance of the building to the public ROW, as shown in the attached plans. Within the site, walkways will be 5' wide. This standard is met.

(c) Curb ramps shall be provided wherever a walkway or accessway crosses a curb.

Response: Curb ramps will be provided, as shown on the attached site plan (C2.1), where the walkway crosses a curb or drive aisle. This standard is met.

(d) Accessways shall be a minimum of 8 feet wide and constructed in accordance with the Public Works Construction Code if they are public accessways, and if they are private accessways they shall be constructed of asphalt, concrete or a pervious surface such as pervious asphalt or concrete, pavers or grasscrete, but not gravel or woody material, and be ADA compliant, if applicable.

Response: As shown on the attached site plan, 8' wide striped accessway will be provided between the building and SW Herman Road. This standard is met.

(e) Accessways to undeveloped parcels or undeveloped transit facilities need not be constructed at the time the subject property is developed. In such cases the applicant for development of a parcel adjacent to an undeveloped parcel shall enter into a written agreement with the City guaranteeing future performance by the applicant and any

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successors in interest of the property being developed to construct an accessway when the adjacent undeveloped parcel is developed. The agreement shall be subject to the City's review and approval.

Response: No accessways to undeveloped parcels or transit facilities are proposed. This standard does not apply.

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(f) Where a bridge or culvert would be necessary to span a designated greenway or wetland to provide a connection to a bike or pedestrian path, the City may limit the number and location of accessways to reduce the impact on the greenway or wetland.

Response: There are no wetlands on the site. This standard does not apply.

(g) Accessways shall be constructed, owned and maintained by the property owner.

Response: All accessways will be constructed by the applicant and will be owned and maintained by the owner. This standard is met.

(2) Drive-up Uses

Response: The use proposed does not include a drive-up facility. This section does not apply.

(3) Safety and Security

(a) Locate windows and provide lighting in a manner which enables tenants, employees and police to watch over pedestrian, parking and loading areas.

Response: In order to create a safe environment, the proposed development includes exterior building lighting as well as parking lot lighting (see attached site plan and lighting cut sheets). As shown in the attached architectural plans, windows will be located on at least three elevations of all buildings, thus facing most of the parking areas and facing as many pedestrian, drive aisle, and loading areas as possible. This standard is met.

(b) In commercial, public and semi-public development and where possible in industrial development, locate windows and provide lighting in a manner which enables surveillance of interior activity from the public right-of-way.

Response: The proposed industrial development will be oriented to the street and public right-of-way along SW Herman Road; the building frontage is on Herman Road, additional storefront window systems allow building users the ability to view abutting pedestrian and parking areas. Windows will be visible from the adjacent building to the North. In addition (see lighting plan (ES1), site lighting will illuminate the building frontage and the parking area in between the building and right-of-way. This standard is met.

(c) Locate, orient and select on-site lighting to facilitate surveillance of on-site activities from the public right-of-way without shining into public rights-of-way or fish and wildlife habitat areas.

Response: No fish or wildlife habitat areas exist near the site. As shown on the lighting plan (ES1), site lighting will illuminate the buildings, loading areas and parking areas allowing these areas to be seen from the right-of-way. This standard is met.

(d) Provide an identification system which clearly locates buildings and their entries for patrons and emergency services.

Response: As shown in the attached plans (see 3.0), building addresses will be mounted at building corner near the entrance, clearly visible for building users and from the adjacent right of way. This standard is met.

(e) *Shrubs in parking areas must not exceed 30 inches in height. Tree canopies must not extend below 8 feet measured from grade.*

Response: As shown in the attached landscape plans (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade, and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

(f) *Above ground sewer or water pumping stations, pressure reading stations, water reservoirs, electrical substations, and above ground natural gas pumping stations shall provide a minimum 6' tall security fence or wall.*

Response: The site does not include any of these elements. This standard does not apply.

(4) *Service, Delivery and Screening*

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(a) *On and above grade electrical and mechanical equipment such as transformers, heat pumps and air conditioners shall be screened with sight obscuring fences, walls or landscaping.*

Response: As shown in the attached plans, no on-grade electrical or mechanical equipment is proposed. As shown on the attached plans, all mechanical units will be placed at least 20' back from the edge of the roof, concealed from the line of sight from the street level. This standard does not apply, but is met.

(b) *Outdoor storage, excluding mixed solid waste and source separated recyclables storage areas listed under TDC 73.227, shall be screened with a sight obscuring fence, wall, berm or dense evergreen landscaping.*

Response: As shown on the attached plans, the site does not include any outdoor storage except trash and recycling enclosures. This standard does not apply.

(c) *Above ground pumping stations, pressure reading stations, water reservoirs; electrical substations, and above ground natural gas pumping stations shall be screened with sight obscuring fences or walls and landscaping.*

Response: The site does not include any of these elements. This standard does not apply.

(5) *The Federal Americans with Disabilities Act (ADA) applies to development in the City of Tualatin. Although TDC, Chapter 73 does not include the Oregon Structural Specialty Code's (OSSC) accessibility standards as requirements to be reviewed during the Architectural Review process, compliance with the OSSC is a requirement at the Building Permit step. It is strongly recommended all materials submitted for Architectural Review show compliance with the OSSC.*

Response: The site plan and building are generated with the knowledge that ADA and OSSC standards must be met during the building permit process. This standard is met.

(6) (a) *All industrial, institutional, retail and office development on a transit street designated in TDC Chapter 11 (Figure 11-5) shall provide either a transit stop pad on-site, or an on-site or public sidewalk connection to a transit stop along the subject property's frontage on the transit street.*

Response: The proposed project is not on a transit street. This standard does not apply.

(b) In addition to (a) above, new retail, office and institutional uses abutting major transit stops as designated in TDC Chapter 11 (Figure 11-5) shall…

Response: The site is not abutting a major transit stop shown in the figure. This standard does not apply.

Section 73.210 Objectives

(1) Minimize disruption of natural site features such as topography, trees and water features.

Response: The site is currently partially developed and has been used most recently for a residence. There are no natural features such as water features; several trees remain on the site after demolition through the previous demolition and erosion control permits. These trees will be protected during construction. The site's natural contours will be minimally disturbed during the development of the site. This standard is met.

(2) Provide a composition of building elements which is cohesive and responds to use needs, site context, land form, a sense of place and identity, safety, accessibility and climatic factors. Utilize functional building elements such as arcades, awnings, entries, windows, doors, lighting, reveals, accent features and roof forms, whenever possible, to accomplish these objectives.

Response: Generous glazing along the street-facing façades, in combination with extruded storefront entrance systems, will clearly highlight the main entrances for the buildings. Additional windows will be provided along the corner façades at the rear of the building to emphasize corners and provide visual interest where potential office areas may occur. All proposed window areas allow building users to view the abutting parking areas. Other building elements, such as reveals, roof forms, and parapets, will be consistent among the park, similar to other such buildings in Tualatin, and will create a cohesive design. The reveals are spaced to create a human scale, align with building elements, create an overall balanced façade, and are consistent with the buildings nearby. The roof forms will be screened by the parapets; that look is cohesive amongst other tilt concrete buildings in the area. This standard is met.

(3) Where possible, locate loading and service areas so that impacts upon surrounding areas are minimized. In industrial development loading docks should be oriented inward to face other buildings or other loading docks. In commercial areas loading docks should face outward towards the public right-of-way or perimeter of the site or both.

Response: As shown in the attached plans (see C2), the loading areas on the site will all be oriented toward the building to the north. Loading docks will be accessed primarily via the two entries to the site; both entries are on SW Herman Road. This standard is met.

(4) Enhance energy efficiency in commercial and industrial development through the use of landscape and architectural elements such as arcades, sunscreens, lattice, trellises, roof overhangs and window orientation.

Response: The provided landscape will improve energy efficiency for the proposed building; where possible, trees will be located on the south and west sides of the buildings to provide shade. Modern, efficient insulation will be used in all buildings according to the ComCheck energy modeling tool, incompliance with the Oregon Energy Code. This standard is met.

(5) Locate and design entries and loading/service areas in consideration of climatic conditions such as prevailing winds, sun and driving rains.

Response: Windows and entries were located on the site for function and accessibility. This standard is met.

(6) Give consideration to organization, design and placement of windows as viewed on each elevation having windows. Surveillance over parking areas from the inside, as well as visual surveillance from the outside in, should be considered in window placement.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, drive aisle, and loading areas as possible. Windows will be visible from the sidewalk on Herman Road and from the building to the North. This standard is met.

(7) Select building materials which contribute to the project's identity, form and function, as well as to the surrounding environment.

Response: The building materials (concrete tilt-up with reveals, storefront window glazing, and decorative elements such as paint schemes emphasizing the entrances and storefront) are typical of and suitable for similar industrial buildings in the region and area. The materials contribute to the industrial identity of the area with the surrounding industrial uses while providing an attractive site.. See attached colored perspectives (Exhibit I) for renderings. This standard is met.

(8) Select colors in consideration of lighting conditions and the context under which the structure is viewed, the ability of the material to absorb, reflect or transmit light and the color's functional role (e.g., to identify and attract business, aesthetic reasons, image-building).

Response: The blue and tan color scheme selected for the proposed buildings will create a visually appealing development. The color selection and placement will create a visual balance and add emphasis to the entrances and storefronts of the building. The color scheme is similar to the building to the North. See attached colored elevations (Exhibit I). This standard is met.

(9) Where possible, locate windows and provide lighting in a manner which enables tenants, employees and police to watch over pedestrian, parking and loading areas.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, and drive aisle areas as possible. Windows will be visible from the sidewalk (at Herman Road). This standard is met.

(10) Where practicable locate windows and provide lighting in a manner which enables surveillance of interior activity from the public right-of-way or other public areas.

Response: In order to create a safe environment, as shown in the attached architectural plans, windows will be located on at least two elevations of the building, thus facing most parking areas and facing as many pedestrian, and drive aisle areas as possible. Windows will be visible from the sidewalk (at Herman Road). In addition, exterior lighting will be located around the site at strategic locations to provide lighting at walkways and near building windows, allowing pedestrians and other users of the right-of-way to clearly view the building and dock areas (see attached plans). This standard is met.

Section 73.220 Standards

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(1) Safety and Security

(a) Locate, orient and select on-site lighting to facilitate surveillance of on-site activities from the public right-of-way or other public areas without shining into public rights-of-way or fish and wildlife habitat areas.

Response: As shown in the attached plans, the building will be oriented toward street frontage (SW Herman Road). In order to create a safe environment, the proposed development includes exterior building lighting as well as parking lot lighting (see attached lighting plan (ES1) and lighting cut sheets). Site lighting will illuminate the building frontage and the parking area in between the building and right-of-way. No fish or wildlife habitat areas exist near the site. This standard is met.

(b) Provide an identification system which clearly identifies and locates buildings and their entries.

Response: As shown in the attached plans (3.0), the building address will be mounted at building corner near entrance, clearly visible for building users and from the adjacent right of way. This standard is met.

(c) Shrubs in parking areas shall not exceed 30 inches in height, and tree canopies must not extend below 8 feet measured from grade.

Response: As shown in the attached landscape plans (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

Section 73.226 Objectives

(1) Screen elements such as garbage and recycling containers from view.

Response: As shown on the attached plans, one trash/recycling area is proposed for the building, providing easy access and maneuverability for the solid waste hauler. It will be placed within the loading and maneuvering areas and will be screened by sight-obscuring painted concrete masonry unit walls and chain-link gates with sight obscuring slats, as well as sight-obscuring evergreen shrubs. This standard is met.

(2) Ensure storage areas are centrally located and easy to use.

Response: As shown on the attached plans, the trash enclosure will be located at the northwest corner of the building, providing convenient access for both building users and the trash hauler. The trash enclosures is located near exit doors, loading areas, and parking areas and drive aisles, and have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(3) Meet dimensional and access requirements for haulers.

Response: Republic Services, the trash hauler for the site, requires 21'x9' (interior dimensions) enclosures with no center posts, in addition to 35"–40" openings for glass carts and user access. Trash containers will be typically 3–4 cubic yard size and are 8' wide and 4'–5' deep. As shown on the attached plans (see details on 6.1), trash enclosures will be 21'-6" by 9'-8", and all include 3'-6" wide openings for carts and pedestrian users. These have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(4) Designed to mitigate the visual impacts of storage areas.

Response: As shown on the attached plans, trash enclosures will be placed to the interior of the site within the loading and maneuvering areas and will be screened by sight-obscuring painted concrete masonry unit walls and chain-link gates with sight obscuring slats, as well as sight-obscuring evergreen shrubs. This standard is met.

(5) Provide adequate storage for mixed solid waste and source separated recyclables.

Response: As shown, the trash enclosures will accommodate both recycling; glass recycling, and garbage containers. All trash enclosures will accommodate typical Republic Services trash and recycling containers (trash containers will be typically 8' wide and 4'–5' deep). This standard is met. According to City standards, 10 SF of garbage storage per 1,000 SF of building will be provided for each building, as described in Section 73.227 (2) (a) (v), and have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

(6) Improve the efficiency of collection of mixed solid waste and source separated recyclables.

Response: According to Republic Services and City standards, the trash enclosures are designed to efficiently accommodate both trash and recycling containers, and allow convenient access by hauler vehicles. These have been approved by Republic Services (see Exhibit G, letter from Frank Lonergan). This standard is met.

Section 73.227 Standards

(1) The mixed solid waste and source separated recyclables storage standards shall apply to all new or expanded multi-family residential developments containing five or more units and to new or expanded commercial, industrial, public and semi-public development.

Response: The project is a new industrial development. These standards apply and are addressed below.

(2) Minimum Standards Method.

(a) The size and location of the storage area(s) shall be indicated on the site plan. Compliance with the requirements set forth below are reviewed through the Architectural Review process.

(i) The storage area requirement is based on the area encompassed by predominant use(s) of the building (e.g., residential, office, retail, wholesale/warehouse/manufacturing, educational/institutional or other) as well as the area encompassed by other distinct uses. If a building has more than one use and that use occupies 20 percent or less of the gross leasable area (GLA) of the building, the GLA occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one use and that use occupies more than 20 percent of the GLA of the building, then the storage area requirement for the whole building shall be the sum of the area of each use.

Response: As shown on the attached plans, the building will have one tenant.
The calculation below in section 73.227(2)(a)(v) explains the required solid waste storage area for the building. This standard is met.

(ii) Storage areas for multiple uses on a single site may be combined and shared.

Response: While no tenants are proposed at this time, it is anticipated that each building will contain a mix of warehouse, office, and manufacturing uses. One or two trash enclosures are proposed for each building. This standard is met.

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(iii) The specific requirements are based on an assumed storage area height of 4 feet for mixed solid waste and source separated recyclables. Vertical storage higher than 4 feet, but no higher than 7 feet may be used to accommodate the same volume of storage in a reduced floor space (potential reduction of 43 percent of specific requirements). Where vertical or stacked storage is proposed, submitted plans shall include drawings to illustrate the layout of the storage area and dimensions for containers.

Response: No stacked or vertical storage is proposed. This standard does not apply.

(iv) Multi-family residential developments containing 5-10 units shall provide a minimum storage area of 50 square feet. Multi-family residential developments containing more than 10 units shall provide 50 square feet plus an additional 5 square feet per unit for each unit above 10.

Response: The project does not include any multi-family residential development. This standard does not apply.

(v) Commercial, industrial, public and semi-public developments shall provide a minimum storage area of 10 square feet plus: Office - 4 square feet/1000 square feet gross leasable area (GLA); Retail - 10 square feet/1000 square feet GLA;
Wholesale/ Warehouse/ Manufacturing - 6 square feet/1000 square feet GLA;
Educational and institutional - 4 square feet/1000 square feet GLA;
and other – 4 square feet/1000 square feet GLA.

Response: As shown in the table below and in the attached plans (see C2.1), the enclosure proposed will be more than adequate for the building and use. This standard is met.

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Trash Enclosure Requirements		
Use	Trash Enclosure (SF)	
	Required	Provided
Office	10.74	
Manufacturing	133.89	
Warehouse	0	
Total	**144.63**	**207.83**

Response: As shown on the attached plans, trash/recycling area will be 207.83 SF and is proposed for the building, providing easy access and maneuverability for the solid waste hauler. It will be placed within the loading and maneuvering areas and will be screened by sight obscuring painted concrete masonry unit walls and chain-link gates with sight-obscuring slats, as well as sight-obscuring evergreen shrubs. The trash enclosure will be 21'-6" by 9'-8", as shown on the attached plans and details (see C2 and details on 6.1). The local garbage hauler, Republic Services, has reviewed and approved the proposed design (see Exhibit G, letter from Frank Lonergan). This standard is met.

(5) Franchised Hauler Review Method. The franchised hauler review method provides for a coordinated review of the pro-posed site plan by the franchised hauler serving the subject property. This method can be used when there are unique conditions associated with the site, use, or waste stream that make compliance with any of the three other methods impracticable. The objective of this method is to match a specific hauler program (types of equipment, frequency of collection, etc.) to the unique characteristic(s) of the site or development. The applicant shall coordinate with the franchised hauler to develop a plan for storage and collection of mixed solid waste and source separated recyclables to be

generated. A narrative describing how the proposed site meets one or more unique conditions, plus site plan and architectural drawings showing the size and location of storage area(s) required to accommodate anticipated volumes shall be submitted for Architectural Review. Additionally, a letter from the franchised hauler shall be submitted with the application that de-scribes the level of service to be provided by the hauler, including any special equipment and collection frequency, which will keep the storage area from exceeding its capacity. For purposes of this subsection the following constitute unique conditions:

(a) Use of either of the three other methods of compliance would interfere with the use of the proposed development by reducing the productive space of the proposed development, or make it impossible to comply with the minimum off-street parking requirements of the underlying planning district, or

(b) The site is of an irregular shape or possesses steep slopes that do not allow for access by collection vehicles typically used by the franchised hauler to serve uses similar in size and scope to the proposed use, or

(c) The proposed use will generate unique wastes that can be stacked, folded, or easily consolidated without the need for specialized equipment, such as a compactor, and can therefore be stored in less space than is required by the Minimum Standards Method. If the application does not demonstrate that the franchised hauler method requires less space, through the Architectural Review process the minimum standards method may be required. The franchised hauler method shall be reviewed and approved as part of the Architectural Review process.

Response: The franchised hauler, Republic Services has reviewed and approved the design and location of the trash/recycling enclosure. Republic Services is the current franchise hauler for the proposed tenant. This standard is met.

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(6) Location, Design and Access Standards for Storage Areas.

(a) Location Standards

(i) To encourage its use, the storage area for source separated recyclables may be collocated with the storage area for mixed solid waste.

Response: As shown in the attached plans (see details on 6.1), the trash enclosure areas will include space for recyclables as well as trash. This standard is met.

(ii) Indoor and outdoor storage areas shall comply with Building and Fire Code requirements.

Response: As shown in the attached plans (see details on 6.1), the trash enclosure area will comply with Building and Fire Code requirements and will be constructed entirely of non-combustible materials. This standard is met.

(iii) Storage area space requirements can be satisfied with a single location or multiple locations, and can combine both interior and exterior locations.

Response: As shown in the attached plans and described above, one trash enclosure will be provided to serve the building; this will be located in an exterior location. This standard is met.

(iv) Exterior storage areas shall not be located within a required front yard setback or in a yard adjacent to a public or private street.

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in the loading and drive areas; none are located in the required setbacks or directly adjacent to public streets. In addition, the trash enclosure will be screened with evergreen arbor vitae shrubs. The location has been approved by Republic Services, as shown in Exhibit G. This standard is met.

(v) Exterior storage areas shall be located in central and visible locations on the site to enhance security for users.

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in easily accessible, location for building users. This standard is met.

(vi) Exterior storage areas can be located in a parking area, if the proposed use provides parking spaces required through the Architectural Review process. Storage areas shall be appropriately screened according to TDC 73.227(6)(b)(iii).

Response: As shown in the attached plans (see C2), the trash enclosure area will be located in the loading and drive areas adjacent to parking areas. All required parking spaces will be provided in the parking lots. Trash enclosures will be screened by sight obscuring painted concrete masonry unit walls and chain-link gates as well as sight-obscuring evergreen shrubs. This standard does not apply and is met.

(vii) Storage areas shall be accessible for collection vehicles and located so that the storage area will not obstruct pedestrian or vehicle traffic movement on site or on public streets adjacent to the site.

Response: As shown in the attached plans (see C2), all trash enclosure areas will be located in easily accessible locations along internal maneuvering areas; use of this area will not obstruct the required drive aisle width and no pedestrian paths cross their access areas. According to Republic Services standards, the trash enclosure has at least 50' clearance, so trucks can maneuver easily. This standard is met.

(b) Design Standards

(i) The dimensions of the storage area shall accommodate containers consistent with current methods of local collection at the time of Architectural Review approval.

Response: As shown on the attached plans, and discussed in this narrative, the trash enclosure meets the size requirements of the City and hauler, Republic Services. The site will meet the Minimum Standards method for trash storage, as discussed in this narrative's response to Section 73.227 (2) (A). This standard is met.

(ii) Storage containers shall meet Fire Code standards and be made and covered with water proof materials or situated in a covered area.

Response: Storage containers will be provided by Republic Services and will be standard trash and recyclable storage receptacles, made of and covered with waterproof metal and/or plastic. This standard is met.

(iii) Exterior storage areas shall be enclosed by a sight obscuring fence or wall at least 6feet in height. In multi-family, commercial, public and semi-public developments evergreen plants shall be placed around the enclosure walls,

excluding the gate or entrance openings. Gate openings for haulers shall be a minimum of 10 feet wide and shall be capable of being secured in a closed and open position. A separate pedestrian access shall also be provided in multi-family, commercial, public and semi-public developments.

Response: As shown on the plans, trash/recycling areas will be screened by sight-obscuring painted concrete masonry unit walls and metal gates as well as sight-obscuring evergreen shrubs surrounding the trash and recycling units. Gate openings will be 18' wide. The project is not a multi-family, commercial, public, or semi-public development. This standard is met.

(iv) Exterior storage areas shall have either a concrete or asphalt floor surface.

Response: As shown in the attached plans (see details on 6.1), the trash enclosures will have concrete footings and concrete slab bases. This standard is met.

(v) Storage areas and containers shall be clearly labeled to indicate the type of material accepted.

Response: Storage containers will be provided by Republic Services and will be standard trash and recyclable storage receptacles, clearly labeled. This standard is met.

(c) Access Standards

(i) Access to storage areas can be limited for security reasons. However, the storage areas shall be accessible to users at convenient times of the day, and to hauler personnel on the day and approximate time they are scheduled to provide hauler service.

Response: According to Republic Services standards, trash enclosures will have gates that open 120 to 180 degrees and have locking mechanisms (some, at full overlap, low landscaped areas and curbs; this is allowed by the hauler). Gates can be latched when closed, but storage areas will be accessible to haulers and pedestrians through gates and the pedestrian/cart access openings. This standard is met.

(ii) Storage areas shall be designed to be easily accessible to hauler trucks and equipment, considering paving, grade, gate clearance and vehicle access. A minimum of 10 feet horizontal clearance and 8 feet vertical clearance is required if the storage area is covered.

Response: As shown on the attached plans (see C2), the trash enclosure areas will be placed within the loading and maneuvering areas and will provide easy access and maneuverability for the solid waste hauler. The Trash enclosures will not be covered. This standard is met.

(iii) Storage areas shall be accessible to collection vehicles without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius shall be provided to allow vehicles to safely exit the site in a forward motion.

Response: As shown on the attached plans, all trash enclosures will be located in the maneuvering areas near each building but not adjacent to the public streets; no use of the public street will be required for their use. More than one access point is available for each. This standard is met.

Landscaping

Section 73.240 Landscaping General Provisions (3), (11, 13)

(3) The minimum area requirement for landscaping for uses in CO, CR, CC, CG, ML and MG Planning Districts shall be fifteen (15) percent of the total land area to be developed, except within the Core Area Parking District, where the minimum area requirement for landscaping shall be 10 percent. When a dedication is granted in accordance with the planning district provisions on the subject property for a fish and wildlife habitat area, the minimum area requirement for landscaping may be reduced by 2.5 percent from the minimum area requirement as determined through the AR process.

Response: As shown in the attached Landscape Plan, 20.95% of the site will be landscaped. This standard is met.

(11) Any required landscaped area shall be designed, constructed, installed, and maintained so that within three years the ground shall be covered by living grass or other plant materials. (The foliage crown of trees shall not be used to meet this requirement.) A maximum of 10% of the landscaped area may be covered with un-vegetated areas of bark chips, rock or stone. Disturbed soils are encouraged to be amended to an original or higher level of porosity to regain infiltration and stormwater storage capacity.

Response: All landscaped areas will be covered with living plant materials, including trees, shrubs, and groundcover. Bark mulch will cover ground in the landscaped areas between plantings, suppressing weeds and retaining moisture. No areas will be covered exclusively in bark chips, rock, or stone. There are no disturbed soils on the site. This standard is met.

(13) Landscape plans for required landscaped areas that include fences should carefully integrate any fencing into the plan to guide wild animals toward animal crossings under, over, or around transportation corridors.

Response: No fences are proposed for the project. This standard does not apply.

Section 73.250 Tree Preservation

(1) Trees and other plant materials to be retained shall be identified on the landscape plan and grading plan.

Response: Some trees will be retained. See Landscape Plan.

(2) During the construction process:

(a) The owner or the owner's agents shall provide above and below ground protection for existing trees and plant materials identified to remain.

Response: Trees will be protected above and below ground during construction.

(b) Trees and plant materials identified for preservation shall be protected by chain-link or other sturdy fencing placed around the tree at the drip line.

Response: Trees to remain will be identified for preservation and shall be protected by a sturdy fence.

(c) If it is necessary to fence within the drip line, such fencing shall be specified by a qualified arborist as defined in TDC 31.060.

Response: The fencing will be at or near the drip line. If for any reason the fencing cannot be at the drip line a qualified arborist will be contacted for direction.

(d) Neither top soil storage nor construction material storage shall be located within the drip line of trees designated to be preserved.

Response: Neither topsoil or construction material will be located within the drip line of trees designated to be retained. The trees will be fenced to protect them from such storage.

(e) Where site conditions make necessary a grading, building, paving, trenching, boring, digging, or other similar encroachment upon a preserved tree's drip-line area, such grading, paving, trenching, boring, digging, or similar encroachment shall only be permitted under the direction of a qualified arborist. Such direction must assure that the health needs of trees within the preserved area can be met.

Response: If encroachment on the tree drip line is necessary a qualified arborist will be consulted before work is started to ensure the health of the tree.

(f) Tree root ends shall not remain exposed.

Response: If tree roots are exposed they will not be left uncovered.

(3) Landscaping under preserved trees shall be compatible with the retention and health of said tree.

Response: The landscaping under the existing trees shall be installed as to not disrupt the health of the existing tree.

(4) When it is necessary for a preserved tree to be removed in accordance with TDC 34.210 the landscaped area surrounding the tree or trees shall be maintained and replanted with trees that relate to the present landscape plan, or if there is no landscape plan, then trees that are complementary with existing, nearby landscape materials. Native trees are encouraged

Response: 6 trees on the site are designated to be preserved. The existing development on the site will be removed through the previous demolition and erosion control permits. See landscape Plan for additional tree and landscaping materials.

(5) Pruning for retained deciduous shade trees shall be in accordance with National Arborist Association "Pruning Standards For Shade Trees," revised 1979.

Response: The preserved deciduous shade trees shall be pruned as needed. This standard is met.

(6) Except for impervious surface areas, one hundred percent (100%) of the area preserved under any tree or group of trees retained in the landscape plan (as approved through the Architectural Review process) shall apply directly to the percentage of landscaping required for a development.

Response: The existing trees are accounted for in the landscape totals. This standard is applied.

Section 73.260 Tree and Plant Specifications

(1) The following specifications are minimum standards for trees and plants:

(a) Deciduous Trees:

Deciduous shade and ornamental trees shall be a minimum one and one-half Inch (1 1/2") caliper measured six inches (6") above ground, balled and burlapped. Bare root trees will be acceptable to plant during their dormant season. Trees shall be characteristically shaped specimens.

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(b) Coniferous Trees.

Coniferous trees shall be a minimum five feet (5') in height above ground, balled and burlapped. Bare root trees will be acceptable to plant during their dormant season. Trees shall be well branched and characteristically shaped specimens.

(c) Evergreen and Deciduous Shrubs.

Evergreen and deciduous shrubs shall be at least one (1) to five (5) gallon size. Shrubs shall be characteristically branched. Side of shrub with best foliage shall be oriented to public view.

(d) Groundcovers.

*Groundcovers shall be fully rooted and shall be well branched or leafed. English ivy (*Hedera helix*) is considered a high maintenance material which is detrimental to other landscape materials and buildings and is therefore prohibited.*

(e) Lawns.

Lawns shall consist of grasses, including sod, or seeds of acceptable mix within the local landscape industry. Lawns shall be 100 percent coverage and weed free.

Response: As shown in the attached landscape plans (L1), the proposed development includes a variety of appropriate landscaping elements including deciduous trees, coniferous trees, evergreen and deciduous shrubs, and groundcovers. No lawns are proposed. As described on the landscape plans, the proposed tree, shrub, and groundcover varieties will meet the dimensional standards and care described above. These standards are met.

(2) Landscaping shall be installed in accordance with the provisions of Sunset New Western Garden Book (latest edition), Lane Publishing Company, Menlo Park, California or the American Nurserymen Association Standards (latest edition).

Response: Landscaping will be installed in accordance with the *Sunset New Western Garden Book* standards and has been designed by a professional landscape architect. This standard is met.

(3) The following guidelines are suggested to ensure the longevity and continued vigor of plant materials:

(a) Select and site permanent landscape materials in such a manner as to produce a hardy and drought-resistant landscaped area.

(b) Consider soil type and depth, spacing, exposure to sun and wind, slope and contours of the site, building walls and overhangs, and compatibility with existing native vegetation preserved on the site or in the vicinity.

Response: Hardy, drought-resistant plants, appropriate to the site and region, have been selected for the site. The project contractor will test and amend the soil as needed. These guidelines are addressed.

(4) All trees and plant materials shall be healthy, disease-free, damage-free, well-branched stock, characteristic of the species.

Response: All plant materials will be new and healthy. This standard is met.

(5) All plant growth in landscaped areas of developments shall be controlled by pruning, trimming or otherwise so that:

(a) It will not interfere with designated pedestrian or vehicular access; and

(b) It will not constitute a traffic hazard because of reduced visibility.

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Response: The selected plant materials are appropriate for the site and climate, and will not interfere with visibility or movement. In clear vision areas, no landscaping will exist within the 30"–8' clear area. Responsibility for maintenance of landscaping is accepted by the property owner. This standard is met.

Section 73.270 Grading

(1) After completion of site grading, top-soil is to be restored to exposed cut and fill areas to provide a suitable base for seeding and planting.

Response: Topsoil will be stockpiled during excavation to be used for backfill of landscape areas. Additionally, amendments will be added to the topsoil at that time. This standard is met.

(2) All planting areas shall be graded to provide positive drainage.

Response: As shown on the attached grading plans (see C3), the site is designed to drain to the provided stormwater ponds and storm drains on the southern edge of the property on SW Herman Road. Planting areas will be graded consistently with the rest of the site. This standard is met.

(3) Neither soil, water, plant materials nor mulching materials shall be allowed to wash across roadways or walkways.

Response: All soil, plant, and mulching materials will be contained in landscape areas and surrounded by curbing, and will not cross roadways or walkways. Water on the site's impervious areas will drain directly to storm drains. (See attached plans, C3 and C6) This standard is met.

(4) Impervious surface drainage shall be directed away from pedestrian walkways, dwelling units, buildings, outdoor private and shared areas and landscape areas except where the landscape area is a water quality facility.

Response: As shown on the attached grading plans (see C3 and C6), drainage on impervious surfaces will be directed to storm drains distributed across the site, and three stormwater facility ponds on the southern portion of the site on will provide water quality capacity for the entire site. This standard is met.

Section 73.280 Irrigation System Required

Except for townhouse lots, landscaped areas shall be irrigated with an automatic underground or drip irrigation system.

Response: As shown in the attached plans (see L2), the landscaped areas will be irrigated. This standard is met.

Section 73.290 Re-vegetation in Un-landscaped Areas

The purpose of this section is to ensure erosion protection, and in appropriate areas to encourage soil amendment, for those areas not included within the landscape percentage requirements so native plants will be established, and trees will not be lost.

(1) Where vegetation has been removed or damaged in areas not affected by the landscaping requirements and that are not to be occupied by structures or other improvements, vegetation shall be replanted.

Response: The existing vegetation adjoining the property within the planters will be removed and replanted to match the site plantings. This standard is met.

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(2) Plant materials shall be watered at intervals sufficient to ensure survival and growth for a minimum of two growing seasons.

Response: An irrigation system is proposed for the newly planted areas. See irrigation plan (L2).

(3) The use of native plant materials is encouraged to reduce irrigation and maintenance demands.

Response: Native plants are proposed for use throughout the site plantings as well as the adjoining planters. This standard is met.

(4) Disturbed soils should be amended to an original or higher level of porosity to regain infiltration and stormwater storage capacity.

Response: All landscaped areas, where required, will be filled with native materials compacted to a level less than areas of structural fill. All landscape areas, including stormwater facilities, will be provided a final layer of amended topsoil that will help facilitate retention of stormwater. This standard is met.

Section 73.310 Landscape Standards – Commercial, Industrial, Public and Semi-Public Uses

(1) A minimum 5'-wide landscaped area must be located along all building perimeters which are viewable by the general public from parking lots or the public right-of-way, excluding loading areas, bicycle parking areas and pedestrian egress/ingress locations…

Response: As shown on the attached C2 sheet, a minimum 5' wide landscaped area will be constructed around all building perimeters. This standard is met.

(2) Areas exclusively for pedestrian use that are developed with pavers, bricks, etc., and contain pedestrian amenities, such as benches, tables with umbrellas, children's play areas, shade trees, canopies, etc., may be included as part of the site landscape area requirement.

Response: The provided walkways are exclusively for pedestrian use, and contain amenities such as shade trees. These are included in the landscape area requirement. This standard is understood.

(3) All areas not occupied by buildings, parking spaces, driveways, drive aisles, pedestrian areas or undisturbed natural areas shall be landscaped.

Response: As shown on the attached plans, all areas not identified above are proposed to be landscaped with a variety of materials. This standard is met.

Off-Street Parking Lot Landscaping

Section 73.320 Off-Street Parking Lot Landscaping Standards

(2) Application. Off-street parking lot landscaping standards shall apply to any surface vehicle parking or circulation area.

Response: As shown on the attached landscape plans, all vehicle parking and circulation areas will be landscaped to off-street parking lot landscaping standards and meet the above goals. This standard is met.

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Section 73.340 Off-Street Parking Lot and Loading Area Landscaping - Commercial, Industrial, Public and Semi-Public Uses, and Residential and Mixed Use Residential Uses within the Central Design District

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(1) A clear zone shall be provided for the driver at ends of on-site drive aisles and at driveway entrances, vertically between a maximum of 30 inches and a minimum of 8 feet as measured from the ground level,

Response: As shown in the attached landscape plan (L1), landscaping in the parking areas will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

(2) Perimeter site landscaping of at least 5 feet in width shall be provided in all off-street parking and vehicular circulation areas (including loading areas). For conditional uses in multi-family residential planning districts the landscape width shall be at least 10 feet except for uses allowed by ***TDC 40.030(3), 40.030(5)(j), 40.030(5)(m), 40.030(5)(n)*** *and* ***41.030(2)****.*

Response: As shown in the attached plans (see C2.1, perimeter landscape areas of 5' to more than 20' will be provided around all parking, circulation, and loading areas. This standard is met.

(a) The landscape area shall contain:

(i) Deciduous trees an average of not more than 30 feet on center. The trees shall meet the requirements of ***TDC 73.360(7)****.*

(ii) Plantings which reach a mature height of 30 inches in three years which provide screening of vehicular headlights year round.

(iii) Shrubs or ground cover, planted so as to achieve 90 percent coverage within three years.

(iv) Native trees and shrubs are encouraged.

Response: As shown on the attached landscape plans, landscape areas will contain a mix of all of the above plantings. Deciduous trees will be planted at less than 30' on center. Shrubs (of a variety that will reach a mature height of 30" or more in three years) and ground cover will be spaced appropriately to achieve at least 90% coverage within three years. Plantings will include a mixture of native and drought-tolerant appropriate plants to achieve biodiversity and longevity. This standard is met.

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(b) Where off-street parking areas on separate lots are adjacent to one another and are connected by vehicular access, the landscaped strips required in subsection (2) of this section are not required.

Response: The site to the north shares a driveway. No landscape strip is provided between the properties. This standard is understood.

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Section 73.360 Off-Street Parking Lot Landscape Islands - Commercial, Industrial, Public, and Semi-Public Uses

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(1) A minimum of 25 square feet per parking stall shall be improved with landscape island areas which are protected from vehicles by curbs. These landscape areas shall be dispersed throughout the parking area [see 73.380(3)]. Landscape square footage requirements shall not apply to parking structures and underground parking.

Response: As shown on the attached plans (L1), 49 parking spaces are proposed; therefore, 1,225 SF of landscape island areas is required. This standard is met through the standard 18' long landscape islands located every 8 or fewer parking spaces, as well as through the landscaped areas at the ends of parking bays. This includes any landscape area continued through the horizontal (bumper) line of the parking spaces as a "landscape island area." Across the site, 4,253 SF of "landscape island areas" will be provided in the parking lot. This standard is met.

(2) All landscaped island areas with trees shall be a minimum of 5 feet in width (60 inches from inside of curb to curb) and protected with curbing from surface runoff and damage by vehicles. Landscaped areas shall contain groundcover or shrubs and deciduous shade trees.

Response: As shown in the attached plans, all areas considered toward the landscape island area requirement are at 5' in width or greater; all provide ample room for the proposed trees and plantings. As shown in the attached landscape plan (L1), all landscape island areas will be covered with trees, shrubs, and groundcover. This standard is met.

(3) Provide a minimum of one deciduous shade tree for every four (4) parking spaces to lessen the adverse impacts of glare from paved surfaces and to emphasize circulation patterns…

Response: For the 49 parking spaces proposed, 13 deciduous shade trees are required. As shown on the landscape plan, 15 deciduous trees will be planted within the parking area. This standard is met.

(4) Landscaped islands shall be utilized at aisle ends to protect parked vehicles from moving vehicles and emphasize vehicular circulation patterns. …

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Response: As shown on the attached plans, typical landscape islands are proposed spaced every 8 or fewer parking spaces, as well as through landscaped areas at the ends of parking bays. This standard is met.

(5) Required landscaped areas shall be planted so as to achieve 90 percent coverage within three years.

Response: Shrubs and ground cover will be spaced appropriately to achieve at least 90% coverage within three years. This standard is met.

Section 73.370 Off-Street Parking and Loading

(2) Off-Street Parking Provisions.

(a) The following are the minimum and maximum requirements for off-street motor vehicle parking in the City. . .

USE	MAXIMUM MOTOR VEHICLE PARKING REQUIREMENT	MINIMUM MOTOR VEHICLE PARKING REQUIREMENT	BICYCLE Parking Requirements
COMMERCIAL			
(vi) General office	*2.70 spaces per 1,000 sq. ft. of gross floor area*	*Zone A: 3.4 spaces per 1,000 sq. ft. gross floor area* *Zone B: 4.1 spaces per 1,000 sq. ft. gross floor area*	*2, or 0.50 spaces per 1,000 gross sq. ft. whichever is greater*
INDUSTRIAL			
(i) Manufacturing	*1.60 spaces per 1,000 sq. ft. of gross floor area*	*None*	*2, or 0.10 spaces per 1,000 gross sq. ft., whichever is greater*
(ii) Warehousing	*0.30 spaces per 1,000 sq. ft. of gross floor area*	*0.4 spaces per 1,000 sq. ft. gross floor area*	*2, or 0.10 spaces per 1,000 gross sq. ft., whichever is greater*
(iii) Wholesale establishment	*3.00 spaces per 1,000 sq. ft. of gross floor area*	*None*	*2, or 0.50 spaces per 1,000 gross sq. ft., whichever is greater*

Response: A tenant has been identified, for the proposed building. The tenant will accommodate a mix of manufacturing, warehousing, and office uses (see the table on sheet C2.1 for full details and uses by building). The proposed parking (49 spaces across the site) exceeds minimum requirements (44 spaces), but does not exceed the maximum (465.4 spaces) for these uses and building sizes. Additionally, 2 bicycle parking spaces are proposed; 100% of which will be covered inside the building, meeting the 30% coverage requirement. This standard is met.

(3) Off-Street Vanpool and Carpool Parking Provisions.
The minimum number of off-street Vanpool and Carpool parking for commercial, institutional and industrial uses is as follows:

Number of Required Parking Spaces	***Number of Vanpool Carpool Spaces***
0 to 10	*1*
10 to 25	*2*
26 and greater	*1 for each 25 spaces*

Response: As shown on the attached plans (see C2), 2 carpool/vanpool spaces will be provided. This standard is met.

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73.380 Off-Street Parking Lots

(1) Off-street parking lot design shall comply with the dimensional standards set forth in Figure 73-1of this section….

Response: Of the proposed 49 parking spaces, most will be larger-than-standard 9'x19.5' parking stalls (9' wide, 17' long striped paved area plus a 2.5' landscaped overhang protected by bumper). In some areas, stalls will be 9'x18.5' (16' stripes with a 2.5' overhang). This standard is met.

(2) Parking stalls for sub-compact vehicles shall not exceed 35 percent of the total parking stalls required by TDC 73.370(2).

Response: No sub-compact stalls are proposed. This standard is met.

(3) Off-street parking stalls shall not exceed eight continuous spaces in a row without a landscape separation…

Response: As shown on the attached plans, typical landscape islands are proposed to be spaced every 8 or fewer parking spaces, as well as through landscaped areas at the ends of parking bays. This standard is met.

(4) Areas used for standing or maneuvering of vehicles shall have paved asphalt or concrete surfaces maintained adequately for all-weather use and so drained as to avoid the flow of water across sidewalks.

Response: As shown in the attached grading and utility plans (the C3 and C6 plans), water from the paved vehicle areas will drain to storm drains in order to avoid the flow of water across pedestrian walkways; storm lines will flow into the on-site water quality and detention facilities. This standard is met.

(5) Except for parking to serve residential uses, parking areas adjacent to or within residential planning districts or adjacent to residential uses shall be designed to minimize disturbance of residents.

Response: The site does not abut any residential uses. This standard does not apply.

(6) Artificial lighting, which may be provided, shall be deflected to not shine or create glare in a residential planning district, an adjacent dwelling, street right-of-way in such a manner as to impair the use of such way or a Natural Resource Protection Overlay District, Other Natural Areas identified in Figure 3-4 of the Parks and Recreation Master Plan, or a Clean Water Services Vegetated Corridor.

Response: The project site does not abut residential uses. Site lighting is designed to not impair drivers along SW Herman Road. As shown on the attached lighting plan (ES1), footcandle levels will be low at the edges of parking and drive areas abutting the property line and right-of way. This standard is met.

(8) Service drives to off-street parking areas shall be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress, and maximum safety for pedestrians and vehicular traffic on the site.

Response: Service drives are designed to facilitate the flow of traffic and provide maximum safety on this site. This standard is met.

(9) Parking bumpers or wheel stops or curbing shall be provided to prevent cars from encroaching on the street right-of-way, adjacent landscaped areas, or adjacent pedestrian walkways.

Response: As shown on the attached plans, curbing will be provided in front of all parking stalls to protect pedestrians and landscape material (except in front of several ADA stalls, where wheel stops exist to protect the depressed ramp in front of the stalls). This standard is met.

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(10) Disability parking spaces and accessibility shall be provided in accordance with applicable federal and state requirements.

Response: As shown on the attached plans (see sheet C2.1), 2 ADA parking spaces will be provided with this development. This standard is met.

(11) On-site drive aisles without parking spaces, which provide access to parking areas with regular spaces or with a mix of regular and sub-compact spaces, shall have a minimum width of 22 feet for two-way traffic and 12 feet for one-way traffic. On-site drive aisles without parking spaces, which provide access to parking areas with only sub-compact spaces, shall have a minimum width of 20 feet for two-way traffic and 12 feet for one-way traffic.

Response: As shown on the attached plans (see C2), drive aisles on the site provide access to parking areas with regular parking spaces. Drive aisles range from 24' to 26' wide; most of them are 26' wide to accommodate the site's expected truck traffic, as well as vehicles and the garbage hauler's trucks. This standard is met.

Section 73.390 Off-Street Loading Facilities

(1) The minimum number of off-street loading berths for commercial, industrial, public and semi-public uses is as follows:

Square Feet of Floor Area	*Number of Berths*
Less than 5,000	*0*
5,000 - 25,000	*1*
25,000 - 60,000	*2*
60,000 and over	*3*

Response: Two off-street loading berths are required for industrial uses with floor area of 25,000 to 60,000 SF; the project includes 25,000 SF of building floor area. As shown on the attached plans the site total is 2 berths. This standard is met.

(2) Loading berths shall conform to the following minimum size specifications.

(a) Commercial, public and semi-public uses of 5,000 to 25,000 square feet shall be 12' x 25' and uses greater than 25,000 shall be 12' x 35'
(b) Industrial uses - 12' x 60'
(c) Berths shall have an unobstructed height of 14'
(d) Loading berths shall not use the public right-of-way as part of the required off-street loading area.

Response: As shown on the attached plans (see the C2 plans), the loading berths are a minimum of 19.5' wide by 70' long. The berths have an unobstructed height. This standard is met.

(3) Required loading areas shall be screened from public view from public streets and adjacent properties by means of sight-obscuring landscaping, walls or other means, as approved through the Architectural Review process.

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Response: As shown on the attached plans (see landscape plans), all loading areas will be screened with landscape areas at their ends (not obscuring clear vision areas), planted with sight-obscuring evergreen trees and shrubs. This standard is met.

(4) Required loading facilities shall be installed prior to final building inspection and shall be permanently maintained as a condition of use.

Response: This standard is accepted as a condition of use. This standard is met.

(5) A driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading children shall be located on the site of a school or child day care center having a capacity greater than 25 students.

Response: The proposed development does not include a school or day care. This standard does not apply.

(6) The off-street loading facilities shall in all cases be on the same lot or parcel as the structure they are intended to serve. In no case shall the required off-street loading spaces be part of the area used to satisfy the off-street parking requirements.

Response: The off-street loading spaces are on the same lot as the structure and not part of the off-street parking areas. This standard is met.

(7) Subject to Architectural Review approval, the Community Development Director may allow the standards in this Section to be relaxed within the Central Design District…

Response: The property is not located within the Central Design District. No adjustments to the loading standards are requested. This standard does not apply.

Section 73.400 Access

(1) The provision and maintenance of vehicular and pedestrian ingress and egress from private property to the public streets as stipulated in this Code are continuing requirements for the use of any structure or parcel of real property in the City of Tualatin. Access management and spacing standards are provided in this section of the TDC and TDC Chapter 75. No building or other permit shall be issued until scale plans are presented that show how the ingress and egress requirement is to be fulfilled. If the owner or occupant of a lot or building changes the use to which the lot or building is put, thereby increasing ingress and egress requirements, it shall be unlawful and a violation of this code to begin or maintain such altered use until the required increase in ingress and egress is provided.

Response: The provision and maintenance of vehicular and pedestrian accesses on the site will be maintained throughout construction. This standard is understood and is met.

(2) Owners of two or more uses, structures, or parcels of land may agree to utilize jointly the same ingress and egress when the combined ingress and egress of both uses, structures, or parcels of land satisfies their combined requirements as designated in this code; provided that satisfactory legal evidence is presented to the City Attorney in the form of deeds, easements, leases or contracts to establish joint use. Copies of said deeds, easements, leases or contracts shall be placed on permanent file with the City Recorder.

Response: The owner of this parcel owns the adjoining properties. This standard does not apply as part of this application.

(3) Joint and Cross Access.

(a) Adjacent commercial uses may be required to provide cross access drive and pedestrian access to allow circulation between sites.

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Response: There are no commercial uses adjacent to the site. This standard does not apply.

(b) A system of joint use driveways and cross access easements may be required and may incorporate the following:

(I) a continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards.

(ii) a design speed of 10 mph and a maximum width of 24 feet to accommodate two way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;

(iii) stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross access via a service drive;

(iv) a unified access and circulation system plan for coordinated or shared parking areas.

Response: The property is under one owner. There are two existing shared driveways. The properties will allow access according to the above standards. This standard does as part of this application.

(c) Pursuant to this section, property owners may be required to:

(i) Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;

(ii) Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the city and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;

(iii) Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners;

(iv) If (i-iii) above involve access to the state highway system or county road system, ODOT or the county shall be contacted and shall approve changes to (i-iii) above prior to any changes.

Response: These standards will be met if they apply.

(4) Requirements for Development on Less than the Entire Site.

(a) To promote unified access and circulation systems, lots and parcels under the same ownership or consolidated for the purposes of development and [comprising] more than one building site shall be reviewed as one unit in relation to the access standards. The number of access points permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area shall comply with the access requirements.

Response: This application addresses the entire site. This standard is met.

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(b) All access must be internalized using the shared circulation system of the principal commercial development or retail center. Driveways should be designed to avoid queuing across surrounding parking and driving aisles.

Response: This project does not include a commercial development or retail center. This standard does not apply.

(5) Lots that front on more than one street may be required to locate motor vehicle accesses on the street with the lower functional classification as determined by the City Engineer.

Response:

. This standard does not apply.

*(6) Except as provided in **TDC 53.100**, all ingress and egress shall connect directly with public streets.[Ord. 882-92, § 24,12/14/92]*

Response:

This standard does not apply.

(7) Vehicular access for residential uses shall be brought to within 50 feet of the ground floor entrances or the ground floor landing of a stairway, ramp or elevator leading to dwelling units.

Response: The project does not include any residential uses. This standard does not apply.

(8) To afford safe pedestrian access and egress for properties within the City, a sidewalk shall be constructed along all street frontage, prior to use or occupancy of the building or structure proposed for said property. The sidewalks required by this section shall be constructed to City standards, except in the case of streets with inadequate right-of-way width or where the final street design and grade have not been established, in which case the sidewalks shall be constructed to a design and in a manner approved by the City Engineer. Sidewalks approved by the City Engineer may include temporary sidewalks and sidewalks constructed on private property; provided, however, that such sidewalks shall provide continuity with sidewalks of adjoining commercial developments existing or proposed. When a sidewalk is to adjoin a future street improvement, the sidewalk construction shall include construction of the curb and gutter section to grades and alignment established by the City Engineer.

Response: Sidewalks currently exist on SW Herman Road; this project will include the removal of the existing driveway approach and replace with new curb and sidewalk. This standard is met.

(9) The standards set forth in this Code are minimum standards for access and egress, and may be increased through the Architectural Review process in any particular instance where the standards provided herein are deemed insufficient to protect the public health, safety, and general welfare.

Response: This standard is understood.

(10) Minimum access requirements for residential uses:

Response: The proposed project is for an industrial use. This standard does not apply.

(11) Minimum Access Requirements for Commercial, Public and Semi-Public Uses.

Response: The proposed project is for an industrial use. This standard does not apply.

(12) Minimum Access Requirements for Industrial Uses.

Ingress and egress for industrial uses shall not be less than the following:

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Required Parking Spaces	*Minimum Number Required*	*Minimum Pavement Width*	*Minimum Pavement Walkways, Etc.*
1-250	*1*	*36 feet for first 50' from ROW, 24' thereafter*	*No curbs or walkway required*
Over 250	*As required by City Engineer*	*As required by City Engineer*	*As required by City Engineer*

Response: 46 parking spaces are proposed. The project includes 2 vehicular accessways into the site for cars and trucks. This standard is met.

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(13) One-way Ingress or Egress.
When approved through the Architectural Review process, one-way ingress or egress may be used to satisfy the requirements of Subsections (7), (8), and (9). However, the hard surfaced pavement of one-way drives shall not be less than 16 feet for multi-family residential, commercial, or industrial uses.

Response: Neither one-way ingress nor egress is proposed. This standard does not apply.

(14) Maximum Driveway Widths and Other Requirements.

(a) Unless otherwise provided in this chapter, maximum driveway widths shall not exceed 40 feet.

Response: As shown in the attached plans (see dimensions on C2), driveway openings on the site range from 30' to 40' as measured by the City of Tualatin Approach Private Driveway diagram. This standard is met.

(b) Except for townhouse lots, no driveways shall be constructed within 5 feet of an adjacent property line, except when two adjacent property owners elect to provide joint access to their respective properties, as provided by Subsection (2).

Response: As shown on the attached plans, driveways are shared by the same property owner. This standard is met.

(c) There shall be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Engineer.

Response: As shown on the attached plans, all driveways are located at least 327' from one another. This standard is met.

(15) Distance between Driveways and Intersections.
Except for single-family dwellings, the minimum distance between driveways and intersections shall be as provided below. Distances listed shall be measured from the stop bar at the intersection.

(a) At the intersection of collector or arterial streets, driveways shall be located a minimum of 150 feet from the intersection.

Response: As shown on the attached plans (see C2), the westerly most driveway on the site is located a minimum of 350' from the intersection of SW 124th Avenue and Herman Road. This standard is met.

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(b) At the intersection of two local streets, driveways shall be located a minimum of 30 feet from the intersection.

Response: The site is not located at the intersection of two local streets. This standard does not apply.

(c) If the subject property is not of sufficient width to allow for the separation between driveway and intersection as provided, the driveway shall be constructed as far from the intersection as possible, while still maintaining the 5-foot setback between the driveway and property line as required by TDC 73.400(14)(b).

Response: The driveways on the site meet the driveway and intersection separation standards. This standard does not apply.

*(d) When considering a public facilities plan that has been submitted as part of an Architectural Review plan in accordance with **TDC 31.071(6)**, the City Engineer may approve the location of a driveway closer than 150 feet from the intersection of collector or arterial streets, based on written findings of fact in support of the decision. The written approval shall be incorporated into the decision of the City Engineer for the utility facilities portion of the Architectural Review plan under the process set forth in **TDC 31.071** through **31.077**.*

Response: No proposed driveways on the site are less than 150' from an intersection. This standard does not apply.

(16) Vision Clearance Area.

*(a) Local Streets - A vision clearance area for all local street intersections, local street and driveway intersections, and local street or driveway and railroad intersections shall be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 10 feet from the intersection point of the right of-way lines, as measured along such lines (see **Figure 73-2** for illustration).*

Response: The site does not abut any local streets. This standard does not apply.

*(b) Collector Streets - A vision clearance area for all collector/arterial street intersections, collector/arterial street and local street intersections, and collector/arterial street and railroad intersections shall be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 25 feet from the intersection point of the right-of-way lines, as measured along such lines. Where a driveway intersects with a collector/arterial street, the distance measured along the driveway line for the triangular area shall be 10 feet (see **Figure 73-2** for illustration).*

Response: As shown in the attached landscape plans (L1), no landscaping between 30" and 8' high will exist in the clear vision areas (10' back from the collector streets the driveways abut, 25' along the streets). This standard is met.

*(c) Vertical Height Restriction - Except for items associated with utilities or publicly owned structures such as poles and signs and existing street trees, no vehicular parking, hedge, planting, fence, wall structure, or temporary or permanent physical obstruction shall be permitted between 30 inches and 8 feet above the established height of the curb in the clear vision area (see **Figure 73-2** for illustration).*

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Response: As shown in the attached landscape plans (L1), landscaping in the driveway entrances and ends of parking aisles will meet these standards. Tree canopies will be maintained to be no lower than 8' at grade and shrub species in vision clearance areas of the parking area will be no higher than 30". This standard is met.

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(17) Major driveways, as defined in 31.060, in new residential and mixed-use areas are required to connect with existing or planned streets except where prevented by topography, rail lines, freeways, pre-existing development or leases, easements or covenants, or other barriers.

Response: The project is not in a new residential or mixed-use area. This standard does not apply.

CHAPTER 74: PUBLIC IMPROVEMENT REQUIREMENTS

Transportation

Section 74.410 Future Street Extensions.

(1) Streets shall be extended to the proposed development site boundary where necessary to:

- *(a) Give access to, or permit future development of adjoining land;*
- *(b) Provide additional access for emergency vehicles;*
- *(c) Provide for additional direct and convenient pedestrian, bicycle and vehicle circulation;*
- *(d) eliminate the use of cul-de-sacs except where topography, barriers such as railroads or freeways, existing development, or environmental constraints such as major streams and rivers prevent* street extension.
- (e) eliminate circuitous routes*. The resulting dead end streets may be approved without a turnaround. A reserve strip may be required to preserve the objectives of future street extensions.*

Response: No streets will be extended.

(2) Proposed streets shall comply with the general location, orientation and spacing identified in the Functional Classification Plan (Figure 11-1), Local Streets Plan (TDC 11.630 and Figure 11-3) and the Street Design Standards (Figures 74-2A through 74-2G).

- *(a) Streets and major driveways, as defined in TDC 31.060, proposed as part of new residential or mixed residential/commercial developments shall comply with the following standards:*
  - *(i) full street connections with spacing of no more than 530 feet between connections, except where prevented by barriers;*
  - *(ii) bicycle and pedestrian accessway easements where full street connections are not possible, with spacing of no more than 330 feet, except where prevented by barriers;*
  - *(iii) limiting cul-de-sacs and other closed-end street systems to situations where barriers prevent full street extensions; and*
  - *(iv) allowing cul-de-sacs and closed-end streets to be no longer than 200 feet or with more than 25 dwelling units, except for streets stubbed to future developable areas.*
- *(b) Streets proposed as part of new industrial or commercial development shall comply with TDC 11.630, Figure 11-1, and Figures 74-2A through 74-2G.*

Response: No new streets are proposed

(3) During the development application process, the location, width, and grade of streets shall be considered in relation to existing and planned streets, to topographical conditions, to

public convenience and safety, and to the proposed use of the land to be served by the streets. The arrangement of streets in a subdivision shall either:

(a) provide for the continuation or appropriate projection of existing streets into surrounding areas; or

(b) conform to a street plan approved or adopted by the City to meet a particular situation where topographical or other conditions make continuance of or conformance to existing streets impractical.

Response: No new streets are proposed

(4) The City Engineer may require the applicant to submit a street plan showing all existing, proposed, and future streets in the area of the proposed development.

Response: No new streets are proposed

(5) The City Engineer may require the applicant to participate in the funding of future off-site street extensions when the traffic impacts of the applicant's development warrant such a condition. Ord. 933-94 §55, 11/28/94; Ord. 1026-99 §99, 8/9/99; Ord. 1103-02, 3/25/02; Ord. 1354-13 §18, 02/25/13]

Response: No new streets are proposed

Section 74.420 Street Improvements.

When an applicant proposes to develop land adjacent to an existing or proposed street, including land which has been excluded under TDC 74.220, the applicant should be responsible for the improvements to the adjacent existing or proposed street that will bring the improvement of the street into conformance with the Transportation Plan (TDC Chapter 11), TDC 74.425 (Street Design Standards), and the City' s Public Works Construction Code, subject to the following provisions:

(1) For any development proposed within the City, roadway facilities within the right-of-way described in TDC 74.210 shall be improved to standards as set out in the Public Works Construction Code.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(2) The required improvements may include the rebuilding or the reconstruction of any existing facilities located within the right-of-way adjacent to the proposed development to bring the facilities into compliance with the Public Works Construction Code.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(3) The required improvements may include the construction or rebuilding of off-site improvements which are identified to mitigate the impact of the development.

Response: Not applicable

(4) Where development abuts an existing street, the improvement required shall apply only to that portion of the street right-of-way located between the property line of the parcel proposed for development and the centerline of the right-of-way, plus any additional pavement beyond the centerline deemed necessary by the City Engineer to ensure a smooth transition between a new improvement and the existing roadway (half-street improvement). Additional right-of-way and street improvements and off-site right-of-way and street improvements may be required by the City to mitigate the impact of the development. The new pavement shall connect to the existing pavement at the ends of the section being improved by tapering in accordance with the Public Works Construction Code.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(5) If additional improvements are required as part of the Access Management Plan of the City, TDC Chapter 75, the improvements shall be required in the same manner as the half-street improvement requirements.

Response: According to TDC Chapter 75, Herman Road from Teton Avenue to 124th Avenue is an arterial.

(6) All required street improvements shall include curbs, sidewalks with appropriate buffering, storm drainage, street lights, street signs, street trees, and, where designated, bikeways and transit facilities.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(7) For subdivision and partition applications, the street improvements required by TDC Chapter 74 shall be completed and accepted by the City prior to signing the final subdivision or partition plat, or prior to releasing the security pro-vided by the applicant to assure completion of such improvements or as otherwise specified in the development application approval.

Response: The property is not being divided or partitioned, however it is having a property line adjustment**.**

(8) For development applications other than subdivisions and partitions, all street improvements required by this section shall be completed and accepted by the City prior to the issuance of a Certificate of Occupancy.

Response:

(12) Sidewalks with appropriate buffering shall be constructed along both sides of each internal street and at a minimum along the development side of each external street in accordance with the Public Works Construction Code.

Response: Not Applicable

(13) The applicant shall comply with the requirements of the Oregon Department of Transportation (ODOT), Tri-Met, Washington County and Clackamas County when a proposed development site is adjacent to a roadway under any of their jurisdictions, in addition to the requirements of this chapter.

Response: The applicant will comply.

(14) The applicant shall construct any required street improvements adjacent to parcels excluded from development, as set forth in TDC 74.220 of this chapter.

Response: If a dedication is required. The applicant will submit a completed right-of-way dedication deed to the City Engineer for acceptance.

(15) Except as provided in TDC 74.430, whenever an applicant proposes to develop land with frontage on certain arterial streets and, due to the access management provisions of TDC Chapter 75, is not allowed direct access onto the arterial, but instead must take access from another existing or future public street thereby providing an alternate to direct arterial access, the applicant shall be required to construct and place at a minimum street signage, a sidewalk, street trees and street lights along that portion of the arterial street adjacent to the applicant's property. The three certain arterial streets are S.W. Tualatin-Sherwood Road,

S.W. Pacific Highway (99W) and S.W. 124th Avenue. In addition, the applicant may be required to construct and place on the arterial at the intersection of the arterial and an existing or future public non-arterial street warranted traffic control devices (in accordance with the Manual on Uniform Traffic Control Devices, latest edition), pavement markings, street tapers and turning lanes, in accordance with the Public Works Construction Code.

Response: Not Applicable

(16) The City Engineer may determine that, although concurrent construction and placement of the improvements in (14) and (15) of this section, either individually or collectively, are impractical at the time of development, the improvements will be necessary at some future date. In such a case, the applicant shall sign a written agreement guaranteeing future performance by the applicant and any successors in interest of the property being developed. The agreement shall be subject to the City's approval.

Response: Not Applicable

(17) Intersections should be improved to operate at a level of service of at least D and E for signalized and unsignalized intersections, respectively.

Response: Not Applicable

(18) Pursuant to requirements for off-site improvements as conditions of development approval in TDC 73.055(2)(e) and TDC 36.160(8), proposed multi-family residential, commercial, or institutional uses that are adjacent to a major transit stop will be required to comply with the City's Mid-Block Crossing Policy. [Ord. 933-94 §56, 11/28/94; Ord. 1026-99 §100, 8/9/99; Ord.1103-02, 3/25/02; Ord. 1224-06 §36, 11/13/06; Ord. 1354-13 §19, 02/25/13]

Response: Not Applicable

Section 74.425 Street Design Standards.

(1) Street design standards are based on the functional and operational characteristics of streets such as travel volume, capacity, operating speed, and safety. They are necessary to ensure that the system of streets, as it develops, will be capable of safely and efficiently serving the traveling public while also accommodating the orderly development of adjacent lands.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(2) The proposed street design standards are shown in Figures 72A through 72G. The typical roadway cross sections comprise the following elements: right-of-way, number of travel lanes, bicycle and pedestrian facilities, and other amenities such as landscape strips. These figures are intended for planning purposes for new road construction, as well as for those locations where it is physically and economically feasible to improve existing streets.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(3) In accordance with the Tualatin Basin Program for fish and wildlife habitat it is the intent of Figures 74-2A through 74-2G to allow for modifications to the standards when deemed appropriate by the City Engineer to address fish and wildlife habitat.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

(4) All streets shall be designed and constructed according to the preferred standard. The City Engineer may reduce the requirements of the preferred standard based on specific site conditions, but in no event will the requirement be less than the minimum standard. The City Engineer shall take into consideration the following factors when deciding whether the site conditions warrant a reduction of the preferred standard:

(a) Arterials:

(i) Whether adequate right-of-way exists

(ii) Impacts to properties adjacent to right-of-way

(iii) Current and future vehicle traffic at the location

(iv) Amount of heavy vehicles (buses and trucks).

(b) Collectors:

(i) Whether adequate right-of-way exists

(ii) Impacts to properties adjacent to right-of-way

(iii) Amount of heavy vehicles (buses and trucks)

(iv) Proximity to property zoned manufacturing or industrial.

(c) Local Streets:

(i) Local streets proposed within areas which have environmental constraints and/or sensitive areas and will not have direct residential access may utilize the minimum design standard. When the minimum design standard is allowed, the City Engineer may determine that no parking signs are required on one or both sides of the street. [Ord. 1354-13 §35, 02/25/13]

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

Section 74.440 Streets, Traffic Study Required.

(1) The City Engineer may require a traffic study to be provided by the applicant and furnished to the City as part of the development approval process as provided by this Code, when the City Engineer determines that such a study is necessary in connection with a proposed development project in order to:

(a) Assure that the existing or proposed transportation facilities in the vicinity of the proposed development are capable of accommodating the amount of traffic that is expected to be generated by the proposed development, and/or

(b) Assure that the internal traffic circulation of the proposed development will not result in conflicts between on-site parking movements and/or on-site loading movements and/or on-site traffic movements, or impact traffic on the adjacent streets.

Response: See attached traffic Study.

(2) The required traffic study shall be completed prior to the approval of the development application.

Response: See attached traffic Study.

(3) The traffic study shall include, at a minimum:

(a) an analysis of the existing situation, including the level of service on adjacent and impacted facilities.

(b) an analysis of any existing safety deficiencies.

(c) proposed trip generation and distribution for the proposed development.

(d) projected levels of service on adjacent and impacted facilities.

(e) recommendation of necessary improvements to ensure an acceptable level of service for roadways and a level of service of at least D and E for signalized and

unsignalized intersections respectively, after the future traffic impacts are considered.

(f) The City Engineer will determine which facilities are impacted and need to be included in the study.

(g) The study shall be conducted by a registered engineer.

Response: See attached traffic Study.

(4) The applicant shall implement all or a portion of the improvements called for in the traffic study as determined by the City Engineer. [Ord. 1103-02, 3/25/02]

Response: See attached traffic Study. No improvements are required with the Traffic Study.

Section 74.450 Bikeways and Pedestrian Paths.

(1) Where proposed development abuts or contains an existing or proposed bikeway, pedestrian path, or multi-use path, as set forth in TDC Chapter 11, Transportation Figure 11-4, the City may require that a bikeway, pedestrian path, or multi-use path be constructed, and an easement or dedication provided to the City.

Response: The proposed development does not abut or contain an existing or proposed bikeway, pedestrian path, or multi-use path.

(2) Where required, bikeways and pedestrian paths shall be provided as follows:

(a) Bike and pedestrian paths shall be constructed and surfaced in accordance with the Public Works Construction Code.

Response: The bike path exists on Herman Road.

(b) The applicant shall install the striping and signing of the bike lanes and shared roadway facilities, where designated. [Ord. 933-94, § 57, 11/28/94; Ord. 1354-13 §21, 02/25/13]

Response: Striping and signage already exists.

Section 74.460 Accessways in Residential, Commercial and Industrial Subdivisions and Partitions.

(1) Accessways shall be constructed by the applicant, dedicated to the City on the final residential, commercial or industrial subdivision or partition plat, and accepted by the City.

Response: Both accessways are existing.

(2) Accessways shall be located between the proposed subdivision or partition and all of the following locations that apply:

(a) adjoining publicly-owned land intended for public use, including schools and parks. Where a bridge or culvert would be necessary to span a designated greenway or wetland to provide a connection, the City may limit the number and location of accessways to reduce the impact on the greenway or wetland;

(b) adjoining arterial or collector streets upon which transit stops or bike lanes are provided or designated;

(c) adjoining undeveloped residential, commercial or industrial properties;(d) adjoining developed sites where an accessway is planned or provided.

Response: Both accessways are existing.

(3) In designing residential, commercial and industrial subdivisions and partitions, the applicant is expected to design and locate accessways in a manner which does not restrict or inhibit opportunities for developers of adjacent property to connect with an accessway. The applicant is to have reasonable flexibility to locate the required accessways. When developing a parcel which adjoins parcels where accessways have been constructed or

approved for construction, the applicant shall connect at the same points to provide system continuity and enhance opportunities for pedestrians and bicyclists to use the completed accessway.

Response: Both accessways are existing.

(4) Accessways shall be as short as possible, but in no case more than 600 feet in length.

Response: Both accessways are existing.

(5) Accessways shall be as straight as possible to provide visibility from one end to the other.

Response: Both accessways are existing.

(6) Accessways shall be located and improved within a right-of-way or tract of no less than 8 feet.

Response: Both accessways are existing.

(7) Where possible, accessways shall be combined with utility easements.

Response: Both accessways are existing.

(8) Accessways shall be constructed in accordance with the Public Works Construction Code.

Response: Both accessways are existing.

(9) Curb ramps shall be provided wherever the accessway crosses a curb and shall be constructed in accordance with the Public Works Construction Code.

Response: Both accessways are existing and there are no curb ramps.

(10) The Federal Americans With Disabilities Act (ADA) applies to development in the City of Tualatin. Accessways shall comply with the Oregon Structural Specialty Code' s (OSSC) accessibility standards.

Response: The Federal Americans With Disability Act (ADA) will be adhered to for the development. The Accessways shall comply with the OSSC accessibility standards.

(11) Fences and gates which prevent pedestrian and bike access shall not be al-lowed at the entrance to or exit from any accessway.

Response: There is no fencing at the entrance to or exit from the accessways.

(12) Final design and location of accessways shall be approved by the City.

Response: Both accessways are existing.

(13) Outdoor Recreation Access Routes shall be provided between a subdivision or partition and parks, bikeways and greenways where a bike or pedestrian path is designated. [Ord. 933-94, § 58, 11/28/94; Ord. 947-95, § 12 & 13, 7/24/95; Ord. 1008-98, § 7, 7/13/98; Ord. 1103-02, 3/25/02]

Response: Not applicable.

Section 74.470 Street Lights.

(1) Street light poles and luminaries shall be installed in accordance with the Public Works Construction Code.

Response: The street light poles and luminaries are existing on Herman Road.

(2) The applicant shall submit a street lighting plan for all interior and exterior streets on the proposed development site prior to issuance of a Public Works Permit.

Response: The street light poles and luminaries are existing on Herman Road.

Section 74.485 Street Trees.

(2) In nonresidential subdivisions and partitions street trees shall be planted by the owners of the individual lots as development occurs.

Response: The street trees are existing.

UTILITIES

Section 74.610 Water Service.

(1) Water lines shall be installed to serve each property in accordance with the Public Works Construction Code. Water line construction plans shall be submitted to the City Engineer for review and approval prior to construction.

Response: The waterline to the building is existing.

(2) If there are undeveloped properties adjacent to the subject site, public water lines shall be extended by the applicant to the common boundary line of these properties. The lines shall be sized to provide service to future development, in accordance with the City's Water System Master Plan, TDC Chapter 12.

Response: There are no additional undeveloped properties adjacent to the subject site.

(3) As set forth is TDC Chapter 12, Water Service, the City has three water service levels. All development applicants shall be required to connect the proposed development site to the service level in which the development site is located. If the development site is located on a boundary line between two service levels the applicant shall be required to connect to the service level with the higher reservoir elevation. The applicant may also be required to install or provide pressure reducing valves to supply appropriate water pressure to the properties in the proposed development site. [Ord. 933-94, § 59, 11/28/94]

Response: The waterline to the building is existing.

Section 74.620 Sanitary Sewer Service.

(1) Sanitary sewer lines shall be installed to serve each property in accordance with the Public Works Construction Code. Sanitary sewer construction plans and calculations shall be submitted to the City Engineer for review and approval prior to construction.

Response: The sanitary sewer line to the building is existing.

(2) If there are undeveloped properties adjacent to the proposed development site which can be served by the gravity sewer system on the proposed development site, the applicant shall extend public sanitary sewer lines to the common boundary line with these properties. The lines shall be sized to convey flows to include all future development from all up stream areas that can be expected to drain through the lines on the site, in accordance with the City's Sanitary Sewer System Master Plan, TDC Chapter 13. [Ord. 933-94, § 60, 11/28/94]

Response: There are no additional undeveloped properties adjacent to the subject site.

Section 74.630 Storm Drainage System.

(1) Storm drainage lines shall be installed to serve each property in accordance with City standards. Storm drainage construction plans and calculations shall be submitted to the City Engineer for review and approval prior to construction.

Response: See attached storm drainage calculations and plans.

(2) The storm drainage calculations shall confirm that adequate capacity exists to serve the site. The discharge from the development shall be analyzed in accordance with the City's Storm and Surface Water Regulations.

Response: See attached storm drainage calculations and plans.

(3) If there are undeveloped properties adjacent to the proposed development site which can be served by the storm drainage system on the proposed development site, the applicant shall extend storm drainage lines to the common boundary line with these properties. The lines shall be sized to convey expected flows to include all future development from all up stream areas that will drain through the lines on the site, in accordance with the Tualatin Drainage Plan in TDC Chapter 14. [Ord. 933-94, § 61, 11/28/94; Ord. 952-95, § 2, 10/23/95]

Response: There are no additional undeveloped properties adjacent to the subject site.

Section 74.640 Grading.

(1) Development sites shall be graded to minimize the impact of storm water runoff onto adjacent properties and to allow adjacent properties to drain as they did before the new development.

Response: The site will be graded to minimize the impact of storm water runoff onto adjacent properties and will allow properties to drain as they did before the new development.

(2) A development applicant shall submit a grading plan showing that all lots in all portions of the development will be served by gravity drainage from the building crawl spaces; and that this development will not affect the drainage on adjacent properties. The City Engineer may require the applicant to remove all excess material from the development site.

Response: See attached grading plan.

Section 74.650 Water Quality, Storm Water Detention and Erosion Control.

The applicant shall comply with the water quality, storm water detention and erosion control requirements in the Surface Water Management Ordinance. If required:

(1) On subdivision and partition development applications, prior to approval of the final plat, the applicant shall arrange to construct a permanent on-site water quality facility and storm water detention facility and submit a design and calculations indicating that the requirements of the Surface Water Management Ordinance will be satisfied and obtain a Stormwater Connection Permit from Clean Water Services; or

Response: Not applicable.

(2) On all other development applications, prior to issuance of any building permit, the applicant shall arrange to construct a permanent on-site water quality facility and storm water detention facility and submit a design and calculations indicating that the requirements of the Surface Water Management Ordinance will be met and obtain a Stormwater Connection Permit from Clean Water Services.

Response: See Utility Plan and Storm drainage calculations. A Stormwater Connection Permit from Clean Water Services shall be obtained.

(3) For on-site private and regional non-residential public facilities, the applicant shall submit a stormwater facility agreement, which will include an operation and maintenance plan provided by the City, for the water quality facility for the City's review and approval. The applicant shall submit an erosion control plan prior to issuance of a Public Works Permit. No

construction or disturbing of the site shall occur until the erosion control plan is approved by the City and the required measures are in place and approved by the City. [Ord. 952-95, § 3, 10/23/95; Ord. 1070-01, 4/9/01; Ord. 1327-11 §1; 6/27/11]

Response: See attached grading plan, erosion control plan and storm drainage calculations.

Section 74.660 Underground.

(1) All utility lines including, but not limited to, those required for gas, electric, communication, lighting and cable television services and related facilities shall be placed underground. Surface-mounted transformers, surface-mounted connection boxes and meter cabinets may be placed above ground. Temporary utility service facilities, high capacity electric and communication feeder lines, and utility transmission lines operating at 50,000 volts or above may be placed above ground. The applicant shall make all necessary arrangements with all utility companies to provide the underground services. The City reserves the right to approve the location of all surface-mounted transformers.

Response: All new utilities shall be placed underground.

(2) Any existing overhead utilities may not be upgraded to serve any proposed development. If existing overhead utilities are not adequate to serve the proposed development, the applicant shall, at their own expense, provide an underground system. The applicant shall be responsible for obtaining any off-site deeds and/or easements necessary to provide utility service to this site; the deeds and/or easements shall be submitted to the City Engineer for acceptance by the City prior to issuance of the Public Works Permit.

Response: All new utilities shall be placed underground. Existing overhead utilities shall remain overhead.

Section 74.670 Existing Structures.

(1) Any existing structures requested to be retained by the applicant on a proposed development site shall be connected to all available City utilities at the expense of the applicant.

Response: All existing structures shall be demolished.

(2) The applicant shall convert any existing overhead utilities serving existing structures to underground utilities, at the expense of the applicant.

Response: All existing structures shall be demolished.

(3) The applicant shall be responsible for continuing all required street improvements adjacent to the existing structure, within the boundaries of the proposed development site.

Response: The new sidewalk, at the existing driveway approach, will be constructed the City of Tualatin Public Works Standards.

Section 74.700 Removal, Destruction or Injury of Trees.

It is unlawful for a person, without a written permit from the Operations Director, to remove, destroy, break or injure a tree, plant or shrub, that is planted or growing in or upon a public right-of-way within the City , or cause, authorize, or procure a person to do so, authorize or procure a person to injure, misuse or remove a device set for the protection of any tree, in or upon a public right-of-way. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 1, 7/23/01; Ord. 1079-01, 7/23/01]

Section 74.705 Street Tree Removal Permit.

(1) A person who desires to remove or destroy a tree, as defined in TDC 31.060, in or upon public right-of-way shall make application to the Operations Director on City forms.

(a) the applicant's name and contact information and if applicable that of the applicant's contractor;
(b) the number and species of all street trees the applicant desires to remove;
(c) a clear description of the street trees' the applicant desires to remove;
(d) the date of removal;
(e) the reason(s) for removal; and
(f) other information as the Operations Director deems necessary.

Response: No street trees are being removed.

Section 74.710 Open Ground.

When impervious material or substance is laid down or placed in or upon a public right-of-way near a tree, at least nine square feet of open ground for a tree up to three inches in diameter shall be provided about the base of the trunk of each tree. [Ord. 963-96, § 9, 6/24/96]

Response: Not Applicable

Section 74.715 Attachments to Trees.

It is unlawful for a person to attach or keep attached a rope, wire, chain, sign or other device to a tree, plant or shrub in or upon a public right-of-way or to the guard or stake intended for the protection of such tree, except as a support for a tree, plant or shrub. [Ord. 963-96, § 9, 6/24/96]

Response: Understood

Section 74.720 Protection of Trees During Construction.

(1) During the erection, repair, alteration or removal of a building or structure, it is unlawful for the person in charge of such erection, repair, alteration or removal to leave a tree in or upon a public right-of-way in the vicinity of the building or structure without a good and sufficient guard or protectors to prevent injury to the tree arising out of or by reason of such erection, repair, alteration or removal.

Response: Street trees shall be protected if near construction.

(2) Excavations and driveways shall not be placed within six feet of a tree in or upon a public right-of-way without written permission from the City Engineer. During excavation or construction, the person shall guard the tree within six feet and all building material or other debris shall be kept at least four feet from any tree. [Ord. 963-96, § 9, 6/24/96]

Response: No excavation or driveways shall be placed within six feet of a street tree.

Section 74.725 Maintenance Responsibilities.

Trees, shrubs or plants standing in or upon a public right-of-way, on public or private grounds that have branches projecting into the public street or sidewalk shall be kept trimmed by the owner of the property adjacent to or in front of where such trees, shrubs or plants are growing so that:

(1) The lowest branches are not less than 12 feet above the surface of the street, and are not be less than 14 feet above the surface of streets designated as state highways.

Response: Trees will be maintained such that the lowest branches are not less than 12 feet above the surface of the street, and are not be less than 14 feet above the surface of streets designated as state highways.

(2) The lowest branches are not less than eight feet above the surface of a sidewalk or footpath.

Response: Trees will be maintained such that the lowest branches are not less than eight feet above the surface of a sidewalk or footpath.

(3) No plant, tree, bush or shrub shall be more than 24 inches in height in the triangular area at the street or highway corner of a corner lot, or the alley-street intersection of a lot, such an area defined by a line across the corner between the points on the street right-of-way line measured 10 feet back from the corner, and extending the line to the street curbs or, if there are no curbs, then to that portion of the street or alley used for vehicular traffic.

Response: No plant, tree, bush or shrub shall be more than 24 inches in height in the triangular area at the street or highway corner of a corner lot, or the alley-street intersection of a lot, such an area defined by a line across the corner between the points on the street right-of-way line measured 10 feet back from the corner, and extending the line to the street curbs or, if there are no curbs, then to that portion of the street or alley used for vehicular traffic.

(4) Newly planted trees may remain untrimmed if they do not interfere with street traffic or persons using the sidewalk or obstruct the light of a street electric lamp.

Response: Understood.

(5) Maintenance responsibilities of the property owner include repair and upkeep of the sidewalk in accordance with the City Sidewalk Maintenance Ordinance. [Ord. 963-96, § 9, 6/24/96]

Response: Owner will maintain and repair the sidewalk as necessary.

Section 74.730 Notice of Violation.

When the owner, lessee, occupant or person in charge of private grounds neglects or refuses to trim a tree, shrub or plant as provided in TDC 74.725, the Operations Director shall cause a written notice to trim such tree or trees, shrubs or plants to be served upon such owner, lessee, occupant or person in charge, within 10 days after the giving the notice; and if the owner, lessee or occupant or person in charge fails to do so, the person shall be guilty of violating this ordinance and subject to the penalties in TDC 74.760. The notice shall be served upon the owner, lessee, occupant or person in charge either by "Certified Mail-Return Receipt Requested", or by posting the same notice on the property or near to the trees, shrubs or plants to be trimmed. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 3, 7/23/01]

Response: Understood

Section 74.735 Trimming by City.

If the owner, lessee, occupant or person in charge of the property fails and neglects to trim the trees, shrubs or plants within 10 days after service of the notice in TDC 74.730, the Operations Director shall trim the trees, shrubs or plants. Such trimming by the City does not act to relieve such owner, lessee, occupant or person in charge of responsibility for violating this Chapter. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 4, 7/23/01]

Response: Understood

Section 74.740 Prohibited Trees.

It is unlawful for a person to plant a tree within the right-of-way of the City of Tualatin that is not in conformance with Schedule A. Any tree planted subsequent to adoption of this Chapter not in compliance with Schedule A shall be removed at the expense of the property owner. [Ord. 963-96, § 9, 6/24/96]

Response: Understood

Section 74.745 Cutting and Planting Specifications.

The following regulations are established for the planting, trimming and care of trees in or upon the public right-of-way of the City.

(1) When trees are cut down, the stump shall be removed to a depth of six inches below the surface of the ground or finish grade of the street, whichever is of greater depth.

(2) Trees shall be planted in accordance with Schedule A, except when a greater density is allowed under a special permit from the Operations Director. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 5, 7/23/01]

Response: No trees in the right-of-way are scheduled to be removed. This section is understood.

Section 74.750 Removal or Treatment by City.

The Operations Director may remove or cause or order to be removed a tree, plant or shrub, planted or growing in or upon a public right-of-way which by its nature causes an unsafe condition or is injurious to sewers or public improvements, or is affected with an injurious fungus disease, insect or other pest. When, in the opinion of the Operations Director, trimming or treatment of a tree or shrub located on private grounds, but having branches extending over a public right-of-way is necessary, the Operations Director may trim or treat such a branch or branches, or cause or order branches to be trimmed or treated. [Ord. 963-96, § 9, 6/24/96; Ord. 1079-01, § 6, 7/23/01]

Response: This section is understood.

Section 74.755 Appeal of Permit Denial.

When application for a permit under this Chapter is denied by the Operations Director, an order is issued by the Operations Director directing certain trees, shrubs or plants to be trimmed or removed, or a permit is granted by the Operations Director containing conditions which the applicant deems unreasonable, the applicant may appeal to the Council in writing and filed with the City Recorder within 10 City business days after the denial of the permit sought or the making of the order the appellant deems unreasonable. After hearing, the Council may either grant or deny the application, rescind or modify the order from which the appeal was taken. [Ord. 963-96, § 9, 6/24/96. Ord. 1079-01, § 7, 7/23/01]

Response: This section is understood.

Section 74.760 Penalties.

A person who violates this ordinance or fails to trim a tree or shrub for which notice to do so was provided, shall, upon conviction, be fined not more than $100.00. [Ord. 963-96, § 9, 6/24/96]

Response: No notice has been given to trim a tree or shrub.

Section 74.765 Street Tree Species and Planting Locations.

All trees, plants or shrubs planted in the right-of-way of the City shall conform in species and location and in accordance with the street tree plan in Schedule A. If the Operations Director determines that none of the species in Schedule A is appropriate or finds appropriate a species not listed, the Director may substitute an unlisted species. [Ord. 963-96, § 9, 6/24/96; Ord. 1279-09 §7, 3/23/09]

Response: All of the street trees are existing.

TDC Chapter 75: ACCESS MANAGEMENT

Section 75.120 Existing Streets.

(17) HERMAN ROAD

(c) 118th Avenue to 124th Avenue. On the north side the existing driveways will be allowed to remain. No new driveways will be permitted.
On the south side is the Portland & Western Railroad (PNWR) tracks. There will be no access to Herman Road across the tracks.

Response: No new access to Herman Road. The existing access driveways will be used.

CHAPTER 34: SPECIAL REGULATIONS

Tree Removal Criteria

Section 34.230 Criteria

The Community Development Director shall consider the following criteria when approving, approving with conditions, or denying a request to cut trees.

(1) An applicant must satisfactorily demonstrate that any of the following criteria are met:

(a) The tree is diseased, and

(i) The disease threatens the structural integrity of the tree; or

(ii) The disease permanently and severely diminishes the esthetic value of the tree; or

(iii) The continued retention of the tree could result in other trees being infected with a disease that threatens either their structural integrity or aesthetic value.

(b) The tree represents a hazard which may include but not be limited to:

(i) The tree is in danger of falling;

(ii) Substantial portions of the tree are in danger of falling.

(c) It is necessary to remove the tree to construct proposed improvements based on Architectural Review approval, building permit, or approval of a Subdivision or Partition Review.

Response: Criterion (c) applies to this project. As demonstrated in the attached plans (see existing conditions C1 and site plans on C2), following demolition of the existing development, 8 trees will exist on the site and must be removed to accommodate the proposed development and ensure the most efficient use of the site. These trees would be damaged during construction due to their proximity to grading and improvements of the proposed development, and do not blend with the surrounding and proposed landscaping. In addition, by removing and replacing the existing trees on the site, more cohesive and location appropriate plantings can be provided for the project, creating a more visually appealing site.

(2) If none of the conditions in TDC 34.240(1) are met, the Community Development Director shall evaluate the condition of each tree based on the following criteria…

Response: Condition (1) (c) is met. This standard does not apply.

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3-5-50 Erosion Control Permits.

(1) Except as noted in subsection (3) of this section, no person shall cause any change to improved or unimproved real property that causes, will cause, or is likely to cause a temporary or permanent increase in the rate of soil erosion from the site without first obtaining a permit from the City and paying prescribed fees. Such changes to land shall include, but are not limited to, grading, excavating, filling, working of land, or stripping of soil or vegetation from land.

Response: Erosion Control Permit obtained.

(2) No construction, land development, grading, excavation, fill, or the clearing of land is allowed until the City has issued an Erosion Control Permit covering such work, or the City has determined that no such permit is required. No public agency or body shall undertake any public works project without first obtaining from the City an Erosion Control Permit covering such work, or receiving a determination from the City that none is required.

Response: Erosion Control Permit obtained

(3) No Erosion Control Permit from City is required for the following:

(a) For work of a minor nature provided all the following criteria are met:

(A) The development does not require a development permit or approval from the City;

(B) No development activity or disturbance of land surface occurs within 100 feet of a sensitive area defined in TMC 3-5.270;

(C) The slope of the site is less than 20 percent;

(D) The work on the site involves the disturbance of less than 500 square feet of land surface; and

(E) The excavation, fill or combination thereof involves less than 20 cubic yards of material.

(b) Permits and approvals of land division, interior improvements to an existing structure, and other activities for which there is no physical disturbance to the surface of the land.

(c) A permit shall not be required for activities within the City which constitute accepted farming practices as defined in ORS 215.203, provided any erosion does not cause sedimentation in waters of the Tualatin River basin.

Response: Erosion Control Permit obtained

(4) An exception from the permit requirement shall not relieve the property or its owner from the prohibition of TMC 3-5.040. [Ord. 846-91 §5, 10/28/1991]

3-5-060 Permit Process.

(1) Applications for an Erosion Control Permit. Application for an Erosion Control Permit shall include an Erosion Control Plan which contains methods and interim facilities to be constructed or used concurrently and to be operated during construction to control erosion. The plan shall include either:

(a) A site specific plan outlining the protection techniques to control soil erosion and sediment transport from the site to less than one ton per acre per year as calculated

using the Soil Conservation *Service Universal Soil Loss Equation or other equivalent method approved by the City Engineer, or*

(b) Techniques and methods contained and prescribed in the Soil Erosion Control Matrix and Methods, outlined in TMC 3-5.190 or the Erosion Control Plans - Technical Guidance Handbook, City of Portland and Unified Sewerage Agency, January, 1991.

Response: Erosion Control Permit obtained

(2) Site Plan. A site specific plan, pre-pared by an Oregon registered profession-al engineer, shall be required when the site meets any of the following criteria:

(a) greater than five acres;

(b) greater than one acre and has slopes greater than 20 percent;

(c) contains or is within 100 feet of a City-identified wetland or a waterway identified on FEMA floodplain maps; or

(d) greater than one acre and contains highly erodible soils. [Ord. 846-91 §6, 10/28/1991]

Response: Erosion Control Permit obtained

3-5-070 Maintenance.

The property owner or holder of an erosion control permit shall maintain the facilities and techniques contained in the approved Erosion Control Plan so as to continue to be effective during the construction or other permitted activity. If the facilities and techniques approved in an Erosion Control Plan are not effective or sufficient as determined by the City site inspection, the permittee shall submit a revised plan within three days, (excluding Saturday, Sunday and holidays) of written notification either by personal delivery or regular mail, from the City. Upon approval of the revised plan by the City, the permittee shall immediately implement the additional or revised facilities and techniques of the revised plan. In cases where erosion is occurring, the City may require the applicant to install interim control measures prior to submittal of the revised Erosion Control Plan. In no event will the City be responsible for the success or failure of any approved Erosion Control Plan. [Ord. 846-91 §7, 10/28/1991]

Response: Erosion Control shall be maintained throughout the duration of the project.

3-5-080 Inspection.

All erosion control measures shall be installed prior to the start of any work requiring an erosion control permit and shall be maintained until after the work is complete and until no further potential of erosion exists. The permittee shall call the City prior to the foundation inspection of a building for an inspection of the erosion control measures for that property. [Ord. 846-91 §8, 10/28/1991]

Response: Erosion Control have been installed and shall be maintained throughout the duration of the project

3-5-090 Physical Erosion.

No person shall drag, drop, track or otherwise place or deposit, or allow to be placed or deposited mud, dirt, rock or other debris upon a public street or into any part of a public storm and surface water system, or into any part of a private storm and surface water system which drains or connects to the public storm and surface water system. Any such deposit of material shall be immediately removed using hand labor or mechanical means. No material shall be washed or flushed into any part of the storm and surface water system without approved erosion control measures first being installed to the satisfaction of the City. [Ord. 846-91 §9, 10/28/1991]

Response: Any mud, dirt, rock or other debris placed or deposited on Herman Road will cleaned throughout the duration of the project.

3-5-100 Permit Fee.

(1) The City Engineer shall collect a fee, as established by the City Council by resolution, for the review of plans, administration*, enforcement and field inspection to carry out the rules contained herein.*

(2) No permit shall be issued and no regulated activity requiring a permit shall occur until fees required by this chapter are first paid. [Ord. 846-91 §10, 10/28/1991]

Response*:* Erosion Control permit issued.

3-5-110 Air Pollution - Dust, Fumes, Smoke and Odors.

(1) Dust shall be minimized to the extent practicable, utilizing all measures necessary, including, but not limited to:

(a) Sprinkling haul and access roads and other exposed dust producing areas with water.

(b) Applying dust palliatives on access and haul roads.

(c) Establishing temporary vegetative cover.

(d) Placing wood chips or other effective mulches on vehicle and pedestrian use areas.

(e) Maintaining the proper moisture condition on all fill surfaces.

(f) Pre-wetting cut and borrow area surfaces.

(g) Use of covered haul equipment.

Response*:* Dust Control shall be maintained throughout the duration of the project

(2) Tires, oils, paints, asphalts, coated metals or other such materials will not be permitted in combustible waste piles, and will not be burned at the construction site.

Response: There will be no burning on the Construction site.

(3) Open burning shall not be permitted unless approved by the Department of Environmental Quality and the prevailing wind will carry smoke away from nearby built-up areas or communities.

Response: There will be no burning on the Construction site.

(4) Open burning shall not be permitted within 1,000 feet of a residence or built-up area or within 250 feet of the drip line of any standing timber or flammable growth.

Response: There will be no burning on the Construction site.

(5) Open burning shall not be permitted during a local air inversion or other climatic conditions that may result in a smoke pall hanging over a built-up area or community.

Response: There will be no burning on the Construction site.

(6) Open burning shall not be permitted when climatic and moisture conditions are contributing to high danger of forest or range fires as determined by local, state or federal authorities. [Ord. 846-91 §11, 10/28/1991]

Response: There will be no burning on the Construction site.

3-5-120 Maintaining Water Quality.

(1) Construction between stream banks shall be kept to a minimum.

Response: There will be no Construction near stream banks.

(2) Pollutants such as fuels, lubricants, bitumens, raw sewage, and other harmful materials shall not be discharged into or near rivers, streams or impoundments.

Response: No pollutants will willfully be discharged into the rivers, streams or impoundments.

(3) The use of water from a stream, or impoundment shall not result in altering the temperature of the water body enough to affect aquatic life.

Response: Water will not be used from a stream or impoundment.

(4) All sediment-laden water from construction operations shall be routed through stilling basins, filtered or otherwise treated to reduce the sediment load. [Ord. 846-91 §12, 10/28/1991]

Response: All sediment-laden water from construction operations shall be routed through stilling basins, filtered or otherwise treated to reduce the sediment load.

3-5-130 Fish and Wildlife Habitat.

(1) The construction shall be done in a manner to minimize the adverse effects on wildlife and fishery resources.

(2) The requirements of local, state, and federal agencies charged with wildlife and fish protection shall be adhered to by the entire construction work force. [Ord. 846-91 §13, 10/28/1991]

Response: Erosion control measures are in place to minimize the impact on fish and wildlife habitat.

3-5-140 Control of Noise Levels.

Construction noise shall be minimized by the use of proper engine mufflers, protective sound reducing enclosures, and other sound barriers. Construction activities producing excessive noise that cannot be reduced by mechanical means shall be restricted to locations where their sound impact is reduced to a minimum at the edge of work area. [Ord. 846-91 §14, 10/28/1991]

3-5-150 Natural Vegetation.

(1) As far as is practicable, the natural vegetation shall be protected and left in place. Work areas shall be carefully located and marked to reduce potential damage. Trees shall not be used as anchors for stabilizing working equipment.

Response: The natural vegetation shall be protected and left in place until the new landscaping is installed.

(2) During clearing operations, trees shall not be permitted to fall outside the work area. In areas designated for selective cutting or clearing, care in falling and removing trees and brush shall be taken to avoid injuring trees and shrubs to be left in place.

Response: The trees outside of the work area will not fall.

(3) Where natural vegetation has been removed, or the original land contours disturbed, the site shall be re-vegetated, and the vegetation established, as soon as practicable after construction has commenced, except where construction of sewers will be followed by paving. [Ord. 846-91 §15, 10/28/1991]

Response: The natural vegetation shall be protected and left in place until the new landscaping is installed.

3-5-160 Historical and Archeological Areas.

When burial sites, buried camp areas, or village sites, and other distinctive archeological or historical items are uncovered, or other items suspected of being of historical or archeological significance are encountered, the contractor shall report the matter to the City and the state liaison officer. Construction operations shall be stopped until the appropriate authorities can examine the area and give clearance to proceed with the work. Under the Natural Historical Preservation Act, state liaison officers shall be notified when historical or archeological items are unearthed. [Ord. 846-91 §16, 10/28/1991]

Response: If any historical or archeological areas are uncovered, the contractor will notify the City and the state liaison officer,

3-5-170 Pesticides, Fertilizers.

(1) The use of pesticides, including insecticides, herbicides, defoliants, soil sterilants, and so forth, and the use of fertilizers, must strictly adhere to federal, state, county and local restrictions. Time, area, method and rate of application must be cleared with the local authorities and their requirements followed.

Response: If pesticides or herbicides are used the rules will be followed.

(2) All materials defined in subsection (1) of this section delivered to the job site shall be covered and protected from the weather. None of the materials shall be exposed during storage. Waste material, rinsing fluids, and other such material shall be disposed of in such manner that pollution of groundwater, surface water, or the air does not occur. In no case shall toxic materials be dumped into drainageways.

Response: All pesticides and fertilizers will be covered and protected from weather. No materials will be exposed during storage. Waste material, rinsing fluids, and other such material shall be disposed of in such manner that pollution of groundwater, surface water, or the air does not occur. In no case shall toxic materials be dumped into drainageways

(3) All personnel shall stay out of sprayed areas for the prescribed time. All such areas shall be fenced, appropriately signed, or otherwise protected to restrict entry. [Ord. 846-91 §17, 10/28/1991]

Response: If pesticides or herbicides are used the rules will be followed.

3-5-180 Contaminated Soils.

If the construction process reveals soils contaminated with hazardous materials or chemicals the contractor shall stop work immediately, ensure no contaminated material is hauled from the site, remove the contractor's work force from the immediate area of the contaminated area, leaving all machinery and equipment, and secure the area from access by the public until such time as a mitigation team has relieved them of that responsibility. Contractor shall notify the City and an emergency response team (911) of the situation upon its discovery. No employees who may have come in contact with the contaminated material shall be allowed to leave the site until such time as the emergency response team releases them. [Ord. 846-91 §18, 10/28/1991]

Response: If contaminated soils are found, the contractor shall stop work, secure the area and notify the City of Tualatin and an emergency response team (911).

3-5-190 Soil Erosion Control Matrix and Methods.

(1) Establishing Primary Access Point.

As one of the initial activities at the start of any earthwork, a gravel driveway shall be established. The driveway shall meet the following:

(a) The driveway shall begin at curb line, or at the edge of the street or pavement if no curb, and be of sufficient length to allow construction and delivery vehicles to unload material and have access without needing to frequently drive over muddy areas.

(b) The rock surface must be kept clean and free of mud, either from mud or dirt dropping or washing onto the surface, or from mud or soil "pumping" through the crushed rock from the action of vehicles. If contaminated such that significant mud will be washed or transported onto the streets, then the crushed rock shall be placed or covered with an additional thickness of crushed rock.

(c) The responsibility for design and performance of the driveway remains with the applicant. It is suggested the driveway be a minimum of 20' x 20', 8" thick, and be made of 2" minus or larger crushed rock, or 3/4" minus crushed rock with a geotextile fabric installed between the subbase and rock.

(d) Tires and equipment shall be washed or otherwise cleaned prior to entering public right of way when the vehicle or equipment has entered a muddy area.

Response: The driveway begins at edge of pavement. The rock surface will be kept clean. See driveway on erosion control permit

(2) Additional Access.

Construction and delivery vehicles and equipment shall use the primary access point (the gravel driveway). Vehicles and equipment shall not access the property from any other point (shall not "hop the curb"), unless required due to the physical layout of the parcel, and not simply due to convenience.

If is necessary to access the site at other than the primary access point:

(a) A second temporary or permanent crushed rock access point shall be established if there is an ongoing need to access the property at a second point. Large or difficult properties may require more than one permanent access point.

(b) If there is only a one time or infrequent need to access the property at other than an established access point, then the vehicle or equipment may "hop the curb". Each time the vehicle or equipment reenters the street any mud, dirt, or other such debris that falls or is deposited on the street shall be immediately cleaned using hand labor or mechanical means. "Immediate" means within five minutes of the mud, dirt, or debris being deposited on the street. Mud, dirt and debris shall not be allowed to accumulate to be cleaned up at the end of the day or "later". Under no circumstance shall mud, dirt or debris be washed into the storm and surface water system.

(c) Under no circumstance shall vehicles or equipment enter a property adjacent to a stream, water course, or other storm and surface water facility, or a wet-land such that it would not be possible to avoid contaminating or depositing mud, dirt, or debris into the water or wetland.

Response: There is an additional access point. We intend to use the existing driveway on Herman Road until such time as the driveway is removed.

(3) Silt Barriers.

Silt barriers shall be installed concur-rent with grading, and will be inspected prior to "footing" inspection. They shall be installed downhill of all graded, filled and stripped areas, and across the path of concentrated flows. They shall be designed and installed to capture erosion on site. Silt barriers can be:

(a) Hay bales,

(b) Silt fence, or

(c) Gravel filter system, such as the early installation of sidewalk base rock. A gravel filter is permitted only when slopes are less than 5 percent.

Response: a, b, and c are all being used on the site as silt barriers.

(6) Protection Measure Removal.

The erosion control facilities and techniques shall remain in place and be maintained in good condition until all disturbed soil areas are permanently stabilized by installation of landscaping, seeding, mulching or otherwise covered and protected from erosion.

Response: The erosion control measure will be left in place and in good condition until the disturbed soil is permanently stabilized.

ADDITIONAL SURFACE WATER MANAGEMENT STANDARDS

3-5-200 Downstream Protection Requirement.

Each new development is responsible for mitigating the impacts of that development upon the public storm water quantity system. The development may satisfy this requirement through the use of any of the following techniques, subject to the limitations and requirements in TMC 3-5-210:

(1) Construction of permanent on-site stormwater quantity detention facilities designed in accordance with this title;

(2) Enlargement of the downstream conveyance system in accordance with this title and the Public Works Construction Code;

(3) The payment of a Storm and Surface Water Management System Development Charge, which includes a water quantity component designated to meet these requirements. [Ord. 846-91 §20, 10/28/1991]

3-5-210 Review of Downstream System.

For new development other than the construction of a single family house or duplex, plans shall document review by the design engineer of the downstream capacity of any existing storm drainage facilities impacted by the proposed development. That review shall extend downstream to a point where the impacts to the water surface elevation from the development will be insignificant, or to a point where the conveyance system has adequate capacity, as determined by the City Engineer.

To determine the point at which the downstream impacts are insignificant or the drainage system has adequate capacity, the design engineer shall submit an analysis using the following guidelines:

(1) evaluate the downstream drainage system for at least ¼ mile;

(2) evaluate the downstream drainage system to a point at which the runoff from the development in a build out condition is less than 10 percent of the total runoff of the basin in its current development status. Developments in the basin that have been approved may be considered in place and their conditions of approval to exist if the work has started on those projects;

(3) evaluate the downstream drainage system throughout the following range of storms: 2, 5, 10, 25 year;

(4) The City Engineer may modify items 1, 2, 3 to require additional information to determine the impacts of the development or to delete the provision of unnecessary information.

If the increase in surface waters leaving a development will cause or contribute to damage from flooding, then the identified capacity deficiency shall be corrected prior to development or the development must construct onsite detention. To determine if the runoff from the development will cause or contribute to dam-age from flooding the City Engineer will consider the following factors:

(1) The potential for or extent of flooding or other adverse impacts from the run-off of the development on downstream properties;

(2) The potential for or extent of possibility of inverse condemnation claims;

(3) Incremental impacts of runoff from the subject and other developments in the basin; and

(4) Other factors that may be relevant to the particular situation.

The purpose of the City Engineer's review is to protect the City and its inhabitants from the impacts or damage caused by runoff from development while recognizing all appropriate limitations on exactions from the development. [Ord. 846-91 §21, 10/28/1991; Ord. 972-97 §1, 2/24/1997]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-220 Criteria for Requiring On-Site Detention to be Constructed.

The City shall determine whether the onsite facility shall be constructed. If the onsite facility is constructed, the development shall be eligible for a credit against Storm and Surface Water System Development Charges, as provided in City ordinance.

On-site facilities shall be constructed when any of the following conditions exist:

(1) There is an identified downstream deficiency, as defined in TMC 3-5-210, and detention rather than conveyance system enlargement is determined to be the more effective solution.

(2) There is an identified regional detention site within the boundary of the development.

(3) There is a site within the boundary of the development which would qualify as a regional detention site under criteria or capital plan adopted by the Unified Sewerage Agency.

(4) The site is located in the Hedges Creek Subbasin as identified in the Tualatin Drainage Plan and surface water runoff from the site flows directly or indirectly into the Wetland Protected Area (WPA) as defined in TDC 71.020. Properties located within the Wetland Protection District as described in TDC 71.010, or within the portion of the subbasin east of SW Tualatin Road are excepted from the on-site detention facility requirement. [Ord. 846-91 §22, 10/28/1991; Ord. 952-95 § 4, 10/23/1995]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-230 On-Site Detention Design Criteria.

(1) Unless designed to meet the requirements of an identified downstream deficiency as defined in TMC 3-5.210, stormwater quantity onsite detention facilities shall be designed to capture run-off so the run-off rates from the site after development do not exceed predevelopment conditions, based upon a 25-year, 24-hour return storm.

(2) When designed to meet the requirements of an identified downstream deficiency as defined in TMC 3-5.210, stormwater quantity on-site detention facilities shall be designed such that the peak runoff rates will not exceed predevelopment rates for the 2 through 100 year storms, as required by the determined downstream deficiency.

(3) Construction of on-site detention shall not be allowed as an option if such a detention facility would have an adverse effect upon receiving waters in the basin or subbasin in the event of flooding, or would increase the likelihood or severity of flooding problems downstream of the site. [Ord. 846-91 §23, 10/28/1991]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-240 On-Site Detention Design Method.

(1) The procedure for determining the detention quantities is set forth in Section 4.4 Retention/Detention Facility Analysis and Design, King County, Washington, Surface Water Design Manual, January, 1990, except subchapters 4.4.5 Tanks, 4.4.6 Vaults and Figure 4.4.4G Permanent Surface Water Control Pond Sign. This reference shall be used for procedure only. The design criteria shall be as noted herein. Engineers desiring to utilize a procedure other than that set forth herein shall obtain City approval prior to submitting calculations utilizing the proposed procedure.

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(3) All developments other than single family and duplex, whether residential, multi-family, commercial, industrial, or other uses, the sizing of stormwater quantity detention facilities shall be based on the impervious area to be created by the development, including structures and all roads and impervious areas which are assessed a surface water management monthly fee under Unified Sewerage Agency rules. Impervious surfaces shall be determined based upon building permits, construction plans, site visits or other appropriate methods deemed reliable by City. [Ord. 846-91 §24, 10/28/1991]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer and civil drawing sheets C2, C3 and C6.

3-5-280 Placement of Water Quality Facilities.

Title III specifies that certain properties shall install water quality facilities for the purpose of removing phosphorous. No such water quality facilities shall be constructed within the defined area of existing or created wetlands unless a mitigation action, approved by the City, is constructed to replace the area used for the water quality facility. [Ord. 846-91 §28, 10/28/1991; Ord. 972-97 § 3, 2/24/1997; Ord. 1068-01 §2, 3/26/2001; Ord. 1068-01, 03/26/2001]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer and civil drawing sheets C2, C3 and C6.

PERMANENT ON-SITE WATER QUALITY FACILITIES

3-5-320 Definitions.

(1) "Stormwater Quality Control Facility" refers to any structure or drainage way that is designed, constructed and maintained to collect and filter, retain, or detain surface water run-off during and after a storm event for the purpose of water quality improvement. It may also include, but is not limited to, existing features such as constructed wetlands, water quality swales, low impact development approaches ("LIDA"), and ponds which are maintained as stormwater quality control facilities.

(2) "Low impact development approaches" or "LIDA: means stormwater facilities constructed utilizing low impact development approaches used to temporarily store, route or filter run-off for the purpose of improving water quality. Examples include; but are not limited to, Porous Pavement, Green Roofs, Infiltration Planters/Rain Gardens, Flow-Through Planters, LIDA Swales, Vegetated Filter Strips, Vegetated Swales, Extended Dry Basins, Constructed Water Quality Wetland, Conveyance and Stormwater Art, and Planting Design and Habitats.

(3) "Water Quality Swale" means a vegetated natural depression, wide shallow ditch, or constructed facility used to temporarily store, route or filter run-off for the purpose of improving water quality.

(4) "Existing Wetlands" means those areas identified and delineated as set forth in the Federal Manual for Identifying the Delineating Jurisdictional Wetlands, January, 1989, or as amended, by a qualified wetlands specialist.

(5) "Created Wetlands" means those wetlands developed in an area previously identified as a non-wetland to replace, or mitigate wetland destruction or displacement.

(6) "Constructed Wetlands" means those wetlands developed as a water quality or quantity facility, subject to change and maintenance as such. These areas must be clearly defined and/or separated from existing or created wetlands. This separation shall preclude a free and open connection to such other wetlands. [Ord. 846-91 §32, 10/28/1991; Ord. 1319-11 §1, 3/28/2011]

3-5-330 Permit Required.

Except as provided in TMC 3-5-310, no person shall cause any change to improved or unimproved real property that will, or is likely to, increase the rate or quantity of run-off or pollution from the site without first obtaining a permit from the City and following the conditions of the permit. [Ord. 846-91 §33, 10/28/1991]

Response: A permit will be applied for the permanent on-site water quality facilities.

3-5-340 Facilities Required.

For new development, subject to the exemptions of TMC 3-5-310, no permit for construction, or land development, or plat or site plan shall be approved unless the conditions of the plat, plan or permit approval require permanent stormwater quality control facilities in accordance with this Title III. [Ord. 846-91 §34, 10/28/1991; Ord. 1323-11 §1, 6/13/2011]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-345 Inspection Reports.

The property owner or person in control of the property shall submit inspection reports annually to the City for the purpose of ensuring maintenance activities occur according to the operation and maintenance plan submitted for an approved permit or architectural review. [Ord. 1319-11§6, 3/28/2011]

3-5-350 Phosphorous Removal Standard.

The stormwater quality control facilities shall be designed to remove 65 percent of the phosphorous from the runoff from 100 percent of the newly constructed impervious surfaces. Impervious surfaces shall include pavement, buildings, public and private roadways, and all other surfaces with similar runoff characteristics. [Ord. 846-91 §35, 10/28/1991]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-360 Design Storm.

The stormwater quality control facilities shall be designed to meet the removal efficiency of TMC 3-5-350 for a mean summertime storm event totaling 0.36 inches of precipitation falling in four hours with an average return period of 96 hours. [Ord. 846-91 §36, 10/28/1991]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-370 Design Requirements.

The removal efficiency in TDC Chapter 35 specifies only the design requirements and are not intended as a basis for performance evaluation or compliance determination of the stormwater quality control facility installed or constructed pursuant to this Title III. [Ord. 846-91 §37, 10/28/1991]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-380 Criteria for Granting Exemptions to Construction of On-Site Water Quality Facilities.

On-site facilities shall be constructed as required by OAR 340-41-455, unless otherwise approved by the City on a case by case basis due to the size of the development, topography, or other factors causing the City to determine that the construction of onsite permanent stormwater treatment systems is impracticable or undesirable. Determinations by the City may be based upon, but not limited to, consideration of the following factors:

Site topography, geological stability, hazards to public safety, accessibility for maintenance, environmental impacts to sensitive areas, size of the site and development, existence of a more efficient and effective regional site within the basin capable of serving the site, and consistency with sub-basin master plan.

A regional public facility may be constructed to serve private non-residential development provided:

- *(1) The facility serves more than one lot; and*
- *(2) All owners sign a stormwater facility agreement; and*
- *(3) Treatment accommodates reasonable worst case impervious area for full build-out, stormwater equivalent to existing or proposed roof area is privately treated in LIDA facilities, and any detention occurs on each lot. [Ord. 846-91 §38, 10/28/1991; Ord. 1323-11 §2, 06/13/2011]*

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer.

3-5-390 Facility Permit Approval.

A stormwater quality control facility permit shall be approved only if the following are met:

(1) The plat, site plan, or permit application includes plans and a certification prepared by an Oregon registered, professional engineer that the proposed stormwater quality control facilities have been designed in accordance with criteria expected to achieve removal efficiencies for total phosphorous required by this Title III. Clean Water Services Design and Construction Standards shall be used in preparing the plan for the water quality facility; and

(2) The plat, site plan, or permit application shall be consistent with the areas used to determine the removal required in TMC 3-5-350; and

(3) A financial assurance, or equivalent security acceptable to the City, is provided by the applicant which assures that the stormwater quality control facilities are constructed according to the plans established in the plat, site plan, or permit approval. The financial assurance may be combined with our financial assurance requirements imposed by the City; and

(4) A stormwater facility agreement identifies who will be responsible for assuring the long term compliance with the operation and maintenance plan. [Ord. 846-91 §39, 10/28/1991; Ord. 1323-11 §3, 06/13/2011]

Response: See attached Drainage Report & Downstream Analysis prepared by a licensed engineer and civil drawing sheets C2, C3 and C6.

STANDARD SPECIFICATIONS FOR BUILDING AND SIDE SEWERS

3-5-440 General Provisions.

(1) The specifications contained in this Title III, together with the State of Oregon Uniform Plumbing Code and all other applicable requirements of federal, state and local law, shall govern the installation of all building and side sewers.

(2) No person other than the owner of the property on which the sewer is being installed or a state or DEQ licensed sewer contractor may excavate or dig up such property and install building sewers within the City.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

3-5-450 Building Sewers.

(1) Materials.

Pipes for building sewers shall be one of the following types or approved equal:

(a) A.B.S. (Acrylonitrile Butadiene Styrene), conforming to ASTM D2751.

(b) P.V.C. (Polyvinyl Chloride), con-forming to ASTM D3034.

(c) Concrete conforming to ASTM C-14, Class 2.

(d) Ductile iron or cast iron conforming to Class 50.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(2) Joints.

The ends of pipes, collars, gaskets and retaining clamps shall be kept clean and free of foreign material when pipe is laid. All joints shall be made watertight and gastight.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(3) Cleanouts.

All changes in direction shall be made with long radius bends, 45?, 22-1/2?, tee or wye branches with straight-through opening plugged for a cleanout. Cleanouts shall be installed in the building sewer between the building outlet and the side sewer when the distance is greater than 100 feet. All bends within the sewer shall not exceed 135? without an additional cleanout. Cleanouts shall be plugged to prevent entrance of dirt, roots, or ground water. Plugs shall be sealed with rubber gaskets and secured against back pressure.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(4) Size.

The minimum size of any building sewer shall be determined on the basis of the total number of fixture units drained by such sewer in accordance with Table 4-3 of the Oregon State Plumbing Code.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(5) Installation.

(a) Connection. Where two buildings are adjacent to one another on the same lot, each building shall have a separate connection pipe to the receiving line. The pipes from each building shall be in separated ditches to point of connection on the receiving line. A duplex may be served by one side sewer providing that a deed restriction is placed on the property requiring the owners thereof to be jointly responsible for maintenance of the building sewers and side sewer. A copy of the deed restriction shall be submitted at the time of sewer permit application. No roof, surface, foundation, footing or other ground water drain shall be connected to the sanitary system.

(b) Connection to Cesspools and Septic Tanks.

(A) Direct connection from all plumbing fixtures in the building to the sanitary sewer system is required.

(B) No connection shall be al-lowed from a cesspool, septic tank, or kitchen grease trap to the building sewer.

(C) When a private sewage disposal system is abandoned and no longer to be used, all septic tanks, cesspools, and similar private systems shall be pumped and backfilled in accordance with the Department of Environmental Quality regulations.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(6) Excavation.

All excavations required for the installation of a building sewer shall be open trench work unless otherwise approved by the City.

Response: Excavation will be done as an open trench.

(7) Alignment.

All pipe shall be true to grade with the bells upgrade. Pipe shall be carefully centered prior to jointing. The bottom of the trench shall be smooth and free from rocks which may injure the pipe. The pipe shall be laid on four inches of 3/4-inch minus crushed rock throughout its entire length, and any such piping laid in fill shall be laid on a bed of approved materials and shall be adequately supported to the satisfaction of the City.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(8) Grade.

All sewers shall be laid on a grade of not less than l/4 inch per foot for a 4-inch pipe and 3/16-inch per foot for a 6-inch pipe.

(a) Special Release. If the grade of the side sewer or building sewer is to be less than l/4 inch per foot for a 4-inch pipe, or 3/16-inch per foot for a 6-inch pipe, the property owner shall sign and acknowledge a grade release in a form approved by the City. The effect of such form shall be to release the City from all future claims for damages due to the installation of said sewer. If there is doubt about the grade, a grade release shall be procured before the pipe is laid. If upon inspection the grade is inadequate, the grade release shall be filed with the City Engineer before backfilling takes place. In all special cases, the installation of a backwater valve will be required.

(b) Elevation. In any buildings, structures, or premises in which the house waste drain is too low to permit gravity flow to the sewer, the sewage may with the approval of the City be lifted by artificial means and discharged to the sewer. Wherever a situation exists involving an unusual danger of back-up, the City may prescribe the minimum elevation at which the house drain may be discharged to the public sewer. Sewers below such mini-mum elevation shall be lifted by artificial means, or if approved by the City, a back-water sewage valve may be installed. The effective operation of the back-water valve shall be the responsibility of the owner of the property served.

Response: A state licensed sewer contractor will install the sewer lines per the State of Oregon Plumbing Code.

(10) Cover.

Cover on private property shall be not less than 12 inches from top of pipe to finished grade.

Response: The sewer pipes will be covered with a minimum of 12" from top of pipe to finish grade.

(11) Sewer and Water Lines.

Building sewers or drainage piping of materials which are not approved for use within a building shall not be laid in the same trench with water service pipes unless both of the following requirements are met.

(a) Separation. The bottom of the water pipe, at all points, shall be at least 12 inches above the top of the sewer line.

(b) Placement. The water pipe shall be placed on a shelf excavated at one side of the common trench.

Response: Sewer and water lines will not be laid in the same trench unless (a) and (b) are met.

(12) Testing.

All building sewers shall be tested for leakage 15 minutes prior to the City inspection and prior to backfilling the trench. Sewers shall be tested by plugging the building sewer at its point of connection with the side sewer and completely filling the building sewer with water from the lowest point to the highest point thereof. The building sewer shall be watertight and have no visible leakage.

A tee shall be installed at the property line at the expense of the installer. After the test is complete, a plug shall be inserted in the tee. After a satisfactory test has been performed, the trench shall be backfilled. [Ord. 846-91 §45, 10/28/1991]

Response: All building sewers will be tested as described above.

3-5-460 Installation of Side Sewers.

(1) Material.

(a) Pipes for side sewers shall be one of the following types or approved equal:

(A) PVC (Polyvinyl chloride), conforming to ASTM D3034.

(B) Concrete conforming to ASTM C-14, Class 2.

(C) Ductile iron conforming to Class 51.

(2) Excavation and Backfill.

All excavation and backfill shall comply with the standards set forth in the City's Public Works Construction Code.

(3) Alignment and Grade.

Side sewers shall be laid in a straight grade and alignment from the main sewer line to the edge of right-of-way or edge of permanent easement. The grade shall be a minimum of two percent. The pipe shall be laid on a pipe base of 4-inches of 3/4 inch-minus crushed rock. All plastic pipe shall have 3/4 inch-minus rock placed 6-inches over the top of the pipe.

(4) Markings.

The side sewers shall be marked with a detectable underground magnetic tape. The magnetic tape shall be placed from the main pipeline to the end of the side lateral. The magnetic tape shall be green in color and have the following marking depending whether it is a sanitary or storm line:

(a) CAUTION STORM DRAIN BURIED BELOW

(b) CAUTION SEWER BURIED BELOW

A 2 x 4 stake shall be installed at the end of the side sewer extending from the invert of the pipe to the ground surface. A magnetic tape shall be placed alongside the 2 x 4.

(5) Testing.

Sanitary side sewers shall be air tested in accordance with the standards set forth in the City's Public Works Construction Code. [Ord. 846-91 §46, 10/28/1991]

Chapter 04-02: Fire Hydrant Locations and Rates of Flow

4-2-010 Hydrants and Water Supply for Fire Protection.

(1) Every application for a building permit and accompanying plans shall be submitted to the Building Division for review of water used for fire protection, the approximate location and size of hydrants to be connected, and the provisions for access and egress for firefighting equipment. If upon such review it is determined that the fire protection facilities are not required or that they are adequately provided for in the plans, the Fire and Life Safety Reviewer shall recommend approval to the City Building Official.

Response: See Public Facility Plan for location of fire hydrants.

4-2-020 Access to Hydrants Located on Private Property.

(1) For the purpose of prescribing regulations and governing conditions hazardous to life and property from fire or explosion, the 2007 State of Oregon Fire Code as adopted by the Oregon State Fire Marshal's Office and Tualatin Valley Fire and Rescue Ordinance No. 07-01 is adopted as part of this Code.

Response: The as adopted by the Oregon State Fire Marshal's Office and Tualatin Valley Fire and Rescue Ordinance No. 07-01 shall be used as the governing code.

(2) The 2007 State of Oregon Fire Code Handbook, a companion document to the Uniform Fire Code, as adopted by Tualatin Valley Fire & Rescue Ordinance No. 07-01, is adopted as part of this Code. [Ord. 510-80 §2, 5/12/80; Ord.1033-99 §2, 10/25/99; Ord. 1178-05, 1/24/05; Ord. 1292-09 §7, 11/23/09]

Response: The 2007 State of Oregon Fire Code Handbook, a companion document to the Uniform Fire Code shall be used.

See Table 4-2A *[Ord. 1292-09 §10, 11/23/09]*

Tualatin Municipal Code Table 4-2A [Ord. 1292-09 §10, Nov. 23, 2009] Table 4-2

NUMBER AND DISTRIBUTION OF FIRE HYDRANTS Fire-Flow Requirement (gallons per minute)	Minimum Number of Hydrants	Average Spacing Between Hydrants a, b, c(feet)	Maximum Distance From Any Point on Street or Road Frontage to a Hydrant d (feet)
1,750 or less	1	500	250
2,000-2,500	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more e	200	120

REQUIRED FIRE HYDRANTS

MEASURING DISTANCES. All measurements for hydrants shall be made in an approved manner around the outside of the building and along an approved access road way. When measuring for hydrant distances, consideration shall be taken when dealing with retaining walls, fencing, swails, berms, creeks, rivers or similar obstructions. UFC Section 903.4

LOCATING HYDRANTS. Hydrants should be placed on the right hand side of the roads and intersections whenever possible, considering the most likely direction of response by a fire engine.
Hydrants shall not be further than 15 feet from an approved access road. UFC Section 903.4.2.4
Hydrants and fire department connections shall not be obstructed and shall have not less than three feet of clear space around them. UFC Section 1001.7
There shall be a hydrant within 70 feet of a fire department connection. The fire department connection and the fire hydrant should be on the same side of a fire access road. UFC Section 903.4.2.5

SINGLE AND DUAL FAMILY DWELLINGS. Fire hydrants shall be installed at intersections of subdivisions and smaller developments. If there is more than 500 feet from the most remote portion of the building under consideration and the fire hydrant located at the intersection additional hydrants shall be installed along the approved driving surface. Locations of the additional hydrants shall be approved by the chief. UFC Section 903.4.2.2

COMMERCIAL BUILDINGS. Fire hydrants shall be installed so that no part of the structure is more than 250 feet from a fire hydrant. If the building is provided with an approved automatic sprinkler system the distances may be increased to 500 feet if in the opinion of the chief adequate protection is provided. UFC Section 903.4.2.1

MINUMUM NUMBER OF FIRE HYDRANTS – COMMERCIAL BUILDINGS. The total fire flow prior to giving any credit for fire protection systems shall be divided by 1500. If the resulting number is X.5 or greater, then the next larger whole number shall be used. There shall be not less than 2 hydrants accessible to a building. UFC Section 903.4.2.1
Considerations for placing fire hydrants shall be as follows:

1. *Existing hydrants in the area may be used to meet the required number of hydrants; however, hydrants that are over 500 feet away from the nearest point of the subject building shall not contribute to the required number of hydrants.*
2. *Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants.*
3. *Hydrants that are separated from the subject building by divided highway, freeway, or heavily traveled collector streets shall not contribute to the required number of hydrants.*
4. *Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the chief.*
5. *Private hydrants or public hydrants that are on adjacent private property shall not contribute to the required number of hydrants for the subject building.*
   Exception: The use of hydrants located on other private property may be considered if their locations and access are encumbered in a legal document (such as deed restriction) by the owners of the involved parcels of property. The encumbrance may be lifted only after approval of the chief on behalf of the fire department and any other governmental agencies that may require approval.
6. *When evaluating the placement of hydrants at apartment or industrial complexes the first hydrant(s) to be placed shall be at the primary access and any secondary access to the site. After these hydrants have been placed other hydrants shall be sited to meet the above requirements for spacing and minimum number of hydrants.*

V. SUMMARY

The proposed industrial building meets all applicable Architectural Review standards. The development will be compatible with current and existing surrounding uses, and is designed to comply with the zoning requirements of the General Manufacturing District. This application complies with City requirements, will result in economic growth for the area, and merits approval as requested.

DESIGN GROUP INC.

Drainage Report
& Downstream Analysis

RUTH T LLC, BUILDING #6
SITE IMPROVEMENTS

Tualatin, Oregon

Prepared for:

Mr. David Silvey

Prepared By:
Gary Darling
DL Design Group Inc.
400 East Evergreen Blvd. Suite 114
Vancouver, WA 98660

Oct. 5, 2015
Project No: SIL002

I. PROJECT DESCRIPTION

This project will consist of the addition of a new manufacturing building located at 12171 SW Herman Road, and 12225 SW Herman Road in Tualatin, Oregon. The project consists of the construction of an approximately 25,000 SF building and associated parking improvements. There are no public improvements proposed at this time.

The project site is located at SW Herman Road between SW 118th Avenue and SW 124th Avenue. The site consists of tax lot numbers 602 and 606. The tax map is S2122C0. The total site area will be 1.7 acres. The site is fairly flat but generally slopes from south to north. The site abuts paved areas on the north, east, and south sides, and abuts SW Herman Road on the west side.

The proposed drainage plan for the site includes 3 LIDA swales that will treat the runoff from all of the impervious surfaces. One swale will be located on the north and it will treat and detain much of the roof runoff, a second basin located near SW Herman Road that will treat all of the pavement and sidewalk runoff and a small portion of the roof runoff, and a small basin located in the SE corner of the site that will treat the loading area on the south side of the building. The LIDA swales are designed per the Clean Water Services LIDA manual.

The swales will all discharge to pipes that will be connected to an existing area drain in the SW Herman Road swale, which has a 12" outlet pipe out to the SW Herman Road system.

II. EXISTING CONDITIONS

The area of the proposed project is 1.7 acres. The site slopes from south to north at an approximate average rate of 1.8%. The existing Herman Road frontage consists of curb, driveway, and sidewalk access from Herman Road. The site is generally undeveloped withi the exception of two small structures located in the SW corner of the site. These structures will be removed.

III. HYDROLOGIC ANALYSIS

The site is generally divided into four basins: Basin A, Basin B, Basin C, and Basin D. Basin A consists of the majority of the building roof runoff as well as the northerly loading dock area runoff. Basin B will include all of the west parking, drive aisle, and sidewalk runoff, as well as the remainder of the Building roof runoff. Building C is a smaller basin that will include runoff from the southerly loading dock area as well as adjacent sidewalks. Finally, Basin D consists of runoff from the existing paved area on the east side of the proposed building that currently drains to the existing catch basin in the existing adjacent drive aisle.

Basins A, B, and C, will all drain each to a vegetated basin that will overflow to a new storm system which will be connected to the existing storm system in SW Herman Road.

	IMPERVIOUS AREA	PERVIOUS AREA
PREDEVELOPED SITE	10,992 SF (0.25 Ac.)	63,060 SF (1.45 Ac.)
POST DEVELOPED SITE	65,480 SF (1.50 Ac.)	8,572 SF (0.20 Ac)

Table 1: Site Impervious Areas – Post and Predeveloped

The contributing impervious areas from each basin are listed in the following table:

		TYPE OF IMP. AREA	TOTAL IMP. AREA
BASIN A	16,870	ROOF	
BASIN A	2,632 SF	PAVEMENT	19,522 SF
BASIN B	8,610 SF	ROOF	
BASIN B	22,930 SF	PAVEMENT AND S/W	31,540 SF
BASIN C	2,632 SF	PAVEMENT AND S/W	2,632 SF
BASIN D	11,786 SF	PAVEMENT	11,786 SF

Table 2: Impervious Areas by Basin

Vegetated Basin Calculations-LIDA

Each vegetated basin was sized in accordance with the CWS LIDA manual and are sized as follows:

Basin A: 19,522 x 0.06 = 1171 SF. The available basin area is 1348 SF

Basin B: 31,540 x 0.06 = 1892 SF. The available basin area is 2377 SF.

Basin C: 2,632 x 0.06 = 158 SF. The available basin area is 342 SF.

*Each basin will actually be larger than the available basin area has one foot of freeboard will be added to the top elevation of each basin.

Basin D: This area will drain as it is now to an existing catch basin in the existing drive aisle. The existing impervious area is 10992, the new Basin D will comprise 11,786 SF, some of which will be landscaping.

The LIDA swales will treat and detain the runoff. The onsite pipes will convey the runoff to the existing public system in SW Herman Road (See downstream analysis further in this report). Following are pre and post developed runoff calculations for the entire site as well as by basin.

	PREDEVELOPED	POST DEVELOPED
25 Year	1.09 CFS	1.46 CFS

Table 3: Total Site Runoff – 25 year storm

BASIN	POST DEVELOPED
Basin A	0.40 CFS
Basin B	0.65 CFS
Basin C	0.05 CFS
Basin D	0.24 CFS

Table 4: Total Site Runoff by Basin – 25 year storm

IV. DOWNSTREAM ANALYSIS

The downstream conveyance system was analyzed from the most upstream point at the system immediately in front of the site on SW Herman Road to the outfall of the system approximately 700 feet north of SW Herman on SW 118th Avenue.

It is required to review the downstream system to a point where the proposed basin is either less than 10% or to a point in excess of ¼ mile downstream. The basin is not a very large basin overall, but pipe slopes are extremely flat (approximately 0.40% on average), so the analysis was completed to the outfall of the system north of SW Herman. The total distance in pipe length of the review system is 1838 LF.

The downstream analysis demonstrates that there is generally adequate capacity in the downstream system. However, due to the fact that the pipe runs are extremely flat, the analysis shows that there are three pipe runs that are either just under 100% or slightly greater than 100%. The three pipe runs are: 2 to 3, 8 to 9, and 9 to 10(116.4%, 91.1%, and 120.2%).

It is important to note that the proposed development is not contributing to the capacity issues with these three pipe runs. Since the project site is in the SW Herman Road basin, the predeveloped runoff is included in the downstream analysis (Basin A). The pipe conveyance spreadsheet located in Appendix D demonstrates that even with the existing runoff conditions including the redeveloped runoff from the project site (1.09 CFS), these three pipe runs are already at or slightly above capacity. Therefore, the issue with these three pipe runs is an existing condition and is not affected by the development of this site.

See Appendix D for Downstream Analysis exhibits and calculations.

Appendix A
Figures and Maps

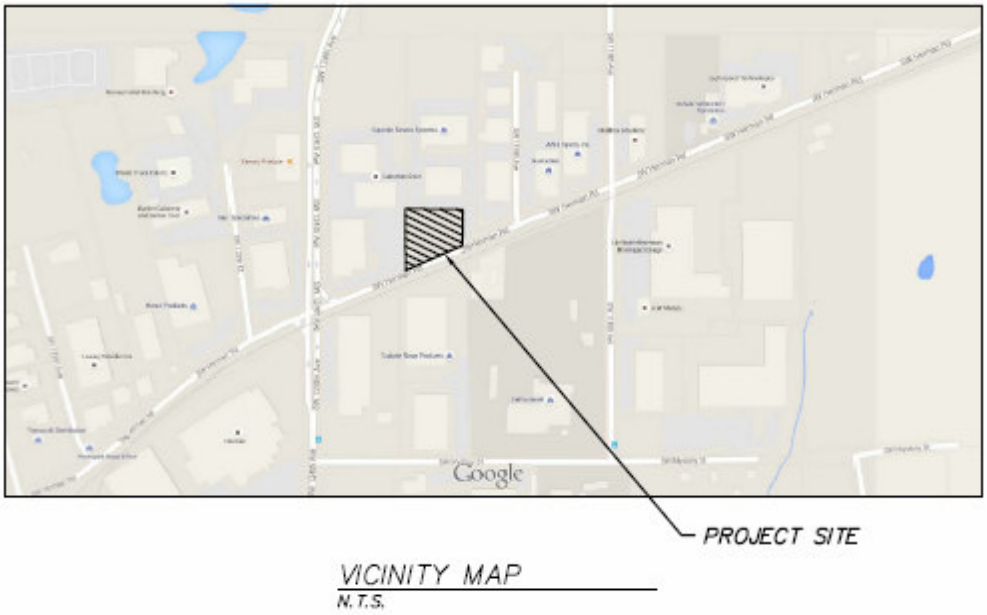

Figure 1 : Vicinity Map

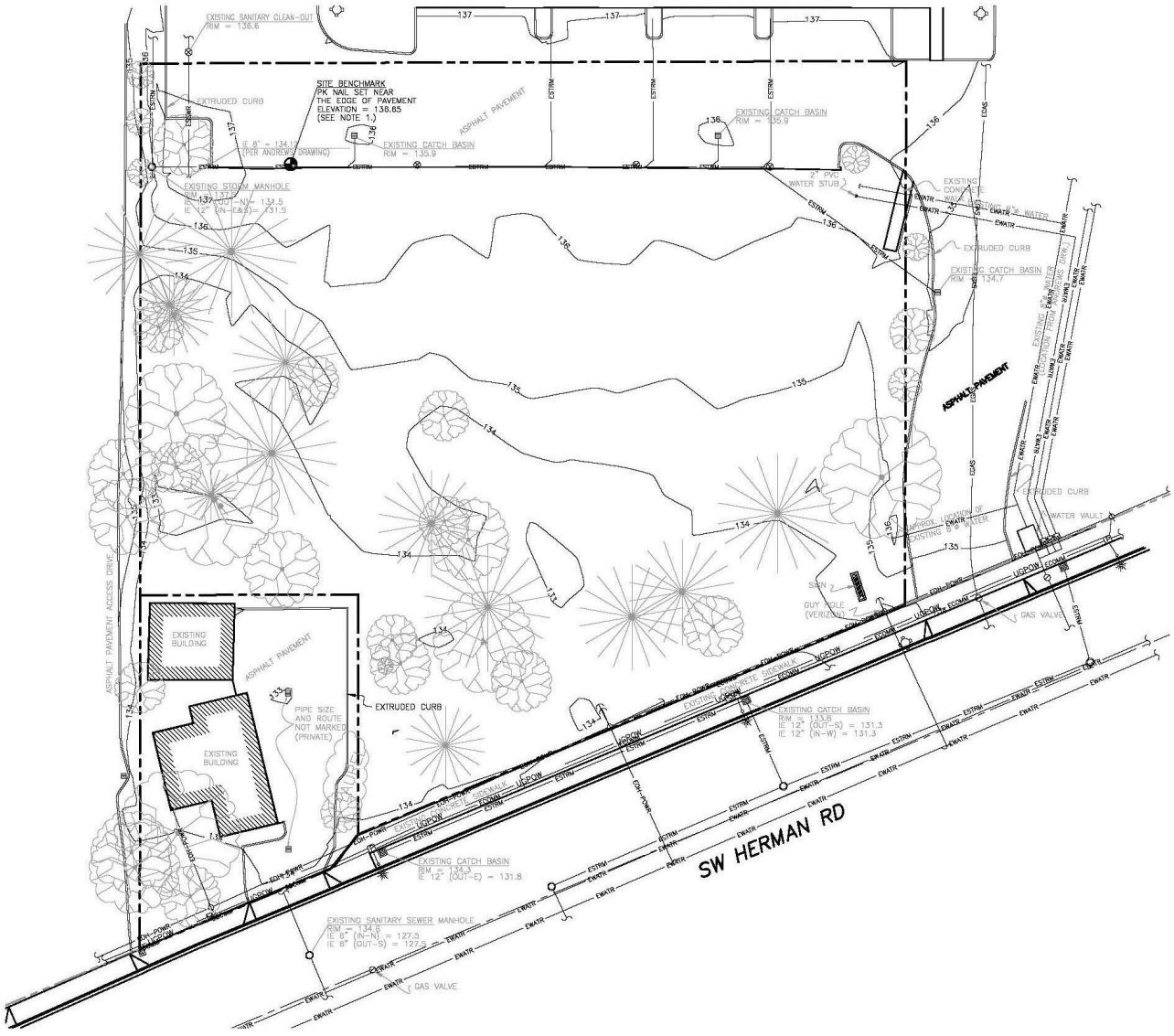

Figure 2 : Pre Development Site Map

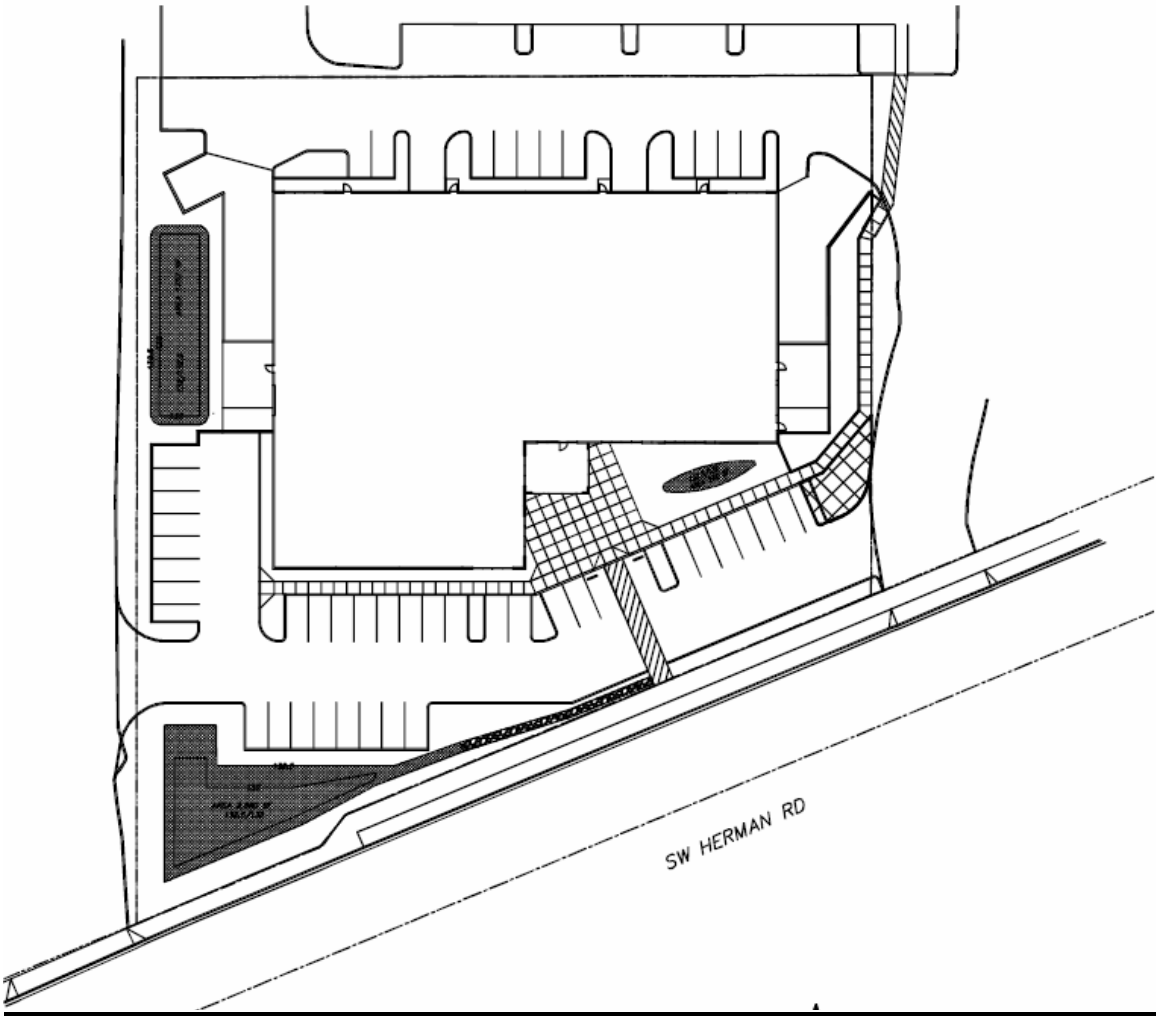

Figure 3 : Post Developed Map

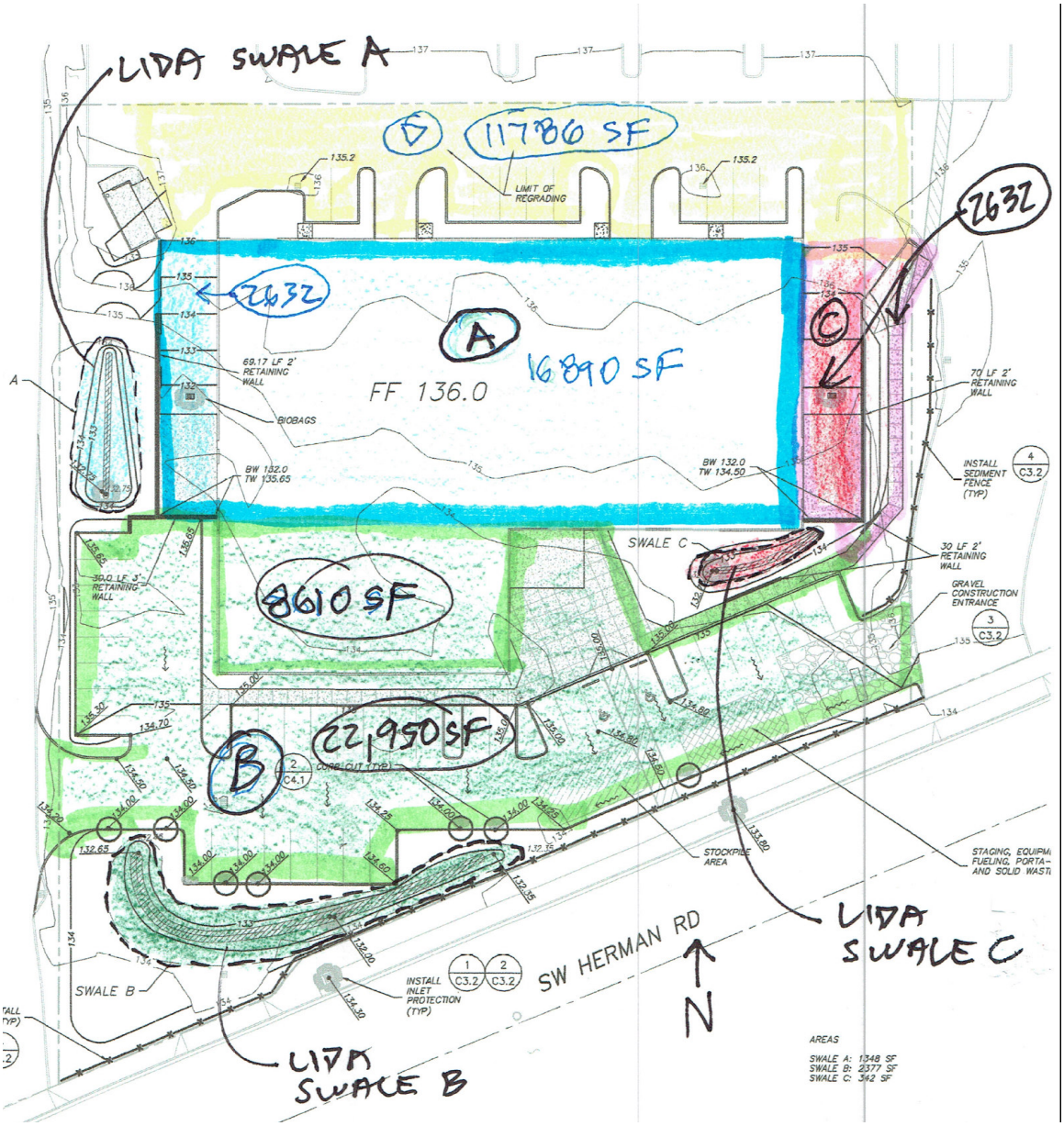

Figure 4 : Basin Map

Appendix B
Soils Information

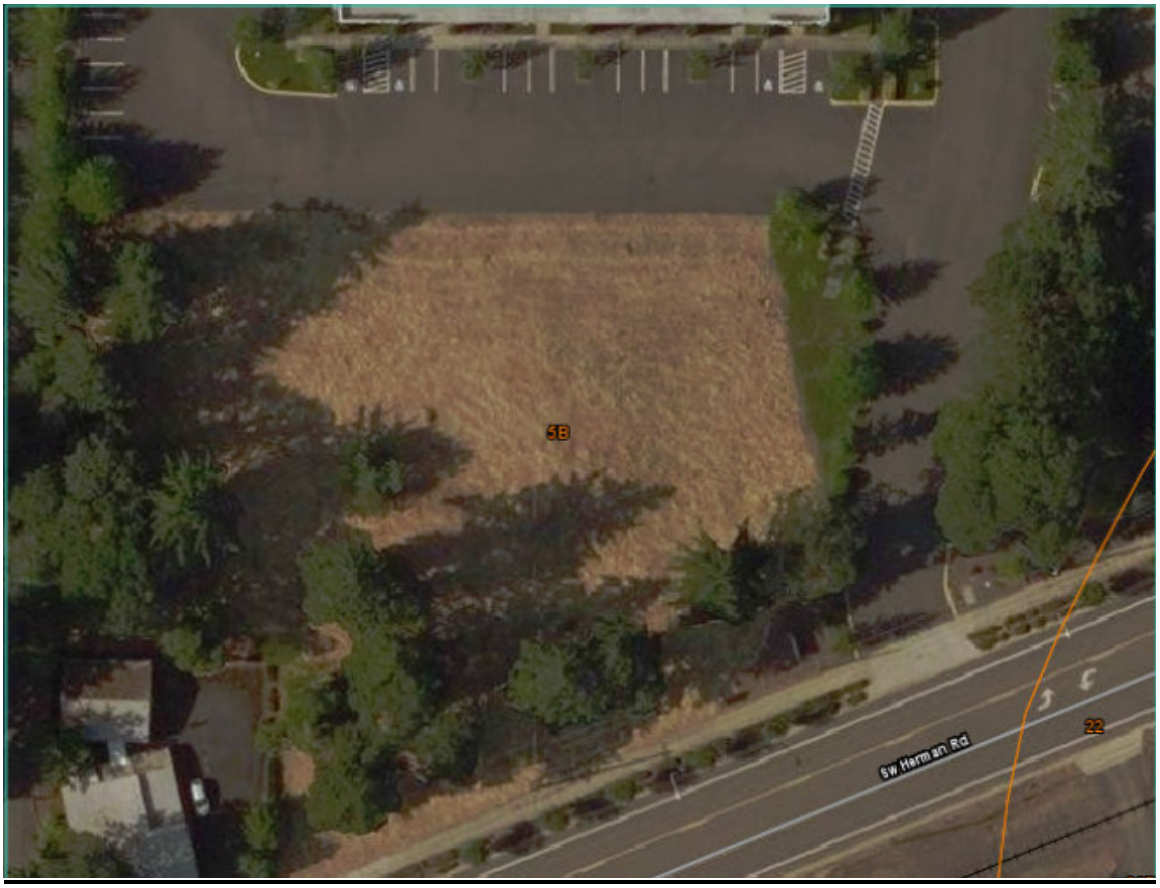

Figure 5: Soils Map

Washington County, Oregon (OR067)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
5B	Briedwell stony silt loam, 0 to 7 percent slopes	3.0	95.7%
21B	Hillsboro loam, 3 to 7 percent slopes	0.0	0.0%
22	Huberly silt loam	0.1	4.3%
Totals for Area of Interest		**3.2**	**100.0%**

Table 5: Soils Information

Appendix C
Supporting Calculations

DETAIL BASIN SUMMARY

BASIN ID: SIL2-PRE NAME: SIL2-PRE
SCS METHODOLOGY
TOTAL AREA.....: 1.70 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 1.45 Acres 0.25 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 10.00 min 10.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 1.09 cfs VOL: 0.37 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	R
10		310	0.0953	610	0.3031	910	0.1915	1210	0.1464	1510	
20		320	0.0996	620	0.2983	920	0.1896	1220	0.1464	1520	
30		330	0.0998	630	0.2980	930	0.1896	1230	0.1464	1530	
40		340	0.1222	640	0.2735	940	0.1902	1240	0.1466	1540	
50		350	0.1269	650	0.2683	950	0.1903	1250	0.1467	1550	
60		360	0.1272	660	0.2682	960	0.1902	1260	0.1467	1560	
70	0.0036	370	0.1512	670	0.2519	970	0.1810	1270	0.1469	1570	
80	0.0044	380	0.1563	680	0.2484	980	0.1791	1280	0.1470	1580	
90	0.0045	390	0.1567	690	0.2483	990	0.1791	1290	0.1470	1590	
100	0.0113	400	0.1940	700	0.2408	1000	0.1796	1300	0.1472	1600	
110	0.0128	410	0.2018	710	0.2392	1010	0.1797	1310	0.1473	1610	
120	0.0128	420	0.2024	720	0.2391	1020	0.1797	1320	0.1473	1620	
130	0.0177	430	0.2569	730	0.2312	1030	0.1802	1330	0.1475	1630	
140	0.0187	440	0.2684	740	0.2295	1040	0.1803	1340	0.1475	1640	
150	0.0188	450	0.2691	750	0.2294	1050	0.1802	1350	0.1474	1650	
160	0.0226	460	0.3375	760	0.2212	1060	0.1707	1360	0.1375	1660	
170	0.0234	470	0.3519	770	0.2195	1070	0.1688	1370	0.1355	1670	
180	0.0234	480	0.3577	780	0.2194	1080	0.1688	1380	0.1355	1680	
190	0.0252	490	0.9598	790	0.2110	1090	0.1691	1390	0.1356	1690	
200	0.0256	500	1.0866	800	0.2092	1100	0.1692	1400	0.1357	1700	
210	0.0257	510	1.0825	810	0.2092	1110	0.1691	1410	0.1357	1710	
220	0.0336	520	0.6563	820	0.2101	1120	0.1596	1420	0.1359	1720	
230	0.0352	530	0.5665	830	0.2103	1130	0.1575	1430	0.1359	1730	
240	0.0354	540	0.5654	840	0.2103	1140	0.1576	1440	0.1348	1740	
250	0.0495	550	0.4505	850	0.2015	1150	0.1579	1450	0.0235	1750	
260	0.0524	560	0.4263	860	0.1997	1160	0.1579	1460		1760	
270	0.0526	570	0.4255	870	0.1997	1170	0.1578	1470		1770	
280	0.0708	580	0.3437	880	0.2004	1180	0.1481	1480		1780	
290	0.0746	590	0.3265	890	0.2006	1190	0.1461	1490		1790	
300	0.0748	600	0.3263	900	0.2005	1200	0.1461	1500		1800	

Table 6: Site Runoff – Predeveloped-25 Year Storm

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DEV NAME: SIL2-DEV
SCS METHODOLOGY
TOTAL AREA.....: 1.70 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.20 Acres 1.50 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 1.46 cfs VOL: 0.50 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)
10		310	0.2392	610	0.3524	910	0.2112	1210	0.1591	1510
20		320	0.2392	620	0.3524	920	0.2112	1220	0.1591	1520
30		330	0.2395	630	0.3521	930	0.2112	1230	0.1591	1530
40		340	0.2685	640	0.3139	940	0.2113	1240	0.1592	1540
50		350	0.2685	650	0.3139	950	0.2113	1250	0.1592	1550
60	0.0002	360	0.2687	660	0.3136	960	0.2112	1260	0.1592	1560
70	0.0263	370	0.2978	670	0.2882	970	0.1982	1270	0.1592	1570
80	0.0263	380	0.2978	680	0.2882	980	0.1982	1280	0.1592	1580
90	0.0267	390	0.2982	690	0.2880	990	0.1982	1290	0.1592	1590
100	0.0766	400	0.3515	700	0.2754	1000	0.1983	1300	0.1593	1600
110	0.0766	410	0.3515	710	0.2754	1010	0.1983	1310	0.1593	1610
120	0.0769	420	0.3521	720	0.2753	1020	0.1983	1320	0.1593	1620
130	0.1125	430	0.4309	730	0.2626	1030	0.1984	1330	0.1593	1630
140	0.1125	440	0.4309	740	0.2626	1040	0.1984	1340	0.1593	1640
150	0.1127	450	0.4316	750	0.2625	1050	0.1983	1350	0.1592	1650
160	0.1401	460	0.5245	760	0.2498	1060	0.1853	1360	0.1461	1660
170	0.1401	470	0.5245	770	0.2498	1070	0.1853	1370	0.1461	1670
180	0.1403	480	0.5320	780	0.2497	1080	0.1853	1380	0.1461	1680
190	0.1531	490	1.4639	790	0.2368	1090	0.1854	1390	0.1461	1690
200	0.1531	500	1.4639	800	0.2368	1100	0.1854	1400	0.1461	1700
210	0.1532	510	1.4579	810	0.2368	1110	0.1853	1410	0.1461	1710
220	0.1627	520	0.7099	820	0.2370	1120	0.1722	1420	0.1461	1720
230	0.1627	530	0.7099	830	0.2370	1130	0.1722	1430	0.1461	1730
240	0.1629	540	0.7084	840	0.2369	1140	0.1722	1440	0.1450	1740
250	0.1812	550	0.5191	850	0.2241	1150	0.1723	1450		1750
260	0.1812	560	0.5191	860	0.2241	1160	0.1723	1460		1760
270	0.1814	570	0.5181	870	0.2241	1170	0.1722	1470		1770
280	0.2101	580	0.3906	880	0.2242	1180	0.1591	1480		1780
290	0.2101	590	0.3906	890	0.2242	1190	0.1591	1490		1790
300	0.2103	600	0.3903	900	0.2241	1200	0.1591	1500		1800

Table 7: Site Runoff – Postdeveloped-25 Year Storm

DETAIL BASIN SUMMARY

BASIN ID: SIL2-A NAME: SIL2-BASIN A - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.45 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.00 Acres 0.45 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.40 cfs VOL: 0.14 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)
10		310	0.0692	610	0.0956	910	0.0568	1210	0.0427	1510
20		320	0.0692	620	0.0956	920	0.0568	1220	0.0427	1520
30		330	0.0693	630	0.0955	930	0.0568	1230	0.0427	1530
40		340	0.0771	640	0.0850	940	0.0568	1240	0.0427	1540
50		350	0.0771	650	0.0850	950	0.0568	1250	0.0427	1550
60		360	0.0771	660	0.0849	960	0.0568	1260	0.0427	1560
70	0.0079	370	0.0848	670	0.0780	970	0.0533	1270	0.0427	1570
80	0.0079	380	0.0848	680	0.0780	980	0.0533	1280	0.0427	1580
90	0.0080	390	0.0849	690	0.0779	990	0.0533	1290	0.0427	1590
100	0.0230	400	0.0994	700	0.0744	1000	0.0533	1300	0.0427	1600
110	0.0230	410	0.0994	710	0.0744	1010	0.0533	1310	0.0427	1610
120	0.0231	420	0.0996	720	0.0744	1020	0.0533	1320	0.0427	1620
130	0.0337	430	0.1209	730	0.0709	1030	0.0533	1330	0.0427	1630
140	0.0337	440	0.1209	740	0.0709	1040	0.0533	1340	0.0427	1640
150	0.0338	450	0.1211	750	0.0709	1050	0.0533	1350	0.0426	1650
160	0.0420	460	0.1461	760	0.0674	1060	0.0497	1360	0.0391	1660
170	0.0420	470	0.1461	770	0.0674	1070	0.0497	1370	0.0391	1670
180	0.0421	480	0.1482	780	0.0674	1080	0.0497	1380	0.0391	1680
190	0.0459	490	0.4035	790	0.0639	1090	0.0498	1390	0.0391	1690
200	0.0459	500	0.4035	800	0.0639	1100	0.0498	1400	0.0391	1700
210	0.0459	510	0.4018	810	0.0639	1110	0.0497	1410	0.0391	1710
220	0.0485	520	0.1940	820	0.0639	1120	0.0462	1420	0.0391	1720
230	0.0485	530	0.1940	830	0.0639	1130	0.0462	1430	0.0391	1730
240	0.0485	540	0.1936	840	0.0639	1140	0.0462	1440	0.0388	1740
250	0.0534	550	0.1413	850	0.0603	1150	0.0462	1450		1750
260	0.0534	560	0.1413	860	0.0603	1160	0.0462	1460		1760
270	0.0535	570	0.1411	870	0.0603	1170	0.0462	1470		1770
280	0.0613	580	0.1061	880	0.0604	1180	0.0427	1480		1780
290	0.0613	590	0.1061	890	0.0604	1190	0.0427	1490		1790
300	0.0614	600	0.1060	900	0.0603	1200	0.0427	1500		1800

Table 8: Basin A – Postdeveloped-25 Year Storm

DETAIL BASIN SUMMARY

BASIN ID: SIL2-B NAME: SIL2-BASIN B - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.00 Acres 0.72 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.65 cfs VOL: 0.22 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	RU
10		310	0.1108	610	0.1529	910	0.0909	1210	0.0683	1510	
20		320	0.1108	620	0.1529	920	0.0909	1220	0.0683	1520	
30		330	0.1109	630	0.1528	930	0.0909	1230	0.0683	1530	
40		340	0.1233	640	0.1360	940	0.0909	1240	0.0683	1540	
50		350	0.1233	650	0.1360	950	0.0909	1250	0.0683	1550	
60	0.0001	360	0.1234	660	0.1359	960	0.0909	1260	0.0683	1560	
70	0.0126	370	0.1357	670	0.1247	970	0.0852	1270	0.0683	1570	
80	0.0126	380	0.1357	680	0.1247	980	0.0852	1280	0.0683	1580	
90	0.0128	390	0.1359	690	0.1247	990	0.0852	1290	0.0683	1590	
100	0.0368	400	0.1590	700	0.1191	1000	0.0853	1300	0.0683	1600	
110	0.0368	410	0.1590	710	0.1191	1010	0.0853	1310	0.0683	1610	
120	0.0369	420	0.1593	720	0.1191	1020	0.0853	1320	0.0683	1620	
130	0.0540	430	0.1935	730	0.1135	1030	0.0853	1330	0.0683	1630	
140	0.0540	440	0.1935	740	0.1135	1040	0.0853	1340	0.0683	1640	
150	0.0541	450	0.1938	750	0.1134	1050	0.0852	1350	0.0682	1650	
160	0.0673	460	0.2338	760	0.1078	1060	0.0796	1360	0.0626	1660	
170	0.0673	470	0.2338	770	0.1078	1070	0.0796	1370	0.0626	1670	
180	0.0673	480	0.2371	780	0.1078	1080	0.0796	1380	0.0626	1680	
190	0.0735	490	0.6456	790	0.1022	1090	0.0796	1390	0.0626	1690	
200	0.0735	500	0.6456	800	0.1022	1100	0.0796	1400	0.0626	1700	
210	0.0735	510	0.6429	810	0.1022	1110	0.0796	1410	0.0626	1710	
220	0.0775	520	0.3104	820	0.1022	1120	0.0739	1420	0.0626	1720	
230	0.0775	530	0.3104	830	0.1022	1130	0.0739	1430	0.0626	1730	
240	0.0776	540	0.3097	840	0.1022	1140	0.0739	1440	0.0621	1740	
250	0.0855	550	0.2261	850	0.0965	1150	0.0739	1450		1750	
260	0.0855	560	0.2261	860	0.0965	1160	0.0739	1460		1760	
270	0.0856	570	0.2257	870	0.0965	1170	0.0739	1470		1770	
280	0.0982	580	0.1698	880	0.0966	1180	0.0682	1480		1780	
290	0.0982	590	0.1698	890	0.0966	1190	0.0682	1490		1790	
300	0.0983	600	0.1697	900	0.0965	1200	0.0682	1500		1800	

Table 9: Basin B – Postdeveloped-25 Year Storm

DETAIL BASIN SUMMARY

BASIN ID: SIL2-C NAME: SIL2-BASIN C - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.06 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.00 Acres 0.06 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.05 cfs VOL: 0.02 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)
10		310	0.0092	610	0.0127	910	0.0076	1210	0.0057	1510
20		320	0.0092	620	0.0127	920	0.0076	1220	0.0057	1520
30		330	0.0092	630	0.0127	930	0.0076	1230	0.0057	1530
40		340	0.0103	640	0.0113	940	0.0076	1240	0.0057	1540
50		350	0.0103	650	0.0113	950	0.0076	1250	0.0057	1550
60		360	0.0103	660	0.0113	960	0.0076	1260	0.0057	1560
70	0.0011	370	0.0113	670	0.0104	970	0.0071	1270	0.0057	1570
80	0.0011	380	0.0113	680	0.0104	980	0.0071	1280	0.0057	1580
90	0.0011	390	0.0113	690	0.0104	990	0.0071	1290	0.0057	1590
100	0.0031	400	0.0133	700	0.0099	1000	0.0071	1300	0.0057	1600
110	0.0031	410	0.0133	710	0.0099	1010	0.0071	1310	0.0057	1610
120	0.0031	420	0.0133	720	0.0099	1020	0.0071	1320	0.0057	1620
130	0.0045	430	0.0161	730	0.0095	1030	0.0071	1330	0.0057	1630
140	0.0045	440	0.0161	740	0.0095	1040	0.0071	1340	0.0057	1640
150	0.0045	450	0.0162	750	0.0095	1050	0.0071	1350	0.0057	1650
160	0.0056	460	0.0195	760	0.0090	1060	0.0066	1360	0.0052	1660
170	0.0056	470	0.0195	770	0.0090	1070	0.0066	1370	0.0052	1670
180	0.0056	480	0.0198	780	0.0090	1080	0.0066	1380	0.0052	1680
190	0.0061	490	0.0538	790	0.0085	1090	0.0066	1390	0.0052	1690
200	0.0061	500	0.0538	800	0.0085	1100	0.0066	1400	0.0052	1700
210	0.0061	510	0.0536	810	0.0085	1110	0.0066	1410	0.0052	1710
220	0.0065	520	0.0259	820	0.0085	1120	0.0062	1420	0.0052	1720
230	0.0065	530	0.0259	830	0.0085	1130	0.0062	1430	0.0052	1730
240	0.0065	540	0.0258	840	0.0085	1140	0.0062	1440	0.0052	1740
250	0.0071	550	0.0188	850	0.0080	1150	0.0062	1450		1750
260	0.0071	560	0.0188	860	0.0080	1160	0.0062	1460		1760
270	0.0071	570	0.0188	870	0.0080	1170	0.0062	1470		1770
280	0.0082	580	0.0141	880	0.0080	1180	0.0057	1480		1780
290	0.0082	590	0.0141	890	0.0080	1190	0.0057	1490		1790
300	0.0082	600	0.0141	900	0.0080	1200	0.0057	1500		1800

Table 10: Basin C – Postdeveloped-25 Year Storm

DETAIL BASIN SUMMARY

BASIN ID: SIL2-D NAME: SIL2-BASIN D - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.27 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.00 Acres 0.27 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.24 cfs VOL: 0.08 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TI (min)
10		310	0.0415	610	0.0573	910	0.0341	1210	0.0256	1510
20		320	0.0415	620	0.0573	920	0.0341	1220	0.0256	1520
30		330	0.0416	630	0.0573	930	0.0341	1230	0.0256	1530
40		340	0.0462	640	0.0510	940	0.0341	1240	0.0256	1540
50		350	0.0462	650	0.0510	950	0.0341	1250	0.0256	1550
60		360	0.0463	660	0.0510	960	0.0341	1260	0.0256	1560
70	0.0047	370	0.0509	670	0.0468	970	0.0320	1270	0.0256	1570
80	0.0047	380	0.0509	680	0.0468	980	0.0320	1280	0.0256	1580
90	0.0048	390	0.0510	690	0.0468	990	0.0320	1290	0.0256	1590
100	0.0138	400	0.0596	700	0.0447	1000	0.0320	1300	0.0256	1600
110	0.0138	410	0.0596	710	0.0447	1010	0.0320	1310	0.0256	1610
120	0.0138	420	0.0597	720	0.0446	1020	0.0320	1320	0.0256	1620
130	0.0202	430	0.0726	730	0.0426	1030	0.0320	1330	0.0256	1630
140	0.0202	440	0.0726	740	0.0426	1040	0.0320	1340	0.0256	1640
150	0.0203	450	0.0727	750	0.0425	1050	0.0320	1350	0.0256	1650
160	0.0252	460	0.0877	760	0.0404	1060	0.0298	1360	0.0235	1660
170	0.0252	470	0.0877	770	0.0404	1070	0.0298	1370	0.0235	1670
180	0.0252	480	0.0889	780	0.0404	1080	0.0298	1380	0.0235	1680
190	0.0276	490	0.2421	790	0.0383	1090	0.0299	1390	0.0235	1690
200	0.0276	500	0.2421	800	0.0383	1100	0.0299	1400	0.0235	1700
210	0.0276	510	0.2411	810	0.0383	1110	0.0298	1410	0.0235	1710
220	0.0291	520	0.1164	820	0.0383	1120	0.0277	1420	0.0235	1720
230	0.0291	530	0.1164	830	0.0383	1130	0.0277	1430	0.0235	1730
240	0.0291	540	0.1161	840	0.0383	1140	0.0277	1440	0.0233	1740
250	0.0320	550	0.0848	850	0.0362	1150	0.0277	1450		1750
260	0.0320	560	0.0848	860	0.0362	1160	0.0277	1460		1760
270	0.0321	570	0.0846	870	0.0362	1170	0.0277	1470		1770
280	0.0368	580	0.0637	880	0.0362	1180	0.0256	1480		1780
290	0.0368	590	0.0637	890	0.0362	1190	0.0256	1490		1790
300	0.0368	600	0.0636	900	0.0362	1200	0.0256	1500		1800

Table 11: Basin D – Postdeveloped-25 Year Storm

Appendix D
Downstream Analysis
Supporting Calculations & Exhibits

Figure 6: Downstream Analysis Map

Basin Number	Basin Areas	Runoff
Basin A	1.70 Ac.	1.09 CFS (with det)
Basin B	0.61 Ac	0.51 CFS
Basin C	0.29 Ac.	0.24 CFS
Basin D	0.35 Ac.	0.29 CFS
Basin E	0.21 Ac.	0.18 CFS
Basin F	0.37 Ac.	0.31 CFS
Basin G	0.40 Ac.	0.33 CFS
Basin H	0.31 Ac.	0.26 CFS
Basin I	0.10 Ac.	0.08 CFS
Basin J	0.12 Ac.	0.10 CFS

Table 12: Downstream Analysis –D.S. Basin Runoff – 25 year storm

SUBURBAN DOOR
DOWNSTREAM ANALYSIS

MH	PIPE RUN	BASIN
1	1 TO 2	A
2	2 TO 3	A, B
3	3 TO 4	A,B,C
4	4 TO 5	A,B,C,D
5	5 TO 6	A,B,C,D
6	6 TO 7	A,B,C,D,E
7	7 TO 8	A,B,C,D,E,F
8	8 TO 9	A,B,C,D,E,F,G
9	9 TO 10	A,B,C,D,E,F,G,H
10	10 TO 11	A,B,C,D,E,F,G,H, I
11	12 TO 11	J
12	13 TO 14	A,B,C,D,E,F,G,H, I, J
13	14 TO 15	A,B,C,D,E,F,G,H, I, J
14	15 TO 16	A,B,C,D,E,F,G,H, I, J
15	16 TO 17	A,B,C,D,E,F,G,H, I, J

Table 13: Downstream Basin Table

List of pipes and Basins

Mannings Spreadsheet

DETAIL BASIN SUMMARY

BASIN ID: SIL2-PRE NAME: SIL2-PRE
SCS METHODOLOGY
TOTAL AREA.....: 1.70 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 1.45 Acres 0.25 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 10.00 min 10.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 1.09 cfs VOL: 0.37 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	R
10		310	0.0953	610	0.3031	910	0.1915	1210	0.1464	1510	
20		320	0.0996	620	0.2983	920	0.1896	1220	0.1464	1520	
30		330	0.0998	630	0.2980	930	0.1896	1230	0.1464	1530	
40		340	0.1222	640	0.2735	940	0.1902	1240	0.1466	1540	
50		350	0.1269	650	0.2683	950	0.1903	1250	0.1467	1550	
60		360	0.1272	660	0.2682	960	0.1902	1260	0.1467	1560	
70	0.0036	370	0.1512	670	0.2519	970	0.1810	1270	0.1469	1570	
80	0.0044	380	0.1563	680	0.2484	980	0.1791	1280	0.1470	1580	
90	0.0045	390	0.1567	690	0.2483	990	0.1791	1290	0.1470	1590	
100	0.0113	400	0.1940	700	0.2408	1000	0.1796	1300	0.1472	1600	
110	0.0128	410	0.2018	710	0.2392	1010	0.1797	1310	0.1473	1610	
120	0.0128	420	0.2024	720	0.2391	1020	0.1797	1320	0.1473	1620	
130	0.0177	430	0.2569	730	0.2312	1030	0.1802	1330	0.1475	1630	
140	0.0187	440	0.2684	740	0.2295	1040	0.1803	1340	0.1475	1640	
150	0.0188	450	0.2691	750	0.2294	1050	0.1802	1350	0.1474	1650	
160	0.0226	460	0.3375	760	0.2212	1060	0.1707	1360	0.1375	1660	
170	0.0234	470	0.3519	770	0.2195	1070	0.1688	1370	0.1355	1670	
180	0.0234	480	0.3577	780	0.2194	1080	0.1688	1380	0.1355	1680	
190	0.0252	490	0.9598	790	0.2110	1090	0.1691	1390	0.1356	1690	
200	0.0256	500	1.0866	800	0.2092	1100	0.1692	1400	0.1357	1700	
210	0.0257	510	1.0825	810	0.2092	1110	0.1691	1410	0.1357	1710	
220	0.0336	520	0.6563	820	0.2101	1120	0.1596	1420	0.1359	1720	
230	0.0352	530	0.5665	830	0.2103	1130	0.1575	1430	0.1359	1730	
240	0.0354	540	0.5654	840	0.2103	1140	0.1576	1440	0.1348	1740	
250	0.0495	550	0.4505	850	0.2015	1150	0.1579	1450	0.0235	1750	
260	0.0524	560	0.4263	860	0.1997	1160	0.1579	1460		1760	
270	0.0526	570	0.4255	870	0.1997	1170	0.1578	1470		1770	
280	0.0708	580	0.3437	880	0.2004	1180	0.1481	1480		1780	
290	0.0746	590	0.3265	890	0.2006	1190	0.1461	1490		1790	
300	0.0748	600	0.3263	900	0.2005	1200	0.1461	1500		1800	

Table 14: Downstream Basin A-25 Year(Project Site)

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSB NAME: SIL2-DS B
SCS METHODOLOGY
TOTAL AREA.....: 0.61 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.12 Acres 0.49 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.51 cfs VOL: 0.17 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TI (min)
10		310	0.0805	610	0.1244	910	0.0749	1210	0.0566	1510
20		320	0.0805	620	0.1244	920	0.0749	1220	0.0566	1520
30		330	0.0805	630	0.1243	930	0.0749	1230	0.0566	1530
40		340	0.0909	640	0.1109	940	0.0750	1240	0.0566	1540
50		350	0.0909	650	0.1109	950	0.0750	1250	0.0566	1550
60		360	0.0910	660	0.1108	960	0.0750	1260	0.0566	1560
70	0.0086	370	0.1014	670	0.1019	970	0.0704	1270	0.0567	1570
80	0.0086	380	0.1014	680	0.1019	980	0.0704	1280	0.0567	1580
90	0.0087	390	0.1015	690	0.1018	990	0.0704	1290	0.0567	1590
100	0.0250	400	0.1203	700	0.0974	1000	0.0704	1300	0.0567	1600
110	0.0250	410	0.1203	710	0.0974	1010	0.0704	1310	0.0567	1610
120	0.0251	420	0.1206	720	0.0974	1020	0.0704	1320	0.0567	1620
130	0.0367	430	0.1483	730	0.0930	1030	0.0705	1330	0.0567	1630
140	0.0367	440	0.1483	740	0.0930	1040	0.0705	1340	0.0567	1640
150	0.0368	450	0.1486	750	0.0929	1050	0.0705	1350	0.0567	1650
160	0.0458	460	0.1815	760	0.0885	1060	0.0658	1360	0.0520	1660
170	0.0458	470	0.1815	770	0.0885	1070	0.0658	1370	0.0520	1670
180	0.0458	480	0.1842	780	0.0884	1080	0.0658	1380	0.0520	1680
190	0.0500	490	0.5107	790	0.0839	1090	0.0659	1390	0.0520	1690
200	0.0500	500	0.5107	800	0.0839	1100	0.0659	1400	0.0520	1700
210	0.0500	510	0.5086	810	0.0839	1110	0.0659	1410	0.0520	1710
220	0.0535	520	0.2492	820	0.0840	1120	0.0612	1420	0.0520	1720
230	0.0535	530	0.2492	830	0.0840	1130	0.0612	1430	0.0520	1730
240	0.0535	540	0.2487	840	0.0840	1140	0.0612	1440	0.0516	1740
250	0.0600	550	0.1827	850	0.0795	1150	0.0613	1450		1750
260	0.0600	560	0.1827	860	0.0795	1160	0.0613	1460		1760
270	0.0601	570	0.1823	870	0.0795	1170	0.0612	1470		1770
280	0.0702	580	0.1377	880	0.0795	1180	0.0566	1480		1780
290	0.0702	590	0.1377	890	0.0795	1190	0.0566	1490		1790
300	0.0702	600	0.1376	900	0.0795	1200	0.0566	1500		1800

Table 15: Downstream Basin B-25 Year

BASIN ID: SIL2-DSC NAME: SIL2-DOWNSTREAM C - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.29 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.06 Acres 0.23 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.24 cfs VOL: 0.08 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.0379	610	0.0590	910	0.0356	1210	0.0269	1510	
20		320	0.0379	620	0.0590	920	0.0356	1220	0.0269	1520	
30		330	0.0380	630	0.0589	930	0.0356	1230	0.0269	1530	
40		340	0.0429	640	0.0526	940	0.0356	1240	0.0269	1540	
50		350	0.0429	650	0.0526	950	0.0356	1250	0.0269	1550	
60		360	0.0429	660	0.0526	960	0.0356	1260	0.0269	1560	
70	0.0040	370	0.0479	670	0.0483	970	0.0334	1270	0.0269	1570	
80	0.0040	380	0.0479	680	0.0483	980	0.0334	1280	0.0269	1580	
90	0.0041	390	0.0479	690	0.0483	990	0.0334	1290	0.0269	1590	
100	0.0117	400	0.0569	700	0.0462	1000	0.0334	1300	0.0269	1600	
110	0.0117	410	0.0569	710	0.0462	1010	0.0334	1310	0.0269	1610	
120	0.0118	420	0.0570	720	0.0462	1020	0.0334	1320	0.0269	1620	
130	0.0172	430	0.0701	730	0.0441	1030	0.0335	1330	0.0269	1630	
140	0.0172	440	0.0701	740	0.0441	1040	0.0335	1340	0.0269	1640	
150	0.0173	450	0.0703	750	0.0441	1050	0.0335	1350	0.0269	1650	
160	0.0215	460	0.0859	760	0.0420	1060	0.0313	1360	0.0247	1660	
170	0.0215	470	0.0859	770	0.0420	1070	0.0313	1370	0.0247	1670	
180	0.0215	480	0.0871	780	0.0420	1080	0.0313	1380	0.0247	1680	
190	0.0235	490	0.2419	790	0.0398	1090	0.0313	1390	0.0247	1690	
200	0.0235	500	0.2419	800	0.0398	1100	0.0313	1400	0.0247	1700	
210	0.0235	510	0.2409	810	0.0398	1110	0.0313	1410	0.0247	1710	
220	0.0251	520	0.1181	820	0.0399	1120	0.0291	1420	0.0247	1720	
230	0.0251	530	0.1181	830	0.0399	1130	0.0291	1430	0.0247	1730	
240	0.0251	540	0.1179	840	0.0399	1140	0.0291	1440	0.0245	1740	
250	0.0282	550	0.0866	850	0.0377	1150	0.0291	1450		1750	
260	0.0282	560	0.0866	860	0.0377	1160	0.0291	1460		1760	
270	0.0283	570	0.0865	870	0.0377	1170	0.0291	1470		1770	
280	0.0330	580	0.0653	880	0.0378	1180	0.0269	1480		1780	
290	0.0330	590	0.0653	890	0.0378	1190	0.0269	1490		1790	
300	0.0331	600	0.0653	900	0.0377	1200	0.0269	1500		1800	

Table 16: Downstream Basin C-25 Year

BASIN ID: SIL2-DSD NAME: SIL2-DOWNSTREAM D - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.35 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.07 Acres 0.28 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.29 cfs VOL: 0.10 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TI (min)
10		310	0.0460	610	0.0713	910	0.0430	1210	0.0325	1510
20		320	0.0460	620	0.0713	920	0.0430	1220	0.0325	1520
30		330	0.0461	630	0.0712	930	0.0430	1230	0.0325	1530
40		340	0.0520	640	0.0636	940	0.0430	1240	0.0325	1540
50		350	0.0520	650	0.0636	950	0.0430	1250	0.0325	1550
60		360	0.0521	660	0.0635	960	0.0430	1260	0.0325	1560
70	0.0049	370	0.0580	670	0.0584	970	0.0404	1270	0.0325	1570
80	0.0049	380	0.0580	680	0.0584	980	0.0404	1280	0.0325	1580
90	0.0050	390	0.0581	690	0.0584	990	0.0404	1290	0.0325	1590
100	0.0143	400	0.0689	700	0.0559	1000	0.0404	1300	0.0325	1600
110	0.0143	410	0.0689	710	0.0559	1010	0.0404	1310	0.0325	1610
120	0.0144	420	0.0690	720	0.0558	1020	0.0404	1320	0.0325	1620
130	0.0210	430	0.0850	730	0.0533	1030	0.0404	1330	0.0325	1630
140	0.0210	440	0.0850	740	0.0533	1040	0.0404	1340	0.0325	1640
150	0.0210	450	0.0851	750	0.0533	1050	0.0404	1350	0.0325	1650
160	0.0262	460	0.1040	760	0.0507	1060	0.0378	1360	0.0298	1660
170	0.0262	470	0.1040	770	0.0507	1070	0.0378	1370	0.0298	1670
180	0.0262	480	0.1055	780	0.0507	1080	0.0378	1380	0.0298	1680
190	0.0286	490	0.2927	790	0.0481	1090	0.0378	1390	0.0298	1690
200	0.0286	500	0.2927	800	0.0481	1100	0.0378	1400	0.0298	1700
210	0.0286	510	0.2915	810	0.0481	1110	0.0378	1410	0.0298	1710
220	0.0306	520	0.1429	820	0.0482	1120	0.0351	1420	0.0299	1720
230	0.0306	530	0.1429	830	0.0482	1130	0.0351	1430	0.0299	1730
240	0.0306	540	0.1425	840	0.0482	1140	0.0351	1440	0.0296	1740
250	0.0343	550	0.1047	850	0.0456	1150	0.0351	1450		1750
260	0.0343	560	0.1047	860	0.0456	1160	0.0351	1460		1760
270	0.0344	570	0.1045	870	0.0456	1170	0.0351	1470		1770
280	0.0401	580	0.0789	880	0.0456	1180	0.0325	1480		1780
290	0.0401	590	0.0789	890	0.0456	1190	0.0325	1490		1790
300	0.0402	600	0.0789	900	0.0456	1200	0.0325	1500		1800

Table 17: Downstream Basin D-25 Year

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSE NAME: SIL2-DOWNSTREAM E - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.21 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.04 Acres 0.17 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.18 cfs VOL: 0.06 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIG RUNOFF (cfs)
10		310	0.0278	610	0.0429	910	0.0258	1210	0.0195	1510	
20		320	0.0278	620	0.0429	920	0.0258	1220	0.0195	1520	
30		330	0.0279	630	0.0428	930	0.0258	1230	0.0195	1530	
40		340	0.0314	640	0.0382	940	0.0258	1240	0.0195	1540	
50		350	0.0314	650	0.0382	950	0.0258	1250	0.0195	1550	
60		360	0.0315	660	0.0382	960	0.0258	1260	0.0195	1560	
70	0.0030	370	0.0351	670	0.0351	970	0.0243	1270	0.0195	1570	
80	0.0030	380	0.0351	680	0.0351	980	0.0243	1280	0.0195	1580	
90	0.0030	390	0.0351	690	0.0351	990	0.0243	1290	0.0195	1590	
100	0.0087	400	0.0416	700	0.0336	1000	0.0243	1300	0.0195	1600	
110	0.0087	410	0.0416	710	0.0336	1010	0.0243	1310	0.0195	1610	
120	0.0087	420	0.0417	720	0.0336	1020	0.0243	1320	0.0195	1620	
130	0.0127	430	0.0512	730	0.0320	1030	0.0243	1330	0.0195	1630	
140	0.0127	440	0.0512	740	0.0320	1040	0.0243	1340	0.0195	1640	
150	0.0128	450	0.0513	750	0.0320	1050	0.0243	1350	0.0195	1650	
160	0.0159	460	0.0627	760	0.0305	1060	0.0227	1360	0.0179	1660	
170	0.0159	470	0.0627	770	0.0305	1070	0.0227	1370	0.0179	1670	
180	0.0159	480	0.0636	780	0.0305	1080	0.0227	1380	0.0179	1680	
190	0.0174	490	0.1762	790	0.0289	1090	0.0227	1390	0.0179	1690	
200	0.0174	500	0.1762	800	0.0289	1100	0.0227	1400	0.0179	1700	
210	0.0174	510	0.1755	810	0.0289	1110	0.0227	1410	0.0179	1710	
220	0.0185	520	0.0859	820	0.0290	1120	0.0211	1420	0.0179	1720	
230	0.0185	530	0.0859	830	0.0290	1130	0.0211	1430	0.0179	1730	
240	0.0186	540	0.0858	840	0.0289	1140	0.0211	1440	0.0178	1740	
250	0.0208	550	0.0630	850	0.0274	1150	0.0211	1450		1750	
260	0.0208	560	0.0630	860	0.0274	1160	0.0211	1460		1760	
270	0.0208	570	0.0629	870	0.0274	1170	0.0211	1470		1770	
280	0.0243	580	0.0475	880	0.0274	1180	0.0195	1480		1780	
290	0.0243	590	0.0475	890	0.0274	1190	0.0195	1490		1790	
300	0.0243	600	0.0474	900	0.0274	1200	0.0195	1500		1800	

Table 18: Downstream Basin E-25 Year

BASIN ID: SIL2-DSF NAME: SIL2-DOWNSTREAM F - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.37 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.07 Acres 0.30 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.31 cfs VOL: 0.11 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.0491	610	0.0756	910	0.0455	1210	0.0344	1510	
20		320	0.0491	620	0.0756	920	0.0455	1220	0.0344	1520	
30		330	0.0492	630	0.0755	930	0.0455	1230	0.0344	1530	
40		340	0.0554	640	0.0673	940	0.0455	1240	0.0344	1540	
50		350	0.0554	650	0.0673	950	0.0455	1250	0.0344	1550	
60		360	0.0555	660	0.0673	960	0.0455	1260	0.0344	1560	
70	0.0053	370	0.0618	670	0.0619	970	0.0427	1270	0.0344	1570	
80	0.0053	380	0.0618	680	0.0619	980	0.0427	1280	0.0344	1580	
90	0.0053	390	0.0619	690	0.0619	990	0.0427	1290	0.0344	1590	
100	0.0153	400	0.0733	700	0.0592	1000	0.0428	1300	0.0344	1600	
110	0.0153	410	0.0733	710	0.0592	1010	0.0428	1310	0.0344	1610	
120	0.0154	420	0.0735	720	0.0592	1020	0.0428	1320	0.0344	1620	
130	0.0225	430	0.0903	730	0.0565	1030	0.0428	1330	0.0344	1630	
140	0.0225	440	0.0903	740	0.0565	1040	0.0428	1340	0.0344	1640	
150	0.0225	450	0.0905	750	0.0564	1050	0.0428	1350	0.0344	1650	
160	0.0280	460	0.1105	760	0.0537	1060	0.0400	1360	0.0316	1660	
170	0.0280	470	0.1105	770	0.0537	1070	0.0400	1370	0.0316	1670	
180	0.0281	480	0.1121	780	0.0537	1080	0.0400	1380	0.0316	1680	
190	0.0306	490	0.3106	790	0.0510	1090	0.0400	1390	0.0316	1690	
200	0.0306	500	0.3106	800	0.0510	1100	0.0400	1400	0.0316	1700	
210	0.0306	510	0.3094	810	0.0510	1110	0.0400	1410	0.0316	1710	
220	0.0327	520	0.1515	820	0.0510	1120	0.0372	1420	0.0316	1720	
230	0.0327	530	0.1515	830	0.0510	1130	0.0372	1430	0.0316	1730	
240	0.0327	540	0.1512	840	0.0510	1140	0.0372	1440	0.0313	1740	
250	0.0367	550	0.1110	850	0.0482	1150	0.0372	1450		1750	
260	0.0367	560	0.1110	860	0.0482	1160	0.0372	1460		1760	
270	0.0368	570	0.1108	870	0.0482	1170	0.0372	1470		1770	
280	0.0429	580	0.0837	880	0.0483	1180	0.0343	1480		1780	
290	0.0429	590	0.0837	890	0.0483	1190	0.0343	1490		1790	
300	0.0429	600	0.0836	900	0.0483	1200	0.0343	1500		1800	

Table 19: Downstream Basin F-25 Year

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSG NAME: SIL2-DOWNSTREAM G - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.40 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.08 Acres 0.32 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.33 cfs VOL: 0.11 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	RUN (c
10		310	0.0526	610	0.0815	910	0.0491	1210	0.0371	1510	
20		320	0.0526	620	0.0815	920	0.0491	1220	0.0371	1520	
30		330	0.0527	630	0.0814	930	0.0491	1230	0.0371	1530	
40		340	0.0594	640	0.0726	940	0.0492	1240	0.0371	1540	
50		350	0.0594	650	0.0726	950	0.0492	1250	0.0371	1550	
60		360	0.0595	660	0.0726	960	0.0491	1260	0.0371	1560	
70	0.0056	370	0.0663	670	0.0668	970	0.0461	1270	0.0371	1570	
80	0.0056	380	0.0663	680	0.0668	980	0.0461	1280	0.0371	1580	
90	0.0057	390	0.0664	690	0.0667	990	0.0461	1290	0.0371	1590	
100	0.0163	400	0.0788	700	0.0639	1000	0.0462	1300	0.0372	1600	
110	0.0163	410	0.0788	710	0.0639	1010	0.0462	1310	0.0372	1610	
120	0.0164	420	0.0789	720	0.0638	1020	0.0462	1320	0.0372	1620	
130	0.0240	430	0.0971	730	0.0609	1030	0.0462	1330	0.0372	1630	
140	0.0240	440	0.0971	740	0.0609	1040	0.0462	1340	0.0372	1640	
150	0.0240	450	0.0973	750	0.0609	1050	0.0462	1350	0.0372	1650	
160	0.0299	460	0.1189	760	0.0580	1060	0.0432	1360	0.0341	1660	
170	0.0299	470	0.1189	770	0.0580	1070	0.0432	1370	0.0341	1670	
180	0.0299	480	0.1206	780	0.0579	1080	0.0432	1380	0.0341	1680	
190	0.0327	490	0.3345	790	0.0550	1090	0.0432	1390	0.0341	1690	
200	0.0327	500	0.3345	800	0.0550	1100	0.0432	1400	0.0341	1700	
210	0.0327	510	0.3331	810	0.0550	1110	0.0432	1410	0.0341	1710	
220	0.0349	520	0.1633	820	0.0551	1120	0.0401	1420	0.0341	1720	
230	0.0349	530	0.1633	830	0.0551	1130	0.0401	1430	0.0341	1730	
240	0.0350	540	0.1629	840	0.0550	1140	0.0401	1440	0.0338	1740	
250	0.0392	550	0.1197	850	0.0521	1150	0.0402	1450		1750	
260	0.0392	560	0.1197	860	0.0521	1160	0.0402	1460		1760	
270	0.0393	570	0.1195	870	0.0521	1170	0.0401	1470		1770	
280	0.0459	580	0.0902	880	0.0521	1180	0.0371	1480		1780	
290	0.0459	590	0.0902	890	0.0521	1190	0.0371	1490		1790	
300	0.0459	600	0.0902	900	0.0521	1200	0.0371	1500		1800	

Table 20: Downstream Basin G-25 Year

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSH NAME: SIL2-DOWNSTREAM H - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.31 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.06 Acres 0.25 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.26 cfs VOL: 0.09 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	F
10		310	0.0410	610	0.0632	910	0.0381	1210	0.0288	1510	
20		320	0.0410	620	0.0632	920	0.0381	1220	0.0288	1520	
30		330	0.0410	630	0.0632	930	0.0381	1230	0.0288	1530	
40		340	0.0463	640	0.0564	940	0.0381	1240	0.0288	1540	
50		350	0.0463	650	0.0564	950	0.0381	1250	0.0288	1550	
60		360	0.0463	660	0.0563	960	0.0381	1260	0.0288	1560	
70	0.0044	370	0.0516	670	0.0518	970	0.0358	1270	0.0288	1570	
80	0.0044	380	0.0516	680	0.0518	980	0.0358	1280	0.0288	1580	
90	0.0045	390	0.0517	690	0.0518	990	0.0358	1290	0.0288	1590	
100	0.0128	400	0.0613	700	0.0495	1000	0.0358	1300	0.0288	1600	
110	0.0128	410	0.0613	710	0.0495	1010	0.0358	1310	0.0288	1610	
120	0.0128	420	0.0614	720	0.0495	1020	0.0358	1320	0.0288	1620	
130	0.0187	430	0.0755	730	0.0473	1030	0.0358	1330	0.0288	1630	
140	0.0187	440	0.0755	740	0.0473	1040	0.0358	1340	0.0288	1640	
150	0.0188	450	0.0757	750	0.0472	1050	0.0358	1350	0.0288	1650	
160	0.0234	460	0.0924	760	0.0450	1060	0.0335	1360	0.0264	1660	
170	0.0234	470	0.0924	770	0.0450	1070	0.0335	1370	0.0264	1670	
180	0.0234	480	0.0937	780	0.0450	1080	0.0335	1380	0.0264	1680	
190	0.0255	490	0.2598	790	0.0427	1090	0.0335	1390	0.0264	1690	
200	0.0255	500	0.2598	800	0.0427	1100	0.0335	1400	0.0264	1700	
210	0.0255	510	0.2588	810	0.0427	1110	0.0335	1410	0.0264	1710	
220	0.0273	520	0.1268	820	0.0427	1120	0.0311	1420	0.0265	1720	
230	0.0273	530	0.1268	830	0.0427	1130	0.0311	1430	0.0265	1730	
240	0.0273	540	0.1265	840	0.0427	1140	0.0311	1440	0.0262	1740	
250	0.0306	550	0.0929	850	0.0404	1150	0.0311	1450		1750	
260	0.0306	560	0.0929	860	0.0404	1160	0.0311	1460		1760	
270	0.0307	570	0.0927	870	0.0404	1170	0.0311	1470		1770	
280	0.0358	580	0.0700	880	0.0404	1180	0.0288	1480		1780	
290	0.0358	590	0.0700	890	0.0404	1190	0.0288	1490		1790	
300	0.0358	600	0.0700	900	0.0404	1200	0.0288	1500		1800	

Table 21: Downstream Basin H-25 Year

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSI NAME: SIL2-DOWNSTREAM I - 25
SCS METHODOLOGY

TOTAL AREA.....:	0.10 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	TYPE1A		PERV	IMP
PRECIPITATION....:	4.00 inches	AREA..:	0.02 Acres	0.08 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00	98.00
		TC....:	5.00 min	5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 0.08 cfs VOL: 0.03 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)
10		310	0.0132	610	0.0204	910	0.0123	1210	0.0093	1510
20		320	0.0132	620	0.0204	920	0.0123	1220	0.0093	1520
30		330	0.0132	630	0.0204	930	0.0123	1230	0.0093	1530
40		340	0.0149	640	0.0182	940	0.0123	1240	0.0093	1540
50		350	0.0149	650	0.0182	950	0.0123	1250	0.0093	1550
60		360	0.0149	660	0.0182	960	0.0123	1260	0.0093	1560
70	0.0014	370	0.0166	670	0.0167	970	0.0115	1270	0.0093	1570
80	0.0014	380	0.0166	680	0.0167	980	0.0115	1280	0.0093	1580
90	0.0014	390	0.0166	690	0.0167	990	0.0115	1290	0.0093	1590
100	0.0041	400	0.0197	700	0.0160	1000	0.0115	1300	0.0093	1600
110	0.0041	410	0.0197	710	0.0160	1010	0.0115	1310	0.0093	1610
120	0.0041	420	0.0197	720	0.0160	1020	0.0115	1320	0.0093	1620
130	0.0060	430	0.0243	730	0.0152	1030	0.0116	1330	0.0093	1630
140	0.0060	440	0.0243	740	0.0152	1040	0.0116	1340	0.0093	1640
150	0.0060	450	0.0243	750	0.0152	1050	0.0115	1350	0.0093	1650
160	0.0075	460	0.0297	760	0.0145	1060	0.0108	1360	0.0085	1660
170	0.0075	470	0.0297	770	0.0145	1070	0.0108	1370	0.0085	1670
180	0.0075	480	0.0301	780	0.0145	1080	0.0108	1380	0.0085	1680
190	0.0082	490	0.0836	790	0.0137	1090	0.0108	1390	0.0085	1690
200	0.0082	500	0.0836	800	0.0137	1100	0.0108	1400	0.0085	1700
210	0.0082	510	0.0833	810	0.0137	1110	0.0108	1410	0.0085	1710
220	0.0087	520	0.0408	820	0.0138	1120	0.0100	1420	0.0085	1720
230	0.0087	530	0.0408	830	0.0138	1130	0.0100	1430	0.0085	1730
240	0.0087	540	0.0407	840	0.0138	1140	0.0100	1440	0.0085	1740
250	0.0098	550	0.0299	850	0.0130	1150	0.0100	1450		1750
260	0.0098	560	0.0299	860	0.0130	1160	0.0100	1460		1760
270	0.0098	570	0.0299	870	0.0130	1170	0.0100	1470		1770
280	0.0115	580	0.0226	880	0.0130	1180	0.0093	1480		1780
290	0.0115	590	0.0226	890	0.0130	1190	0.0093	1490		1790
300	0.0115	600	0.0225	900	0.0130	1200	0.0093	1500		1800

Table 22: Downstream Basin I-25 Year

DETAIL BASIN SUMMARY

BASIN ID: SIL2-DSJ NAME: SIL2-DOWNSTREAM J - 25
SCS METHODOLOGY
TOTAL AREA.....: 0.12 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.00 inches AREA..: 0.02 Acres 0.10 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 5.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.10 cfs VOL: 0.03 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESI RUNOFF (cfs)
10		310	0.0162	610	0.0246	910	0.0148	1210	0.0112	1510	
20		320	0.0162	620	0.0246	920	0.0148	1220	0.0112	1520	
30		330	0.0162	630	0.0246	930	0.0148	1230	0.0112	1530	
40		340	0.0183	640	0.0219	940	0.0148	1240	0.0112	1540	
50		350	0.0183	650	0.0219	950	0.0148	1250	0.0112	1550	
60		360	0.0183	660	0.0219	960	0.0148	1260	0.0112	1560	
70	0.0018	370	0.0204	670	0.0202	970	0.0139	1270	0.0112	1570	
80	0.0018	380	0.0204	680	0.0202	980	0.0139	1280	0.0112	1580	
90	0.0018	390	0.0204	690	0.0201	990	0.0139	1290	0.0112	1590	
100	0.0051	400	0.0241	700	0.0193	1000	0.0139	1300	0.0112	1600	
110	0.0051	410	0.0241	710	0.0193	1010	0.0139	1310	0.0112	1610	
120	0.0051	420	0.0242	720	0.0193	1020	0.0139	1320	0.0112	1620	
130	0.0075	430	0.0297	730	0.0184	1030	0.0139	1330	0.0112	1630	
140	0.0075	440	0.0297	740	0.0184	1040	0.0139	1340	0.0112	1640	
150	0.0075	450	0.0297	750	0.0184	1050	0.0139	1350	0.0112	1650	
160	0.0093	460	0.0362	760	0.0175	1060	0.0130	1360	0.0103	1660	
170	0.0093	470	0.0362	770	0.0175	1070	0.0130	1370	0.0103	1670	
180	0.0094	480	0.0367	780	0.0175	1080	0.0130	1380	0.0103	1680	
190	0.0102	490	0.1016	790	0.0166	1090	0.0130	1390	0.0103	1690	
200	0.0102	500	0.1016	800	0.0166	1100	0.0130	1400	0.0103	1700	
210	0.0102	510	0.1011	810	0.0166	1110	0.0130	1410	0.0103	1710	
220	0.0109	520	0.0494	820	0.0166	1120	0.0121	1420	0.0103	1720	
230	0.0109	530	0.0494	830	0.0166	1130	0.0121	1430	0.0103	1730	
240	0.0109	540	0.0493	840	0.0166	1140	0.0121	1440	0.0102	1740	
250	0.0122	550	0.0362	850	0.0157	1150	0.0121	1450		1750	
260	0.0122	560	0.0362	860	0.0157	1160	0.0121	1460		1760	
270	0.0122	570	0.0361	870	0.0157	1170	0.0121	1470		1770	
280	0.0142	580	0.0273	880	0.0157	1180	0.0112	1480		1780	
290	0.0142	590	0.0273	890	0.0157	1190	0.0112	1490		1790	
300	0.0142	600	0.0273	900	0.0157	1200	0.0112	1500		1800	

Table 23: Downstream Basin J-25 Year

Project:	Suburban Door - 12171 SW Herman Road										Legend:	% Pipe Capacity Used		
Project:	Stormwater Conveyance Calculation Check											0-82		Acceptable
Date:												83 +		Upsize if City's
Calc'd By:												83 +		Awareness for Private
							Pipe Information and Calculations							
Design Section	Q (Calc'd) "Q"	Pipe Dia. (inch) "D"	Pipe Dia. (ft) "D"	Manning's number "n"	Slope "S" %	Slope "S"	Area Full (Calc'd) "Af"	Wetted Perimeter (Calc'd) "WPf"	Hydraulic Radius (Calc'd) "Rf"	Velocity Full (Calc'd) "Vf"	Flow Rate Full (Calc'd) "Qf"	% Pipe Capacity Used (Calc'd) "Q/Qf"	Velocity @ Q/Qf (Calc'd) "V"	Acceptable or Redesign Necessary
Pipe Run														
1 TO 2	1.09	12	1.00	0.013	0.15	0.0015	0.785	3.142	0.250	1.762	1.384	78.8%	1.39	Acceptable
2 TO 3	1.61	12	1.00	0.013	0.15	0.0015	0.785	3.142	0.250	1.762	1.384	116.4%	2.05	Check Design
3 TO 4	1.84	14	1.17	0.013	0.9	0.0090	1.069	3.665	0.292	4.782	5.112	36.0%	1.72	Acceptable
4 TO 5	2.13	14	1.17	0.013	0.36	0.0036	1.069	3.665	0.292	3.024	3.233	65.9%	1.99	Acceptable
5 TO 6	2.13	15	1.25	0.013	0.42	0.0042	1.227	3.927	0.313	3.421	4.198	50.7%	1.74	Acceptable
6 TO 7	2.31	15	1.25	0.013	0.33	0.0033	1.227	3.927	0.313	3.032	3.721	62.1%	1.88	Acceptable
7 TO 8	2.62	15	1.25	0.013	0.36	0.0036	1.227	3.927	0.313	3.167	3.886	67.4%	2.13	Acceptable
8 TO 9	2.95	15	1.25	0.013	0.25	0.0025	1.227	3.927	0.313	2.639	3.239	91.1%	2.40	Check Design
9 TO 10	3.21	15	1.25	0.013	0.17	0.0017	1.227	3.927	0.313	2.176	2.671	120.2%	2.62	Check Design
10 TO 11	3.29	18	1.50	0.013	0.28	0.0028	1.767	4.712	0.375	3.154	5.573	59.0%	1.86	Acceptable
12 TO 11	0.1	18	1.50	0.013	0.11	0.0011	1.767	4.712	0.375	1.977	3.493	2.9%	0.06	Acceptable
11 to 13	3.29	18	1.50	0.013	1	0.0100	1.767	4.712	0.375	5.960	10.533	31.2%	1.86	Acceptable
13 to 14	3.29	24	2.00	0.013	0.18	0.0018	3.142	6.283	0.500	3.063	9.624	34.2%	1.05	Acceptable
14 to 15	3.29	24	2.00	0.013	0.18	0.0018	3.142	6.283	0.500	3.063	9.624	34.2%	1.05	Acceptable
15 to 16	3.29	24	2.00	0.013	0.18	0.0018	3.142	6.283	0.500	3.063	9.624	34.2%	1.05	Acceptable
16 to 17	3.29	24	2.00	0.013	0.18	0.0018	3.142	6.283	0.500	3.063	9.624	34.2%	1.05	Acceptable

Table 24: Mannings Capacity Spreadsheet