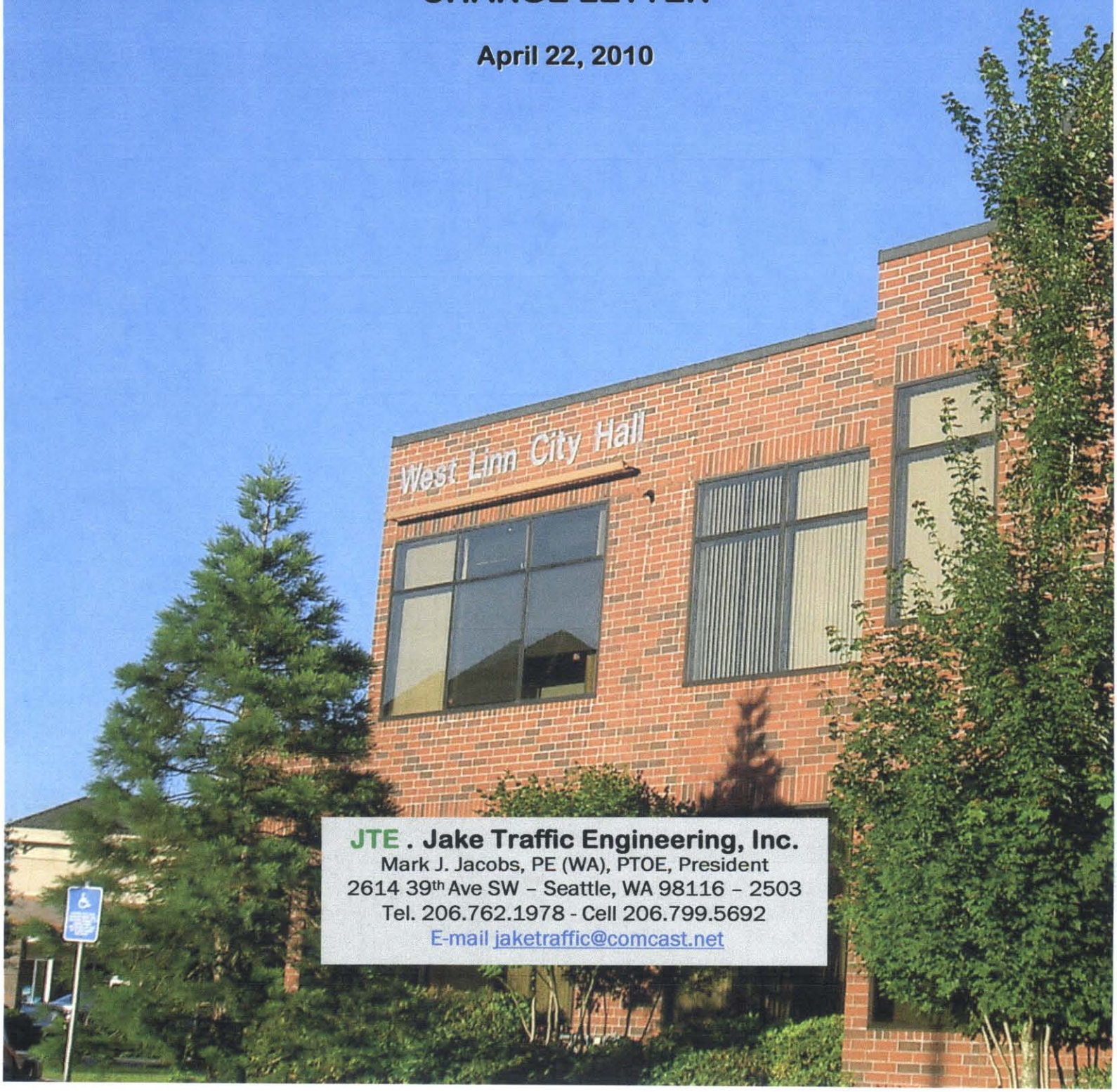
West Linn, OR

MARYLHURST KEY BANK
TRIP GENERATION AND SYSTEM DEVELOPMENT CHARGE LETTER

April 22, 2010



JTE . Jake Traffic Engineering, Inc.
Mark J. Jacobs, PE (WA), PTOE, President
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April 22, 2010

Cassandra Rowan, IIDA, Associate Principal
CALLISON
1420 Fifth Avenue #2400
Seattle, WA 98101-2343

Re: Marylhurst Key Bank – West Linn, OR
Trip Generation and System Development Charge Letter

Dear Ms. Rowan,

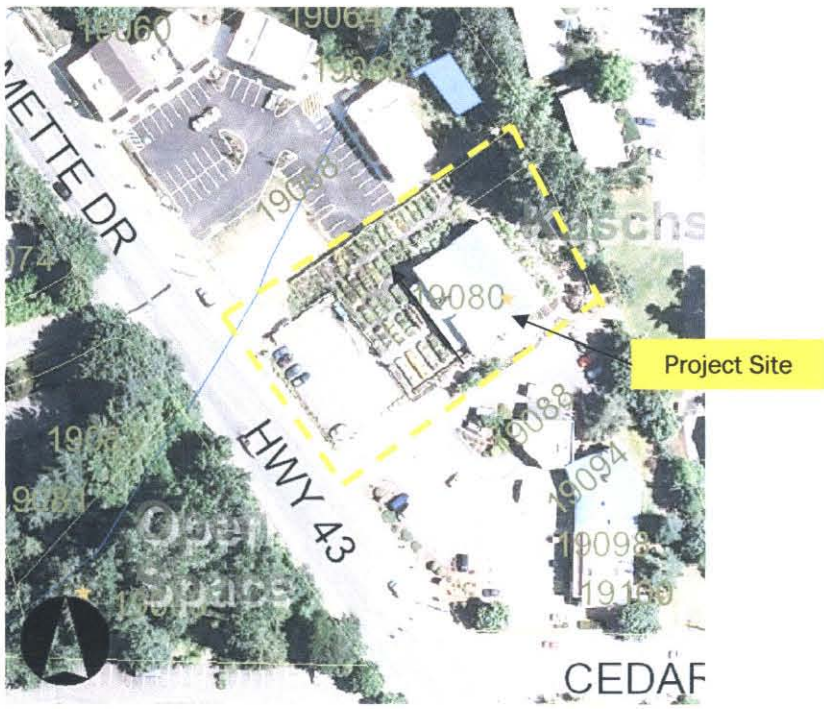
We have prepared this Trip Generation and System Development Charge Letter for the proposed 3,900 sf Key Bank with 3 drive-up service bays to be located 19080 Willamette Drive in West Linn, Oregon. The site is currently developed with 9,400 sf retail nursery building (data obtained from Clackamas County as provided to us by the project team) that is to removed to make way for the proposed bank project. An access is provided off of Willamette Drive and a connection to the strip retail development to north is also shown.

The advent of on-line banking, direct payroll deposit, cash machines and the like has drastically changed banking/credit union activities. In fact so many financial customers conduct transactions on-line, use cash machines and have direct deposit for payroll checks now that the recently published (November 2008) 8th Edition of the Institute of Transportation Engineers Trip Generation removed the bank data collected from prior years. These new realities have resulted in financial institutions generating far less traffic than in the past. And in fact the trip generation trend towards less traffic generation has continued. Jake Traffic Engineering, Inc. has collected substantial traffic data for banks that is used in this letter.

This letter provides our projection of the Trip Generation of the proposed Key Bank based on substantial traffic data collected at financial institutions in the Puget Sound region. The estimated traffic impact fee to the City is also calculated.

PROJECT INFORMATION

Figure 1 is a vicinity map which shows the location of the site and the surrounding street system. Below is an aerial of the site obtained from the West Linn MapIt Interactive Mapping.



The project site is presently developed with a 9,400 sf retail nursery building that is to be removed to make way for the proposed bank project.

Figure 2 shows a preliminary site plan prepared by Callison. The plan shows the 3,900 sf Key Bank, 14 parking stalls, three drive up service lanes and internal circulation. An access is provided off of Willamette Drive and a connection to the development to north is also provided.

The West Linn Transportation System Plan identifies Willamette Drive as a Principal Arterial. See plan gleaned from the City's Figure 8.1 Existing/Future Functional Class plan noted below:

\\Engineer2a\s\~Project Files\2010 013 - West Linn Key Bank - Callison, Apex - West Linn\MarylhustKeyBankTripGeneration.doc
COLOR COPY ONLY

TRIP GENERATION

Definitions

A vehicle trip is defined as a single direction vehicle movement with either the origin or destination inside the study site.

Traffic generated by development projects consists of the following:

Pass-By Trips:	Trips made as intermediate stops on the way from an origin to a primary trip destination.
Diverted Linked Trips:	Trips attracted from the traffic volume on a roadway within the vicinity of the generator but which require a diversion from that roadway to another roadway in order to gain access to the site.
Captured Trips:	Site trips shared by more than one land use in a multi-use development.
Primary Trips:	Trips made for the specific purpose of using the services of the project.

The Institute of Transportation Engineers (ITE) Trip Generation provides trip generation rates for a variety of land uses. All site trips made by all vehicles for all purposes, including commuter, visitor, and service and delivery vehicle trips are included in the trip generation values. As iterated earlier the trip generation rates contained in the Trip Generation for a financial institution are outdated in that the data does not account for further use of on-line banking, bank machines and direct payroll deposit. The City identified that an independent trip generation study could be performed to validate that financial institutions are tending to generate less traffic than they did prior to the advent of electronic bank services.

We have conducted an independent trip study that includes data from 8 facilities (3 - JTE, Inc sites and 5 - from Colleagues). The data collected are for three weekdays (Tuesday, Wednesday and Thursday). The JTE, Inc. data was collected for Key Banks in Kent, Covington and Maple Valley, Washington. The Maple Valley Bank is inordinately large (11,528 sf) versus the average size of 4,000 sf; thus the analysis uses 4,000 sf that assures a conservative trip generation estimate.

Correspondence with colleagues (Geri Reinart, PE and Bill Popp Jr. of Bill Popp & Associates) identified that they also have performed similar studies for banks in Washington. The data (attached in the appendix) is for the 5 - sites that included drive up service, 2 in Kirkland 3 in Burlington and included Friday data that is outside the typical data analyzed. Traffic data is traditionally collected on a typical weekday; Tuesday, Wednesday and Thursday.

The following table summarizes the germane data points from the collected trip generation data:

SUMMARY DRIVEWAY COUNTS PM PEAK HOUR (STREET PEAK)				
Location/Bank Name	PM peak hour TM's	size in sf	TM's/ksf	day of the week
Kirkland/Wells Fargo	68	5,130	13.26	Tuesday 09.20.2005
Kirkland/Frontier Bank	32	4,192	7.63	Thursday 09.15.2005
Burlington/Horizon	32	4,000	8.00	Wednesday 05.11.2005
	62	4,000	15.50	Thursday 05.12.2005
Burlington/Skagit	35	3,000	11.67	Wednesday 05.11.2005
	24	3,000	8.00	Thursday 05.12.2005
Burlington/Whidbey	98	6,118	16.02	Wednesday 05.11.2005
	61	6,118	9.97	Thursday 05.11.2005
Key Bank/Maple Valley (1)	29	4,000	7.25	Thursday 04.09.2009
	27	4,000	6.75	Tuesday 04.21.2009
Key Bank/Kent	19	3,420	5.56	Wednesday 06.24.2009
Key Bank/Covington	33	4,174	7.91	Thursday 06.18.2009
Average	**43.33**	**4,262.67**	**10.17**	**All Studied**

(1) - The bank size is 11,528 sf that is overly large; the size used for analysis is 4,000 sf the national average size.

The collected trip generation data indicates that a drive in financial institutions generate 10.17 PM peak hour trips (PMPHT's) per 1,000 sf for banks in Washington.

Review of the collected data above and comparing the 2009 data to the 2005 data shows the trip generation rates for financial institutions continuing to trend down. This trend down is attributed to the increasing use of on-line banking, bank machines and direct payroll deposit.

In addition to the JTE, Inc. data for Washington banks, we have obtained data for Oregon Portland Metro area banks from a Colleague Sean Morrison of Group McKenzie located in Portland, OR. Mr. Morrison conducted research on Portland Metro area Drive-in Bank Trip Generation. Based on his research the average Key Bank Trip Generation rate is 14.90. The following table summarizes the Key Bank data:

	Location	Date of Count	Size in 1,000 sf	PM peak hour vehicle trips	PM peak hour trip rate (Trips/KSF)
Key Bank	390 NW Burnside Rd, Gresham OR	6/10/2008	5.31	110	20.72
Key Bank	11665 SW Pacific Hwy, Tigard OR	7/8/2008	3.93	69	17.58
Key Bank	805 NW Murray Blvd, Portland OR	6/12/2008	3.84	61	15.89
Key Bank	1205 NE 102nd Ave, Portland OR	6/3/2008	7.2	113	15.69
Key Bank	6416 NE 117th Ave, Vancouver WA	7/15/2008	4.38	34	7.77
Key Bank	256 A Ave, Lake Oswego, OR	7/17/2008	3.86	38	9.85

Financial institutions also tend to attract a significant amount of pass-by traffic. Table 5.20 contained in the ITE Trip Generation Handbook Second Edition, June 2004 provides pass-by data for financial institutions. The table (copy attached) identifies the average pass-by rate for financial institutions with drive up service at 47 percent.

Thus the projected trip generation for the 3,900 sf Key Bank is between 21 new PM peak hour trips (10.17 PMPHT's/1,000 sf x 3,900 x 53%) and 31 PM peak hour trips (14.90 PMPHT's/1,000 sf x 3,900 x 53%).

The project site is presently developed with a 9,400 sf nursery building that is to be removed to make way for the proposed development. The ITE Trip Generation, Eighth Edition for Nursery Garden Center (ITE Land Use Code 817) identifies the PM peak hour rate at 3.80 which equates to 36 PM peak hour trips (9,400 sf / 1,000 sf x 3.80).

The Trip Generation Handbook does not contain pass-by data for a Nursery Garden Center. Willamette Drive is a primary street corridor and it is likely there would be some customers passing by the site. Review of JTE, Inc. documents and correspondence with Colleagues indicates that a 10% pass-by rate is appropriate for Nursery Garden Center Land Use. Accounting for a 10% pass-by rate the existing Nursery generated 32 (36 x 90%) new PM peak hour trips.

Based on our analysis the proposed Key Bank using Portland Metro area Key Bank data would generate 31 PM peak hour trips. The exiting nursery on the site generated 32 PM peak hour trips. Thus the re-development from a nursery to a Key Bank would not result in any added pm peak trips to the West Linn street grid.

TRAFFIC IMPACT MITIGATION

The City of West Linn, Oregon Systems Development Charges (SDC) identifies its traffic impact fees as follows:

Effective January 26, 2010 - Phase I

Type Of Use	Trips Per Use:	Factor	Reimbursement	Improvement	Administrative	Total
per factor of 1		1.00	$1,827	$3,914	$149	$5,890
Single family	Per house	1.01	$1,845	$3,953	$150	$5,948
Multi-family	Per MF Unit	0.62	$1,133	$2,427	$92	$3,652
Retail	Per 1,000ft2	2.536	$4,633	$9,926	$378	$14,937
Office	Per 1,000 ft2	1.314	$2,401	$5,143	$196	$7,740
Public Park	Per Acre	0.223	$407	$873	$33	$1,313
Public School	Per Student	0.08	$146	$313	$12	$471

Effective July 1, 2010

Type Of Use	Trips Per Use:	Factor	Reimbursement	Improvement	Administrative	Total
per factor of 1		1.00	$1,900	$4,069	$155	$6,124
Single family	Per house	1.01	$1,919	$4,110	$157	$6,186
Multi-family	Per MF Unit	0.62	$1,178	$2,523	$96	$3,797
Retail	Per 1,000ft2	2.536	$4,818	$10,319	$393	$15,530
Office	Per 1,000 ft2	1.314	$2,497	$5,347	$204	$8,048
Public Park	Per Acre	0.223	$424	$907	$35	$1,366
Public School	Per Student	0.08	$152	$326	$12	$490

The proposed project is a 3,900 sf Key Bank which is a commercial type facility. The above table does not identify a traffic impact fee for a commercial type use, thus we understand that generic fee rate is used. Pending the project schedule; beginning after July 1, 2010 the rate is $6,124 per new PM peak hour trip.

The re-development of the 9,400 sf Nursery into a 3,900 sf Key Bank facility is projected to generate no additional new PM peak hour trips to the West Linn street system. Thus no SDC should be required.

SUMMARY AND CONCLUSIONS

This letter was prepared to identify the trip generation for proposed Marylhurst Key Bank project. We have conducted extensive studies for financial institutions over the years and have seen the trip generation trend down as more people move to on-line banking, use cash machines and have direct deposit. Traffic data collected by us and Traffic Engineering colleagues was used to determine the trip generation rate of 10.17 in Washington. Data provided by a Colleague for Key Banks in the Portland Metro area (used for analysis) showed a trip generation rate of 14.90 PM peak hour trips/1,000 square feet. The studies we conducted and data obtained from other Traffic Engineering colleagues clearly showed that financial institutions generate less traffic than they did in the past.

Based on the obtained trip generation data for Key Banks in the Portland Metro area and data contained in the Trip Generation Handbook we project that the no net new PM peak hour trips to the City of West Linn street system would occur with the re-development project The City of West Linn has a SDC of $6,124 per PM peak hour trip (effective July 1, 2010). No net new trips are projected to be generated thus no SDC to the City should be required.

If you have any questions you can contact me at 206.762.1978 or email me at jaketraffic@comcast.com.

Very truly yours,

Mark J. Jacobs[1], Professional Traffic Consultant, President
JAKE TRAFFIC ENGINEERING, INC.

MJJ: mjj

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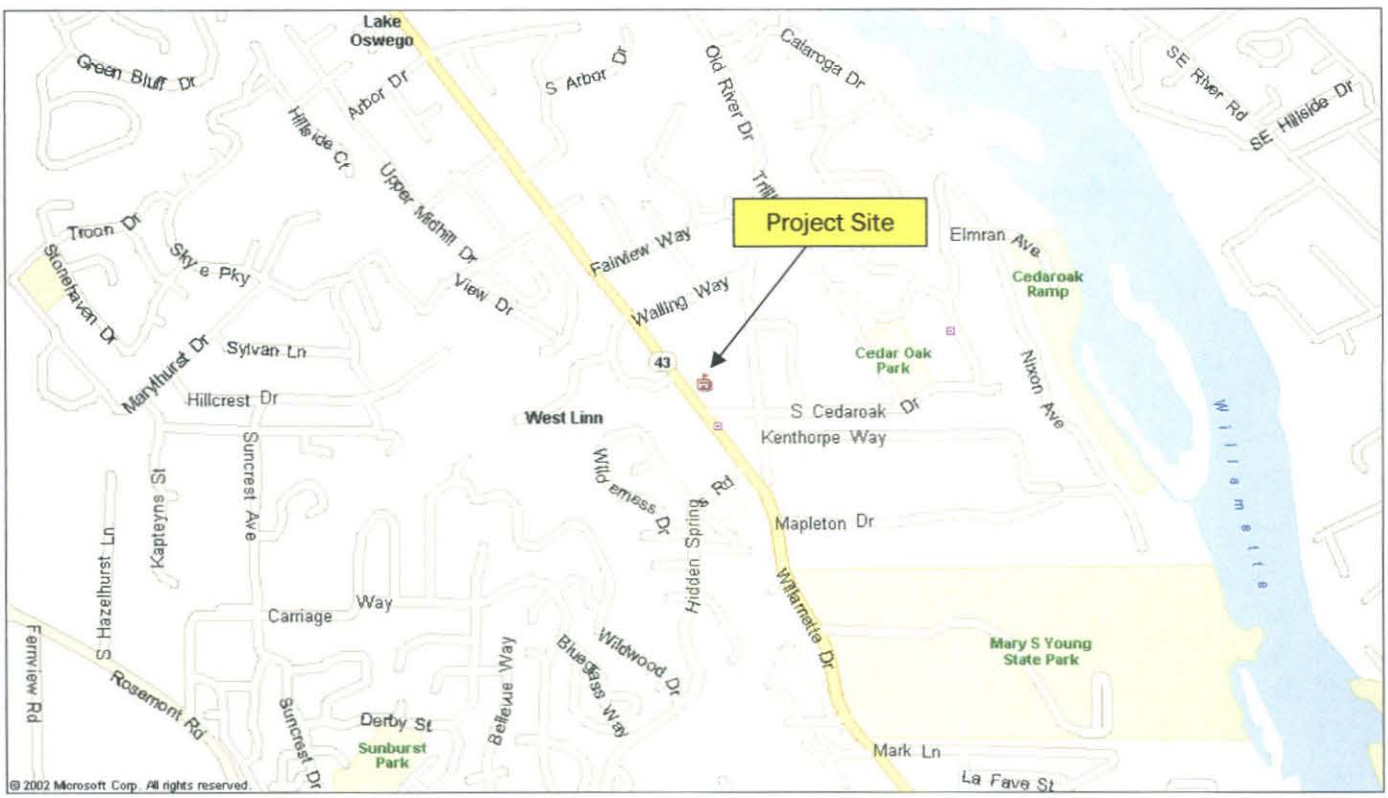
[1] - I am a Licensed Professional Engineer in Washington (#25744), a Professional Traffic Operations Engineer (Certificate #372) and a Fellow Member of the Institute of Transportation Engineers. Oregon Revised Statute **672.020 Practice of engineering without registration prohibited; seal required.** (1) In order to safeguard life, health and property, no person shall practice or offer to practice engineering in this state unless the person is registered and has a valid certificate to practice engineering issued under ORS 672.002 to 672.325. This report is a planning report that does not affect life, health and property and thus should not require a PE stamp; this report is signed as a Professional Traffic Consultant. I am in the process of applying for an Oregon PE License via the Comity agreement.

Project: Marylhurst Key Bank – West Linn
Location: 19080 Willamette Drive in West Linn, Oregon

NORTH



JTE, Inc.
FIGURE 1

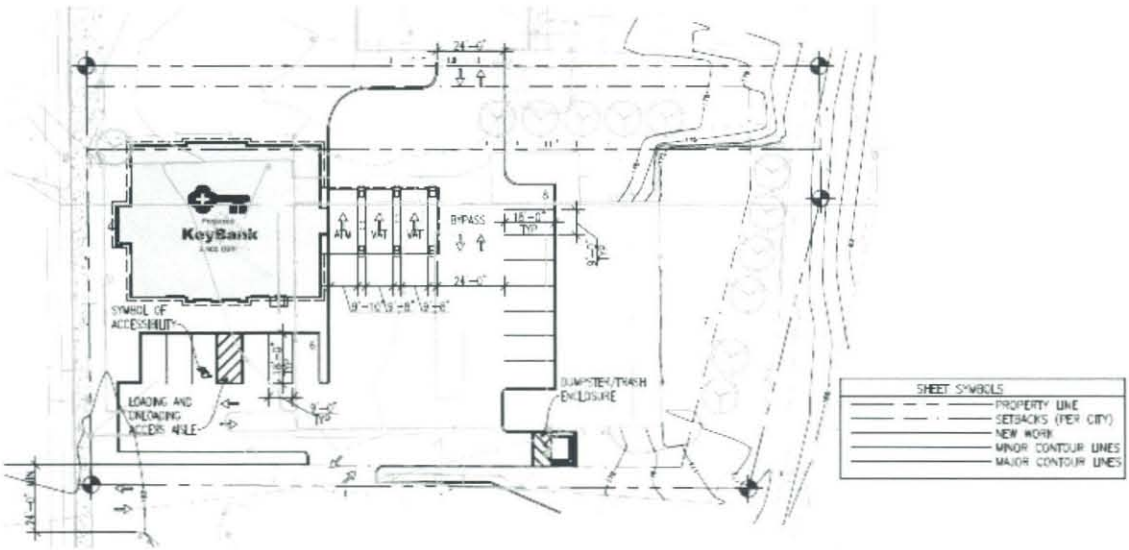
Reprint in Color Only

MARYLHURST KEY BANK – WEST LINN, OREGON
TRIP GENERATION AND SYSTEM DEVELOPMENT CHARGE LETTER

VICINITY MAP

Project: Marylhurst Key Bank – West Linn
Location: 19080 Willamette Drive in West Linn, Oregon

NORTH



Note: an 8.5 x 11" preliminary site plan is included with this report

JTE, Inc.
FIGURE 2

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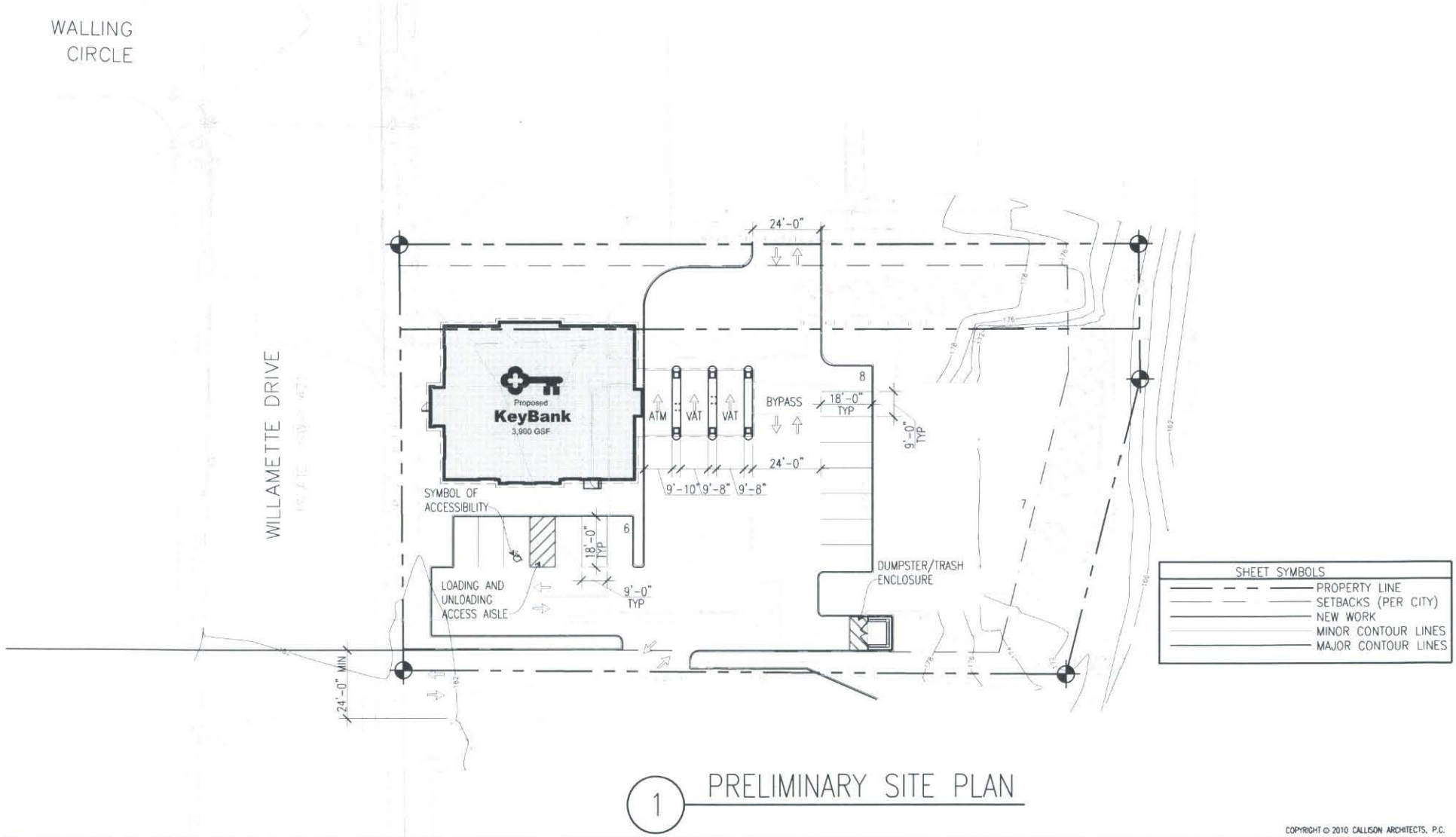
MARYLHURST KEY BANK – WEST LINN, OREGON
TRIP GENERATION AND SYSTEM DEVELOPMENT CHARGE LETTER

PRELIMINARY SITE PLAN



1 PRELIMINARY SITE PLAN

KeyBank

CALLISON

SCALE: 1/32"=1'-0"

0 16 32 64

TRUE NORTH

KEY BANK: MARYLHURST
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
DRAWING NO.: 1A
APRIL 12, 2010
PROJECT NO.: 207251.68

APPENDIX

West Linn GIS Map

Parcel Lines | Freeway Lines | Private Access

Preliminary Taxlot Lines | Unimproved Right-of-Way

2010 West Linn GIS Map Disclaimer, click here

WestLinnBasemap_ex1004v1

West Linn GIS Map Disclaimer: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

From: Cassandra Rowan [mailto:Cassandra.Rowan@callison.com]
Sent: Thursday, April 22, 2010 3:12 PM
To: jaketraffic@comcast.net
Cc: Ebsworth,Cheryl; Vina Anderson; Bob Asahara
Subject: KeyBank-OR Marylhurst: Square Footage Clarification
Importance: High

Hi Jake,

We were able to confirm the following square footage numbers with Clackamas County:

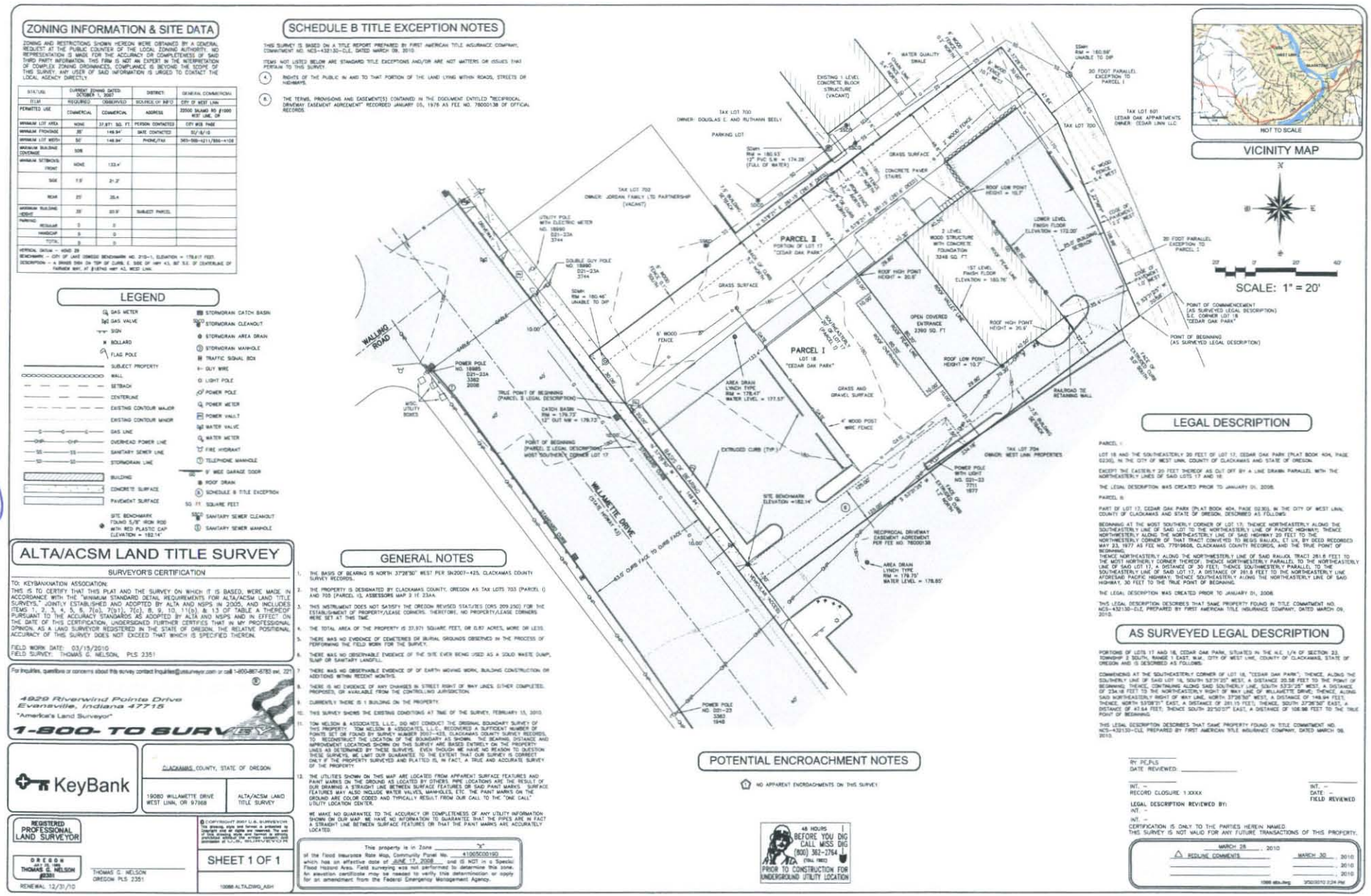
3,200 SF	First Floor
3,200 SF	Basement
600 SF	Lean To Construction
2,400 SF	Covered Sales Area
9,400 SF	Total

Thank you,
Cass

Cassandra Rowan, IIDA
Associate Principal
cassandra.rowan@callison.com

CALLISON
1420 FIFTH AVENUE #2400
SEATTLE, WASHINGTON 98101-2343
T 1 206 623 4646 **F** 1 206 623 4625

(2)


ZONING INFORMATION & SITE DATA
SCHEDULE B TITLE EXCEPTION NOTES
LEGEND
ALTA/ACSM LAND TITLE SURVEY
SURVEYOR'S CERTIFICATION
GENERAL NOTES
POTENTIAL ENCROACHMENT NOTES
LEGAL DESCRIPTION
AS SURVEYED LEGAL DESCRIPTION
VICINITY MAP
NOT TO SCALE
SCALE: 1" = 20'
PARCEL I
PARCEL II
WALLING ROAD
WILLAMETTE DRIVE
4929 Riverwind Pointe Drive
Evansville, Indiana 47715
"America's Land Surveyor"
1-800- TO SURV
KeyBank
CLACKAMAS COUNTY, STATE OF OREGON
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
ALTA/ACSM LAND TITLE SURVEY
REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 25, 1986
THOMAS G. NELSON
#2351
THOMAS G. NELSON
OREGON PLS 2351
RENEWAL 12/31/10
SHEET 1 OF 1
48 HOURS
BEFORE YOU DIG
CALL MISS DIG
(800) 382-2764
PRIOR TO CONSTRUCTION FOR
UNDERGROUND UTILITY LOCATION

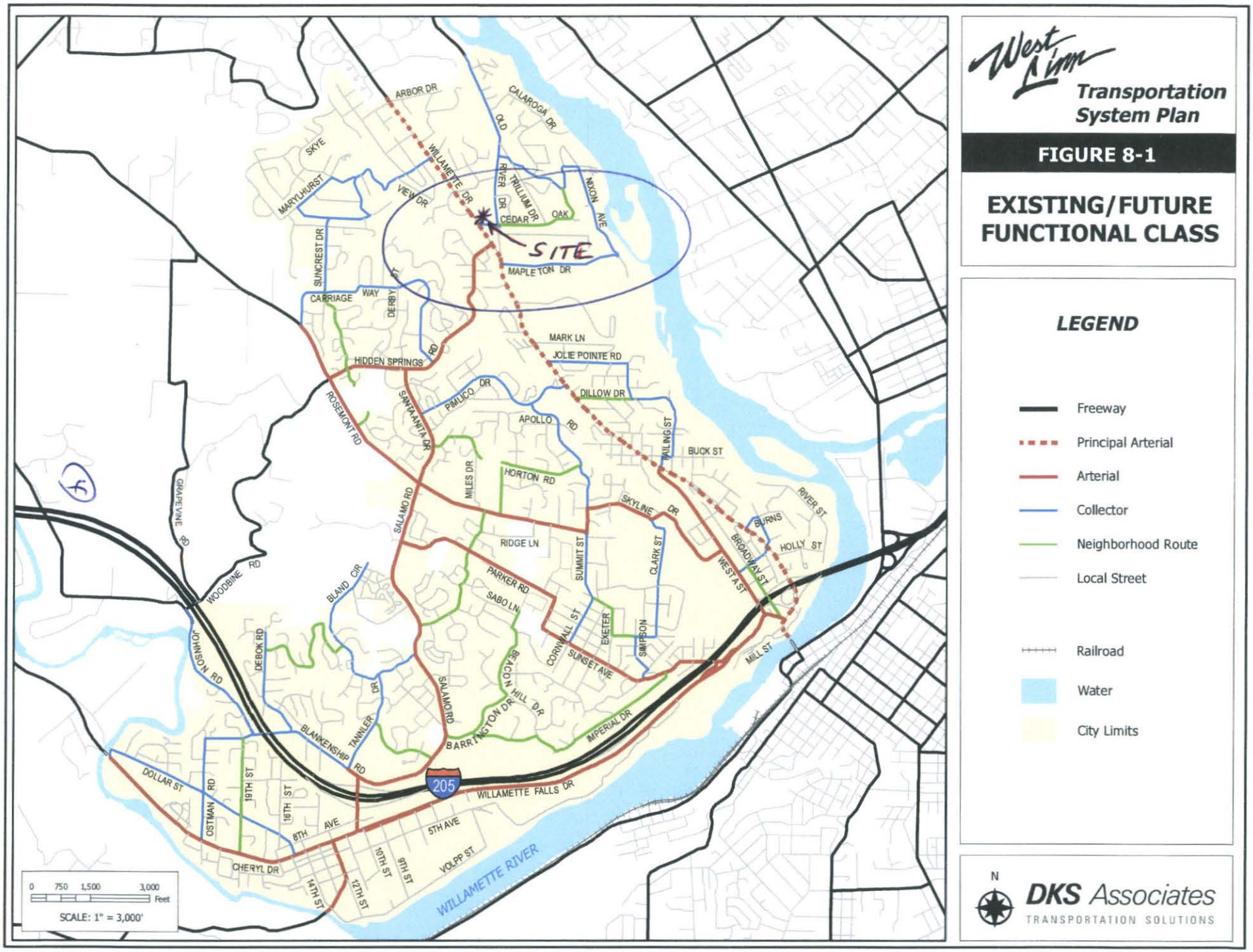

West Linn
Transportation System Plan
FIGURE 8-1
EXISTING/FUTURE FUNCTIONAL CLASS
LEGEND
Freeway
Principal Arterial
Arterial
Collector
Neighborhood Route
Local Street
Railroad
Water
City Limits
SITE
ARBOR DR
CALAROGA DR
OLD RIVER DR
WILLAMETTE DR
TRILLIUM DR
CEDAR
OAK
NIXON AVE
SKYE
MARYLHURST
VIEW DR
SUNCREST DR
MAPLE TON DR
CARRIAGE WAY
DERBY CT
MARK LN
JOLIE POINTE RD
HIDDEN SPRINGS RD
PIMLICO DR
DILLOW DR
APOLLO RD
SANTA ANITA DR
ROSEMONT RD
MILES DR
HORTON RD
BUCK ST
TAILING ST
SKYLINE DR
RIVER ST
BURNS
HOLLY ST
BROADWAY ST
WEST A ST
CLARK ST
SUMMIT ST
RIDGE LN
SALAMO RD
PARKER RD
SABO LN
CORNWALL ST
EXETER
SIMPSON
SUNSET AVE
MILL ST
BEACON HILL DR
IMPERIAL DR
BARRINGTON DR
SALAMO RD
GRACELYNE RD
WOODBINE RD
BLAND CIR
JOHNSON RD
DEBOK RD
TANNLER DR
BLANKENSHIP RD
DOLLAR ST
OSTMAN RD
19TH ST
16TH ST
8TH AVE
5TH AVE
CHERYL DR
14TH ST
12TH ST
10TH ST
9TH ST
VOLPP ST
205
WILLAMETTE FALLS DR
WILLAMETTE RIVER
0 750 1,500 3,000 Feet
SCALE: 1" = 3,000'
N
DKS Associates
TRANSPORTATION SOLUTIONS

Table 5.1 Land Uses and Time Periods with Pass-By Data

Land Use Code and Description	Time Period	Table	Figure
813 Free-Standing Discount Superstore	Weekday, p.m. Peak Period	5.2	—
815 Free-Standing Discount Store	Weekday, p.m. Peak Period	5.3	5.3
	Saturday, Midday Peak Period	5.4	5.4
816 Hardware/Paint Store	Weekday, p.m. Peak Period	5.5	—
820 Shopping Center	Weekday, p.m. Peak Period	5.6	5.5/5.6
	Saturday, Midday Peak Period	5.7	5.7
843 Automobile Parts Sales	Weekday, p.m. Peak Period	5.8	—
848 Tire Store	Weekday, p.m. Peak Period	5.9	—
850 Supermarket	Weekday, p.m. Peak Period	5.10	5.8
851 Convenience Market (Open 24 Hours)	Weekday, p.m. Peak Period	5.11	5.9
853 Convenience Market with Gasoline Pumps	Weekday, a.m. Peak Period	5.12	5.10
	Weekday, p.m. Peak Period	5.13	5.11
854 Discount Supermarket	Weekday, p.m. Peak Period	5.14	5.12
862 Home Improvement Superstore	Weekday, p.m. Peak Period	5.15	—
863 Electronics Superstore	Weekday, p.m. Peak Period	5.16	—
880 Pharmacy/Drugstore without Drive-Through Window	Weekday, p.m. Peak Period	5.17	—
881 Pharmacy/Drugstore with Drive-Through Window	Weekday, p.m. Peak Period	5.18	—
890 Furniture Store	Weekday, p.m. Peak Period	5.19	—
912 Drive-In Bank	Weekday, p.m. Peak Period	5.20	—
931 Quality Restaurant	Weekday, p.m. Peak Period	5.21	—
932 High-Turnover (Sit-Down) Restaurant	Weekday, p.m. Peak Period	5.22	5.13
934 Fast-Food Restaurant with Drive-Through Window	Weekday, a.m. Peak Period	5.23	—
	Weekday, p.m. Peak Period	5.24	5.14
935 Fast-Food Restaurant without Drive-Through Window and No Indoor Seating (*Specialized Land Use: Coffee/ Espresso Stand*)	Weekday	5.25/5.26	—
944 Gasoline/Service Station	Weekday, a.m. Peak Period	5.27	—
	Weekday, p.m. Peak Period	5.28	—
945 Gasoline/Service Station with Convenience Market	Weekday, a.m. Peak Period	5.29	5.15
	Weekday, p.m. Peak Period	5.30	5.16

Table 5.20
Pass-By Trips and Diverted Linked Trips
Weekday, p.m. Peak Period

Land Use 912—Drive-in Bank

SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS-BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
16.0	Overland Park, KS	Dec. 1988	20	4:30–5:30 p.m.	55	—	30	15	n/a	n/a
3.3	Louisville area, KY	Jul. 1993	n/a	4:00–6:00 p.m.	22	—	30	48	2,570	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	n/a	4:00–6:00 p.m.	22	—	14	64	2,266	Barton-Aschman Assoc.
3.4	Louisville area, KY	Jul. 1993	75	4:00–6:00 p.m.	11	—	32	57	1,955	Barton-Aschman Assoc.
3.5	Louisville area, KY	Jun. 1993	53	4:00–6:00 p.m.	32	—	21	47	2,785	Barton-Aschman Assoc.
6.4	Louisville area, KY	Jun. 1993	66	4:00–6:00 p.m.	20	—	27	53	2,610	Barton-Aschman Assoc.

Average Pass-By Trip Percentage: 47

Table 5.21
Pass-By Trips and Diverted Linked Trips
Weekday, p.m. Peak Period

Land Use 931—Quality Restaurant

SEATS	SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PRIMARY TRIP (%)	NON-PASS-BY TRIP (%)	DIVERTED LINKED TRIP (%)	PASS-BY TRIP (%)	ADJ. STREET PEAK HOUR VOLUME	SOURCE
240	12	Louisville area, KY	Jul. 1993	38	4:00–6:00 p.m.	36	—	38	26	4,145	Barton-Aschman Assoc.
n/a	8	Orlando, FL	1992	168	4:00–8:00 p.m.	—	55	—	45	n/a	TPD Inc.
n/a	8.8	Orlando, FL	1992	84	2:00–6:00 p.m.	40	—	16	44	n/a	TPD Inc.
n/a	6.5	Orlando, FL	1995	173	2:00–6:00 p.m.	—	38	—	62	n/a	TPD Inc.

Average Pass-By Trip Percentage: 44

Nursery (Garden Center)
(817)

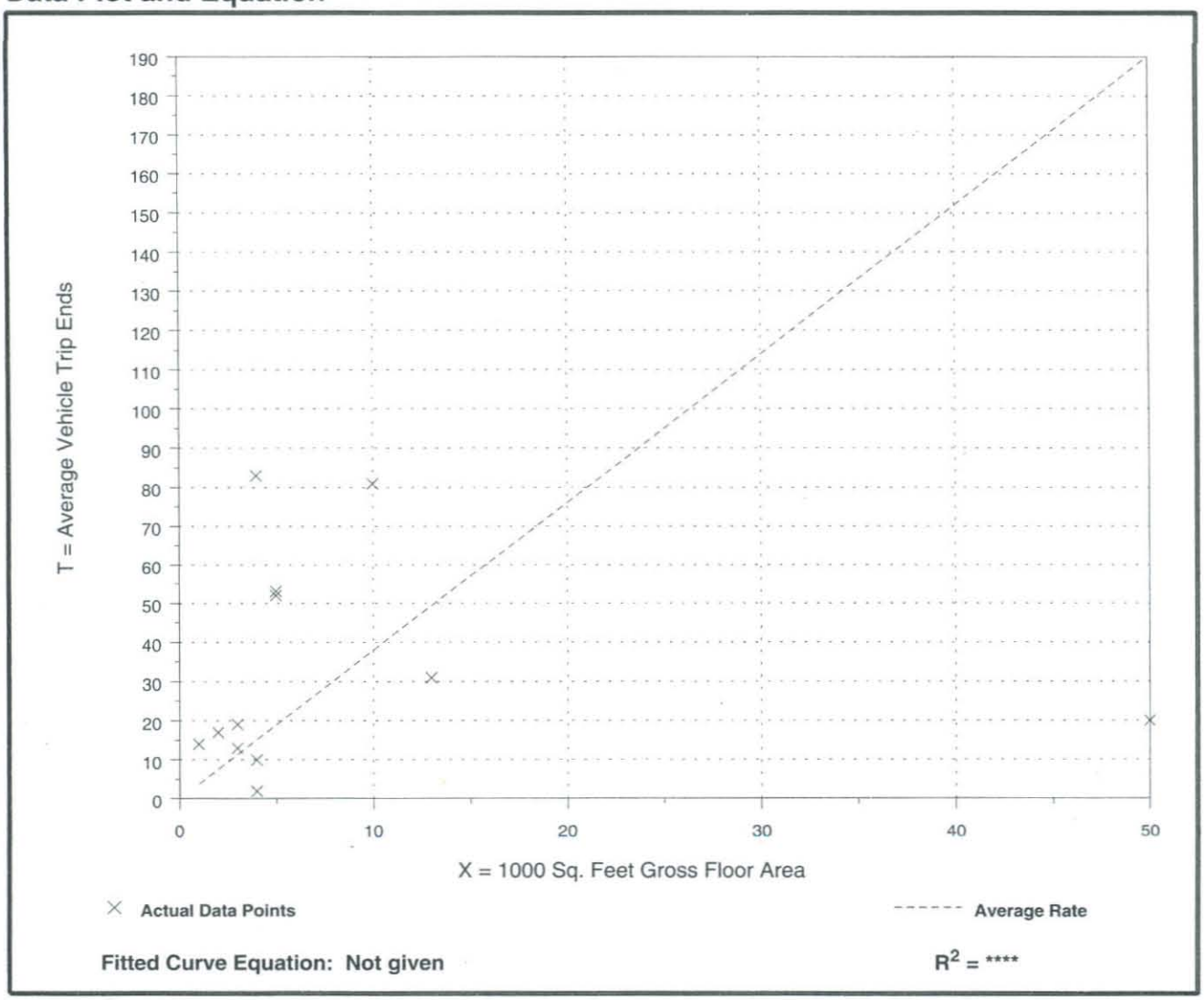
Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Floor Area**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 12
Average 1000 Sq. Feet GFA: 9
Directional Distribution: Not available

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
3.80	0.40 - 20.75	5.32

Data Plot and Equation



Fitted Curve Equation: Not given

R^2 = ****

FIFE WA

Appendix B. Traffic Impact Rate Table

Fee Rate per Daily VMT = $ 473

This table uses ITE [3] driveway trip rates, with adjustments, to derive the net new impact per unit of development, in vehicle-miles-traveled (VMT). See ITE for details of land use categories. [9]

RETAIL	*Signature elements: non-residential activity with traffic generated mainly by customers or patrons, not employees. Inbound and outbound are roughly equal most of the day. Some public facilities are thus "retail".*								
Community Retail Focus									
Apparel Store	870	1000 sq. ft.	5	66.4	20%	60%	1.52	32.3	$ 15,276
Shopping Ctr, under 65,000 sq. ft.[6]	820	1000 sq. ft.	50	70.0	50%	40%	1.52	31.9	$ 15,098
Convenience Market	851 - 853	1000 sq. ft.	3	640.0	85%	80%	1.52	29.2	$ 13,804
Hardware, paint store	816	1000 sq. ft.	21	51.3	25%	60%	1.52	23.4	$ 11,063
Building Materials & Lumber Store	812	1000 sq. ft.	11	45.2	20%	60%	1.52	22.0	$ 10,390
Specialty retail center (strip mall)	814	1000 sq. ft.	105	44.3	20%	60%	1.52	21.6	$ 10,197
Video Rental Store	896	1000 sq. ft.	7	140.0	55%	80%	1.52	19.2	$ 9,059
Pharmacy/Drug Store	880, 881	1000 sq. ft.	13	89.1	30%	80%	1.52	19.0	$ 8,968
Bank, drive-in	912	1000 sq. ft.	4	246.5	75%	80%	1.52	18.7	$ 8,861
Supermarket, discount supermarket	850, 854	1000 sq. ft.	62	102.2	45%	80%	1.52	17.1	$ 8,086
Bank, walk-in	911	1000 sq. ft.	5	156.5	65%	80%	1.52	16.6	$ 7,875
Destination Retail Focus									
Discount Club (membership warehouse store)	861	1000 sq. ft.	112	41.8	20%	20%	1.52	40.7	$ 19,234
Electronics Superstore	863	1000 sq. ft.	37	45.0	30%	20%	1.52	38.3	$ 18,134
Toy / Children's Superstore	864	1000 sq. ft.	46	60.0	30%	40%	1.52	38.3	$ 18,118
Free-standing Discount Superstore	813	1000 sq. ft.	154	49.2	20%	40%	1.52	35.9	$ 16,982
Freestanding Discount Store	815	1000 sq. ft.	111	56.0	30%	40%	1.52	35.8	$ 16,916
Home improvement superstore	862	1000 sq. ft.	100	29.8	10%	20%	1.52	32.6	$ 15,426
Factory Outlet Center	823	1000 sq. ft.	146	26.6	10%	20%	1.52	29.1	$ 13,764
Furniture Store	890	1000 sq. ft.	67	5.1	10%	20%	1.52	5.5	$ 2,619
Nursery (Garden Center)	817	Acres	4	96.2	10%	20%	1.52	105.3	$ 49,803
Nursery (Wholesale)	818	Acres	24	19.5	10%	10%	1.52	24.0	$ 11,356

SPECIAL CASES	*Signature Elements: Characteristics not matched with groups above*								
State Motor Vehicles / Licensing Agency	731	1000 sq. ft.	10	166.0	30%	50%	1.52	88.3	$ 41,777
Medical/Dental Office or Clinic	630, 720	1000 sq. ft.	71	33.0	10%	50%	1.52	22.6	$ 10,677
Hospital	610	1000 sq. ft.	500	17.6	10%	10%	1.52	21.6	$ 10,232
US Post Office	732	1000 sq. ft.	31	108.2	60%	70%	1.52	19.7	$ 9,334
Day Care	565	1000 sq. ft.	4	79.3	80%	95%	1.52	1.2	$ 570
Casino - Gaming Area basis	na	1000 sq. ft.	na	442.0	10%	2%	0.33	128.6	$ 60,851
Hotel/Motel - no convention facilities	310-312, 320	*Total Rooms* [2]	200	6.5	10%	10%	1.52	8.0	$ 3,785

Notes:

(1) V.S.P. (Vehicle Servicing Position) = space provided for one vehicle to be fueled or washed; not necessarily "pumps" or "hoses"
(2) Use total rooms for hotel/motel; 15% vacancy factor is incorporated in gross trip rate. Excludes facilities with major restaurants and meeting places.
(3) Institution of Transportation Engineers, Trip Generation, 7th edition. Some ITE rates are smoothed and averaged to eliminate statistically insignificant differences.
(4) Pass-by Diversion Reduction eliminates trips diverted from the stream of traffic "passing by" a retail site, which add no vehicle-miles of impact on the road system.
(5) Net New VMT Impact Trip Rate = ITE Gross Trip Rate * (1 - % Pass-by - % Intra-City) * Average Trip Length .
(6) For shopping centers over 65,000 sq. ft., see ITE for logarithmic trip rate formula.
(7) A retirement community is "self-contained" only if it provides a full range of facilities on-site for medical care, recreation, shopping, dining, etc. similar to a small city. For "assisted living" retirement facilities serving the non-driving elderly with caregivers employed on-site, use Congregate Care Centers under NON-RETAIL.
(8) Average size of developments comprising the ITE database. May be useful to distinguish between otherwise similar-sounding classes.
(9) Trip rate for any land use not covered by this table shall be determined by the Director of Public Works.
(10) Discounts half of each trip beginning and ending within city, to avoid charge for same impact at both ends.
(11) Average miles per net new trip on city streets (only), determined using Fife Traffic Forecasting Model
(12) This land use generates heavy truck travel. Truck surcharge must be calculated.
(13) Units expressed as 1000 sq. ft. refer to habitable gross building area, not land area. Units expressed as "acres" refer to land area.

(8)

Appendix B. Traffic Impact Rate Table

Fee Rate per Daily VMT = $ 473

This table uses ITE [3] driveway trip rates, with adjustments, to derive the net new impact per unit of development, in vehicle-miles-traveled (VMT). See ITE for details of land use categories. [9]

ITE LAND USE NAME	ITE LAND USE CODE	ITE LAND USE UNIT [13]	ITE AVERAGE SIZE [9]	ITE GROSS TRIP RATE / UNIT [3]	DISCOUNT PASS-BY TRIPS [4]	DISCOUNT INTRA-CITY TRIPS [10]	AVERAGE TRIP LENGTH [11]	NET NEW VMT IMPACT RATE / UNIT [5]	FEE PER LAND USE UNIT	
RESIDENTIAL	***Signature elements: places where people live with active lifestyles. Afternoon peak hour traffic is mainly inbound.***									
Single-family (detached) dwelling	210	Dwelling	214	9.6	0%	10%	1.59	13.7	$ 6,478	
Duplex (detached) dwelling	use 210	Dwelling	same	9.6	0%	10%	1.59	13.7	$ 6,478	
Multifamily, 3+ bedrooms	use 231	Dwelling	234	7.4	0%	10%	1.59	10.6	$ 5,016	
Multifamily, under 3 bedrooms	blend 220, 221, 230	Dwelling	250	6.0	0%	10%	1.59	8.6	$ 4,061	
Mobile Home Park	240	Dwelling	168	5.0	0%	10%	1.59	7.1	$ 3,378	
Self-contained Retirement Community [7]	251	Dwelling	862	3.7	0%	10%	1.59	5.3	$ 2,511	
Senior Adult Housing-Attached	252	Dwelling	147	3.5	0%	10%	1.59	5.0	$ 2,355	
Congregate Care Facility, Nursing Home, Elderly Housing (Attached)	*please see Non-Retail, assisted living facilities*									
NON-RETAIL	***Signature elements: places where most traffic is generated by employees, rather than customers, patrons or residents. Includes some public facilities and some assisted-living types of residential facilities. Peak hour main direction varies.***									
Employment Centers										
Business Park (multiple buildings)	770	1000 sq. ft.	379	12.8	0%	5%	1.11	13.5	$ 6,364	
Office Building (single building)	blend 710, 714, 715	1000 sq. ft.	150-300	11.4	0%	5%	1.11	12.0	$ 5,696	
Office Park (multiple buildings)	750	1000 sq. ft.	370	11.4	0%	5%	1.11	12.0	$ 5,696	
Research & Development Center	760	1000 sq. ft.	306	8.1	0%	5%	1.11	8.6	$ 4,045	%T[12]
General Light Industrial	110	1000 sq. ft.	357	7.0	0%	5%	1.11	7.3	$ 3,476	%T[12]
Industrial Park	130	1000 sq. ft.	447	7.0	0%	5%	1.11	7.3	$ 3,471	%T[12]
Manufacturing	140	1000 sq. ft.	325	3.8	0%	5%	1.11	4.0	$ 1,905	%T[12]
General Heavy Industrial	120	1000 sq. ft.	1544	1.5	0%	5%	1.11	1.6	$ 748	%T[12]
Trucking and Storage Facilities										
Warehousing (industrial)	150	1000 sq. ft.	354	4.96	0%	5%	1.11	5.2	$ 2,474	%T[12]
High-Cube Warehouse	152	1000 sq. ft.	302	1.50	0%	5%	1.11	1.6	$ 748	%T[12]
Truck Terminal	30	Acres	12	81.9	0%	5%	1.11	86.4	$ 40,850	%T[12]
Mini-warehouse (self-service storage)	151	1000 sq. ft.	58	2.50	0%	5%	1.11	2.6	$ 1,247	
Institutions										
Church, with weekday programs	560	1000 sq. ft.	17	30.0	20%	50%	1.11	13.3	$ 6,300	
School, high	530	1000 sq. ft.	225	12.9	10%	50%	1.11	6.4	$ 3,045	
School, elementary and junior-high	520	1000 sq. ft.	55	14.5	20%	50%	1.11	6.4	$ 3,043	
Church, no weekday programs	560	1000 sq. ft.	17	6.0	0%	50%	1.11	3.3	$ 1,575	
Assisted Living Facilities										
Nursing Home	620	Beds	99	2.4	10%	50%	1.11	1.2	$ 560	
Congregate Care Facility, Elderly Housing (Attached)	253	Living unit	164	2.0	10%	50%	1.11	1.0	$ 477	

Notes:

(1) V.S.P. (Vehicle Servicing Position) = space provided for one vehicle to be fueled or washed; not necessarily "pumps" or "hoses"
(2) Use total rooms for hotel/motel; 15% vacancy factor is incorporated in gross trip rate. Excludes facilities with major restaurants and meeting places.
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(4) Pass-by Diversion Reduction eliminates trips diverted from the stream of traffic "passing by" a retail site, which add no vehicle-miles of impact on the road system.
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(7) A retirement community is "self-contained" only if it provides a full range of facilities on-site for medical care, recreation, shopping, dining, etc. similar to a small city. For "assisted living" retirement facilities serving the non-driving elderly with caregivers employed on-site, use Congregate Care Centers under NON-RETAIL.
(8) Average size of developments comprising the ITE database. May be useful to distinguish between otherwise similar-sounding classes.
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(9)

Appendix B. Traffic Impact Rate Table

Fee Rate per Daily VMT =	$ 473

This table uses ITE [3] driveway trip rates, with adjustments, to derive the net new impact per unit of development, in vehicle-miles-traveled (VMT). See ITE for details of land use categories. [9]

RETAIL	*Signature elements: non-residential activity with traffic generated mainly by customers or patrons, not employees. Inbound and outbound are roughly equal most of the day. Some public facilities are thus "retail".*								
Automobile-related Sales									
Auto Care Center (multiple stores)	942	1000 sq. ft.	12	38.9	20%	10%	1.52	42.5	$ 20,121
Auto Parts Sales	843	1000 sq. ft.	8	61.9	50%	10%	1.52	42.3	$ 20,030
Car Sales, New and Used	841	1000 sq. ft.	30	33.3	10%	10%	1.52	41.0	$ 19,416
Automobile Servicing									
Carwash	947	V.S.P. [1]	7	75.0	50%	80%	1.52	11.4	$ 5,392
Service Station no Mini-Mart	944	V.S.P. [1]	8	168.6	80%	80%	1.52	10.2	$ 4,848
Service Station with Mini-Mart	945	V.S.P. [1]	10	162.8	80%	80%	1.52	9.9	$ 4,681
Tire Store	848, 849	V.S.P. [1]	8	32.0	50%	60%	1.52	9.7	$ 4,601
Quick-Lube Vehicle Servicing	941	V.S.P. [1]	2	51.9	50%	80%	1.52	7.9	$ 3,731
Social-Recreational Activities									
Drinking Place (pub, tavern, bar)	936	1000 sq. ft.	4	140.0	20%	70%	1.52	51.1	$ 24,157
Bowling Alley	437	1000 sq. ft.	24	33.3	10%	10%	1.52	41.0	$ 19,410
Health/Fitness Club	492	1000 sq. ft.	36	32.9	10%	10%	1.52	40.5	$ 19,177
Lodge, Fraternal Organization, with dining facilities	591	1000 sq. ft.	n/a	48.0	10%	50%	1.52	32.8	$ 15,530
Restaurant, quality	931	1000 sq. ft.	9	90.0	20%	70%	1.52	32.8	$ 15,521
Restaurant, sit-down	932	1000 sq. ft.	6	127.2	50%	70%	1.52	29.0	$ 13,712
Library	590	1000 sq. ft.	16	54.0	10%	70%	1.52	22.2	$ 10,482
Racquet/Tennis Club	491	1000 sq. ft.	48	14.0	10%	10%	1.52	17.3	$ 8,170
Restaurant, fast food	934	1000 sq. ft.	4	496.0	80%	90%	1.52	15.1	$ 7,132
Recreational Community Center	495	1000 sq. ft.	65	22.9	10%	70%	1.52	9.4	$ 4,441

Notes:

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(19)

Mark J. Jacobs, PE, PTOE

From: Sean Morrison [SMorrison@grpmack.com]
Sent: Friday, June 12, 2009 9:19 AM
To: Mark J. Jacobs, PE, PTOE
Subject: RE: tg data
Attachments: 2009 Annual Meeting and Exhibit-SM.pdf

Mark,

I enjoyed chatting with you too.

Attached is a copy of the research I performed on Portland Metro area Drive-in Bank trip generation. And here are the KeyBank sites in particular. The average KeyBank rate is 14.90.

Key Bank	390 NW Burnside Rd, Gresham OR	6/10/2008	5.31	110	20.72
Key Bank	11665 SW Pacific Hwy, Tigard OR	7/8/2008	3.93	69	17.58
Key Bank	805 NW Murray Blvd, Portland OR	6/12/2008	3.84	61	15.89
Key Bank	1205 NE 102nd Ave, Portland OR	6/3/2008	7.2	113	15.69
Key Bank	6416 NE 117th Ave, Vancouver WA	7/15/2008	4.38	34	7.77
Key Bank	256 A Ave, Lake Oswego, OR	7/17/2008	3.86	38	9.85

I'm sure we will talk again soon.

Sean Morrison

GROUP
MACKENZIE

RiverEast Center | 1515 SE Water Avenue, Suite 100 | Portland, OR 97214
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T: 503.224.9560 | F: 503.228.1285 | www.groupmackenzie.com | vCard
PORTLAND, OREGON | SEATTLE, WASHINGTON | VANCOUVER, WASHINGTON

Please consider the environment before printing this email. Thank you.

From: Mark J. Jacobs, PE, PTOE [mailto:JakeTraffic@comcast.net]
Sent: Thursday, June 11, 2009 4:57 PM
To: Sean Morrison
Cc: Patrick Flanagan
Subject: tg data

Shawn

It was nice chatting with you earlier.

Attached is a TG report I conducted. I look forward to receiving your TG data; in particular the Key Bank data.

Mark
206.762.1978
206.799.5692 cell

4/22/2010

(11)

Mark J. Jacobs, PE, PTOE

From: David Casey [david.casey@ci.maple-valley.wa.us]
Sent: Friday, October 09, 2009 4:29 PM
To: Mark J. Jacobs, PE, PTOE
Subject: FW: Key Bank Review

Follow Up Flag: Follow up
Flag Status: Completed

Mark
I believe that this is what you are looking for.
Dave

-----Original Message-----
From: John Davies [mailto:J.Davies@fehrandpeers.com]
Sent: Friday, October 09, 2009 3:17 PM
To: David Casey
Cc: Jana Janarthanan
Subject: Key Bank Review

David,

We have completed our review of the July 20, 2009 Key Bank Revised Trip Generation Analysis and Application for Capacity Reservation Certificate. This report provided revised information including locally collected trip generation data at 3 study sites. The trip generation rate was 7.9 PM peak hour trips/1000 sf.

The final trip generation after adjustment for diverted trips is 18 net new pm peak hour trips. This value will be used in the concurrency evaluation.

We accept the trip generation as presented and will proceed with the concurrency evaluation and report.

Feel free to contact me with any questions.

John Davies, AICP, PTP
Associate
Fehr & Peers
11410 NE 122nd Way, Suite 320
Kirkland, WA 98034-6927
T: 425-820-0100 x213
F: 425-821-1750

12

Trip Generation Study Key Bank Sites:

12


Kent
Kent East Hill
10204 SE 256th St
Kent, WA 980
253-850-6930
9:00am - 5
9:00am - 6
9:00am - 1:00pm Sat
~ 3,420 sf ; 1 drive up window and 1 drive up ATM

Existing Key Bank - Covington (Thursday 06.18.2009)						
Time	Driveway 1		# of cars that entered the drive through bay/atm area	Driveway 2		Total
	Enter	Exit		Enter	Exit	
1600 - 1614	4	5	1			9
1615 - 1629	7	6	4			13
1630 - 1644	10	6	3			16
1645 -1659	7	9	0			16
1700 - 1714	1	6	0			7
1715 - 1729	2	5	2			7
1730 - 1744	1	2	1			3
1745 - 1800	1	1	0			2

All cars entered/exited through driveway 1

There are 2 drive through bays and 1 drive through atm. There also is 1 walk-up atm.

Traffic data collected off of SR - 516 to the west in Covington shows the PM peak hour is 1645 to 1745.

Existing Key Bank - Maple Valley (Thursday 04.09.2009)					
Time	Driveway 1 (North)		Driveway 2 (South)		Total
	Enter	Exit	Enter	Exit	
1600 - 1614	6	2	2	5	15
1615 - 1629	5	2	2	6	15
1630 - 1644	3	0	1	4	8
1645 -1659	1	0	4	4	9
1700 - 1714	5	3	0	4	12
1715 - 1729	2	0	0	2	4
1730 - 1744	1	1	1	1	4
1745 - 1800	0	2	0	0	2

Existing Key Bank - Maple Valley (Tuesday 04.21.2009)					
Time	Driveway 1 (North)		Driveway 2 (South)		Total
	Enter	Exit	Enter	Exit	
1600 - 1614	4	3	2	3	12
1615 - 1629	3	1	1	4	9
1630 - 1644	3	0	0	3	6
1645 -1659	4	1	1	4	10
1700 - 1714	1	2	1	1	5
1715 - 1729	2	2	2	4	10
1730 - 1744	1	1	0	0	2
1745 - 1800	0	0	0	0	0

Existing Key Bank - Kent SE 256th St. (Wednesday 06.24.2009)					
Time	Driveway 1 (West)		Driveway 2 (East)		Total
	Enter	Exit	No Enter	Exit	
1600 - 1614	3	4	0	1	8
1615 - 1629	2	2	0	0	4
1630 - 1644	1	2	0	0	3
1645 -1659	3	1	0	0	4
1700 - 1714	1	3	0	1	5
1715 - 1729	0	2	0	0	2
1730 - 1744	1	2	0	0	3
1745 - 1800	1	0	0	1	2

19 highest

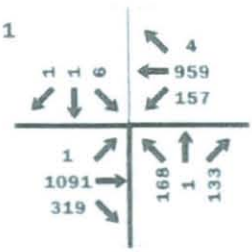
17

NORTH

LEGEND

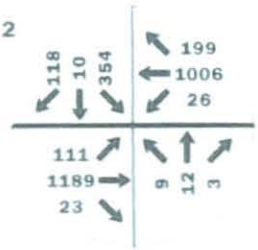
Approach Lane & Direction

1



Tuesday
10.30.07
1645-1745

2



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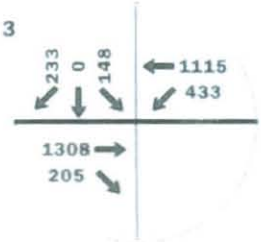
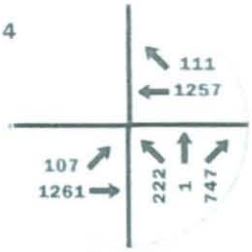
10.30.07
1700-1800

3



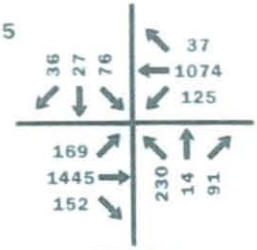
Tuesday
10.30.07
1630-1730

4



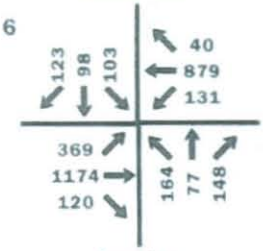
Tuesday
10.30.07
1645-1745

5



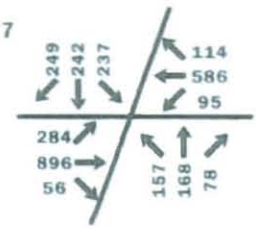
Tuesday
10.30.07
1645-1745

6



Tuesday
10.30.07
1645-1745

7



SR 516 at
SE Wax Rd.

JTE, Inc.

FIGURE 5

Reprint in Color Only

COVINGTON PROFESSIONAL ARTS BUILDING - COVINGTON
TRAFFIC IMPACT ANALYSIS

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

ATTACHMENT 1

KIRKLAND BANKS DRIVEWAY COUNTS

Wells Faro Bank at 460 Central Way — 9/20/05
Kirkland, WA
Building Area = 5130 gsf

Time Ending	In	Out	Total	Hour Ending	Pk Hr Trip Rate
4:15 PM	7	8	15		
4:30 PM	8	9	17		
4:45 PM	12	9	21		
5:00 PM	6	9	15	68 < peak hour	13.26
5:15 PM	3	5	8	61	
5:30 PM	9	9	18	62	
5:45 PM	7	7	14	55	
6:00 PM	10	9	19	59	
Total	62	65	127		
Pk Hour	33	35	68		

Wells Faro Bank at 460 Central Way — 9/16/05
Kirkland, WA
Building Area = 5130 gsf

Time Ending	In	Out	Total	Hour Ending	Pk Hr Trip Rate
4:15 PM	11	9	20		
4:30 PM	8	8	16		
4:45 PM	10	9	19		
5:00 PM	10	13	23	78	
5:15 PM	8	17	25	83	
5:30 PM	7	9	16	83 < peak hour	16.18
5:45 PM	9	9	18	82	
6:00 PM	7	8	15	74	
Total	70	82	152		
Pk Hour	35	48	83		

FRIDAY

Frontier Bank at 12507 116th Avenue NE — 9/15/05
Kirkland, WA
Building Area = 4192 gsf

Time Ending	In	Out	Total	Hour Ending	Pk Hr Trip Rate
4:15 PM	2	3	5		
4:30 PM	4	4	8		
4:45 PM	3	1	4		
5:00 PM	7	6	13	30	
5:15 PM	2	5	7	32 < peak hour	7.63
5:30 PM	1	4	5	29	
5:45 PM	0	0	0	25	
6:00 PM	0	0	0	12	
Total	19	23	42		
Pk Hour	16	16	32		

Frontier Bank at 12507 116th Avenue NE — 9/16/05
Kirkland, WA
Building Area = 4192 gsf

Time Ending	In	Out	Total	Hour Ending	Pk Hr Trip Rate
4:15 PM	5	5	10		
4:30 PM	5	7	12		
4:45 PM	4	2	6		
5:00 PM	0	4	4	32 < peak hour	7.63
5:15 PM	4	4	8	30	
5:30 PM	0	1	1	19	
5:45 PM	1	1	2	15	
6:00 PM	1	0	1	12	
Total	20	24	44		
Pk Hour	14	18	32		

FRIDAY

BURLINGTON WASHINGTON
GRT05130M - MITZEL
HORIZON BANK - 1020 S BURLINGTON BLVD
TRIP GENERATION COUNTS
LOCATION #01

CUT THRU TRAFFIC HAS ALREADY BEEN DELETED FROM IN/OUT TOTALS

	WED 5/11/2005			THU 5/12/2005			FRI 5/13/2005		
TIME	IN	OUT	CUT	IN	OUT	CUT	IN	OUT	CUT
16:00	4	1	0	5	8	1	6	9	2
16:15	1	4	0	7	3	0	5	10	0
16:30	5	3	1	11	9	0	10	10	1
16:45	7	7	1	7	12	0	18	15	1
17:00	3	2	2	1	0	5	17	12	0
17:15	0	0	0	3	1	0	7	8	1
17:30	0	0	0	0	0	0	3	7	0
17:45	0	0	1	3	2	0	1	7	1
TOTAL	20	17	5	37	35	1	57	78	6
PK HOUR	16:15			16:00			16:15		
VOLUME	16	16	4	30	32	1	50	47	

BURLINGTON, WASHINGTON
GRT05130M - MITZEL
SKAGIT STATE BANK - 1575 S BURLINGTON BLVD
TRIP GENERATION COUNTS
LOCATION #02

	WED 5/11/2005		THU 5/12/2005		FRI 5/13/2005	
TIME	IN	OUT	IN	OUT	IN	OUT
16:00	5	4	2	4	6	7
16:15	3	5	3	4	8	10
16:30	6	4	2	3	7	8
16:45	4	4	3	3	5	6
17:00	0	2	1	2	10	14
17:15	0	0	0	0	5	4
17:30	0	1	1	1	8	10
17:45	1	1	0	0	2	2
TOTAL	19	21	12	17	51	61
PK HOUR	16:00		16:00		16:15	
VOLUME	18	17	10	14	30	38

BURLINGTON, WASHINGTON
GRT05130M - MITZEL
WHIDBEY ISLAND BANK - 1800 S BURLINGTON BLVD
TRIP GENERATION COUNTS
LOCATION #03

	WED 5/11/2005		THU 5/12/2005		FRI 5/13/2005	
TIME	IN	OUT	IN	OUT	IN	OUT
16:00	9	12	8	4	21	25
16:15	14	14	7	12	13	15
16:30	13	9	6	7	11	15
16:45	11	16	8	9	17	15
17:00	1	8	1	6	19	14
17:15	1	5	0	5	12	16
17:30	0	1	1	6	4	10
17:45	2	3	3	5	2	4
TOTAL	51	69	34	49	99	114
PK HOUR	16:00		16:00		16:00	
VOLUME	47	51	29	32	62	70

From: Kamon Bryck
To: Hans Christiansen
Subject: Re: RNA 2/14/12 - Meeting Minutes
Date: Tuesday, February 28, 2012 6:36:10 PM

Here is the minutes in text in the e-mail, to avoid incompatibility between word processors.

RNA Minutes for Meeting of 02/14/2012 Attendance: 23

Called to order at 7:04 PM

Mary Hill moved to approve the minutes with a date correction.
Seconded by Mary Grace.
Approved by voice vote.

Treasurer Report: No neighborhood has received the additional allocation of stipend funds.

Guest Speakers from Chase Bank,for a proposed new building on the former Kasch's property:
Greta Pass, Hans Christiansen and Grant Seaman.
Presentation was recorded for Planning application.

Discussion: To discontinue lengthy presentations by LOTWP representatives until they are more cooperative.
Curt Sumers moved to table topic until next meeting.
Seconded by Bob Stowell.
Approved with 11 in favor, 2 opposed and 3 abstaining.

Announcements:

Gardening Class Sunday Feb, 20th, Mar 3rd.
White Oak Savanna Fundraiser Walk April 7th
West Linn Centennial Committer meeting

Updates:

The GNC wrote letter to the LOTWP Oversight Committee, requesting a meeting with voting members of their committee and City of West Linn officials. The GNC asks the RNA to approve this action.

Curt Sommers moved that this issue is time sensitive.
Seconded by Mary Hill
Approved by a show of hands

Curt Sommers moved that the RNA approve the letter from the GNC to the LOTWP
Seconded by Randall Fastabend.
Approved by a show of hands

Narrative of GNC process and discussion of LO water rights and usage.

West Linn is still looking for new members for boards and commissions.

Committee Reports:

Parks: Advertisements on dog poo bag dispensers.
FORS: New Carpet on walls, negotiating new furnace and door.

New Business:

As Kamon Bryck is no longer living in Robinwood, he requests that the RNA select a new Secretary.

Randall Fastabend moved that meeting adjourn.
Seconded by David Newell.
Approved by voice vote at 8:45 PM.

On 2/28/2012 3:30 PM, Hans Christiansen wrote:

> Thank you Kamon. I did not know that you had taken the notes until I received the message below. I found your e-mail on the agenda. Look forward to receiving the minutes.
>
> Thanks again.
>
> Hans Christiansen
> *Associate*
> *hans.christiansen@callison.com*
>
> CALLISON
> 1420 FIFTH AVENUE #2400
> SEATTLE, WASHINGTON 98101-2343
> T 1 206 623 4646 F 1 206 623 4625
>
> **From:** Kamon Bryck [mailto:kamontyler@comcast.net]
> **Sent:** Tuesday, February 28, 2012 3:27 PM
> **To:** Hans Christiansen
> **Subject:** Re: RNA 2/14/12 - Meeting Minutes
>
> At work. On phone. Dot have minutes on me. Will get them out ASAP when I get home. Would be easier if I had been privy to below conversation. But I wasn't. Sorry for delay.
>
> On Feb 28, 2012, at 3:18 PM, Hans Christiansen <Hans.Christiansen@callison.com> wrote:
>
> > Dear Kamon-
> >
> > Please see the below e-mails for your reference.
> >
> > Could you please provide me with a PDF of your draft Robinwood Neighborhood Association meeting minutes for the 2/14/12 meeting. If you could please send them ASAP it would be much appreciated.
> >
> > Thank you,
> >
> > Hans Christiansen
> > *Associate*
> > *hans.christiansen@callison.com*
> >
> > CALLISON
> > 1420 FIFTH AVENUE #2400
> > SEATTLE, WASHINGTON 98101-2343
> > T 1 206 623 4646 F 1 206 623 4625
> >
> > **From:** David Newell [mailto:davidbnewell@yahoo.com]
> > **Sent:** Tuesday, February 28, 2012 2:48 PM
> > **To:** Hans Christiansen; Anthony Bracco

Subject: Re: RNA 2/14/12 - Meeting Minutes

I do not have a copy of the minutes. They were taken by our secretary. Cameron Bryck. Tony, have you gotten your copy yet?

From: Hans Christiansen <Hans.Christiansen@callison.com>
To: Anthony Bracco <anthonymbracco@yahoo.com>; "davidbnewell@yahoo.com" <davidbnewell@yahoo.com>
Sent: Tuesday, February 28, 2012 1:58 PM
Subject: FW: RNA 2/14/12 - Meeting Minutes

<!--[if !supportLineBreakNewLine]-->
<!--[endif]-->
Hi Tony/David,

Could you please give me a status update? Thank you.

Hans Christiansen
Associate
hans.christiansen@callison.com

CALLISON
1420 FIFTH AVENUE #2400
SEATTLE, WASHINGTON 98101-2343
T 1 206 623 4646 **F** 1 206 623 4625

From: Hans Christiansen
Sent: Thursday, February 23, 2012 3:04 PM
To: 'Anthony Bracco'; 'davidbnewell@yahoo.com'
Subject: RE: RNA 2/14/12 - Meeting Minutes
Importance: High

Tony/David,

Do you have your draft meeting minutes available to forward to us? Please send ASAP.

Thank you,

Hans Christiansen
Associate
hans.christiansen@callison.com

CALLISON
1420 FIFTH AVENUE #2400
SEATTLE, WASHINGTON 98101-2343
T 1 206 623 4646 **F** 1 206 623 4625

From: Hans Christiansen
Sent: Tuesday, February 21, 2012 5:55 PM
To: 'Anthony Bracco'; 'davidbnewell@yahoo.com'
Subject: FW: RNA 2/14/12 - Meeting Minutes
Importance: High

Tony,

I sent my original e-mail below to you and Davidnewell@gmail.com which you gave me a few weeks ago, but it turns out this was not the right address. I am using the e-mail David has listed on the neighborhood association agenda. Will you please confirm and forward to David in case I still have the wrong e-mail. Thank you.

Hans Christiansen
Associate
hans.christiansen@callison.com

CALLISON
1420 FIFTH AVENUE #2400
SEATTLE, WASHINGTON 98101-2343
T 1 206 623 4646 **F** 1 206 623 4625

From: Hans Christiansen
Sent: Tuesday, February 21, 2012 4:10 PM
To: 'Anthony Bracco'; 'davidnewell@gmail.com'
Subject: RNA 2/14/12 - Meeting Minutes
Importance: High

Dear Tony and David-

Thank you for hosting Chase's proposed Cedar Oak & Willamette project at the February 14, 2012 Robinwood Neighborhood Association Meeting.

We are writing to request a copy of your meeting minutes. The City has a requirement that we include a copy of your meeting minutes for our design review application.

I understand that procedurally the minutes need to be approved at the next meeting, and therefore understand that they are in Draft form until accepted.

We are planning to make our submittal on Thursday 2/23, so if it is at all possible for you to send your Draft Meeting Minutes by tomorrow, in either MS Word or PDF format, it would be much appreciated. Thank you.

Hans Christiansen
Associate
hans.christiansen@callison.com

CALLISON
1420 FIFTH AVENUE #2400
SEATTLE, WASHINGTON 98101-2343
T 1 206 623 4646 **F** 1 206 623 4625

This message is private or confidential. If you are not the person for whom this message is intended, please delete it, notify me immediately, and do not copy or send this message to anyone else.

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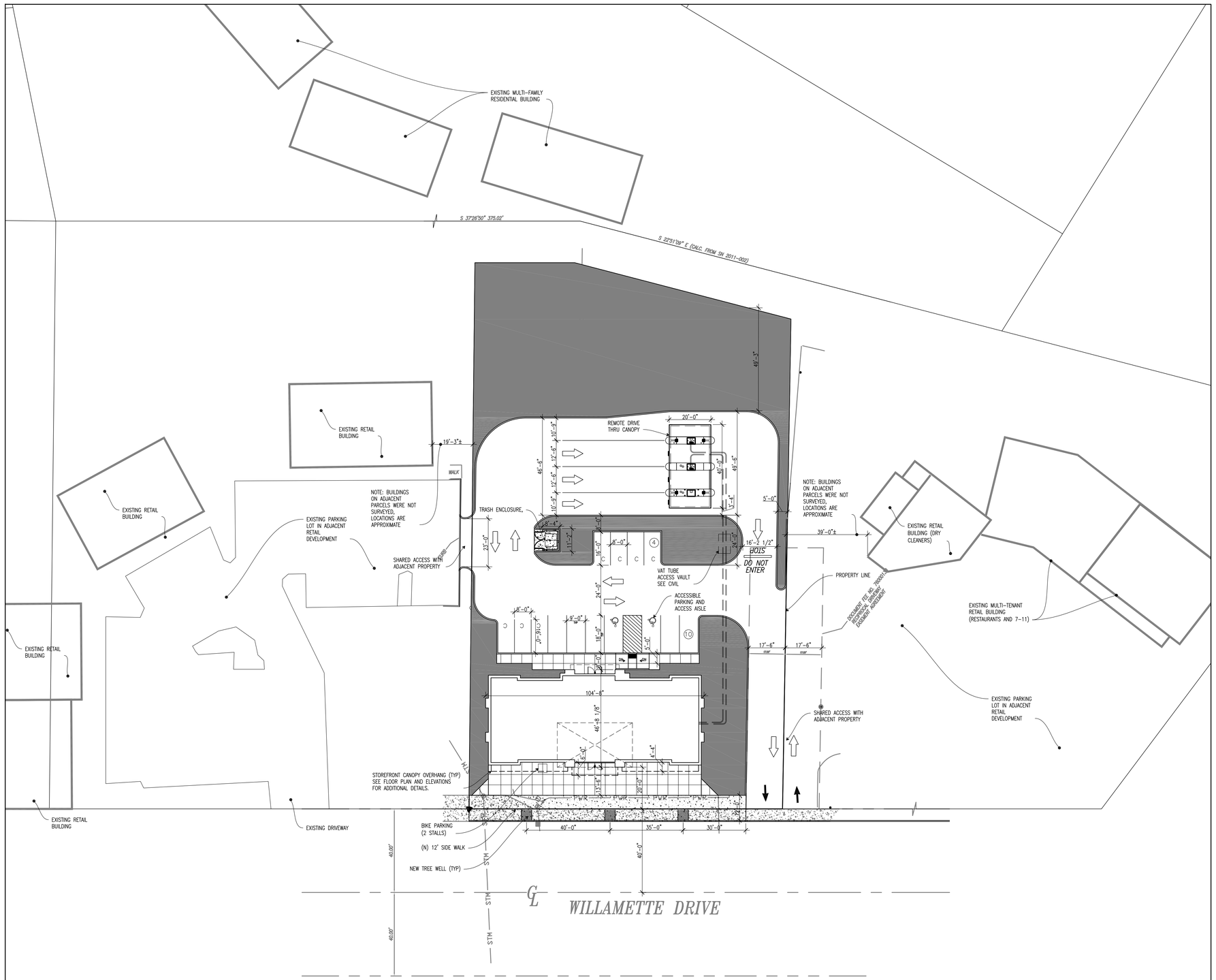
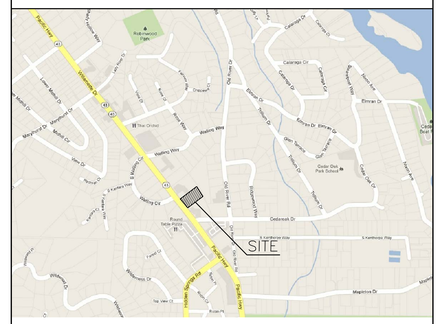


1 SITE PLAN

TRUE NORTH

SITE PLAN | SCALE 1"=20' | 1

VICINITY PARCEL MAP



GENERAL PROJECT INFORMATION

APPLICANT:
CALLISON ARCHITECTS, P.C.
1420 5TH AVE, SUITE 2400
SEATTLE, WA 98101
CONTACT: HANS CHRISTIANSEN
EMAIL: HANS.CHRISTIANSEN@CALLISON.COM

TAX IDENTIFICATION NO:
00360656 & 00360674

ZONING CLASSIFICATION:
GC - GENERAL COMMERCIAL

ENTIRE SITE AREA:
38,059 SF

BUILDING AREA:
4,335 SF (11.4%)

IMPERVIOUS AREA:
19,079 SF (50.1%)

LANDSCAPE AREA:
14,645 SF (38.5 %)

TOTAL # PARKING STALLS:
14 PARKING STALLS: 7 STANDARD, 7 COMPACT.
(INCLUDES 1 VAN ACCESSIBLE AND 1 STANDARD ACCESSIBLE STALL)
REQ. = 12, MAX = 14

BUILDING HEIGHT:
26'-6"/ONE STORY

ESTIMATED PROJECT VALUATION:
$885,000

PRE-APPLICATION MEETING DATE:
JUNE 2, 2011

LANDSCAPING

PLAN NORTH

CHASE

SIGNED: XX/XX/XX

CALLISON ARCHITECTS, P.C.
CALLISON
www.callison.com

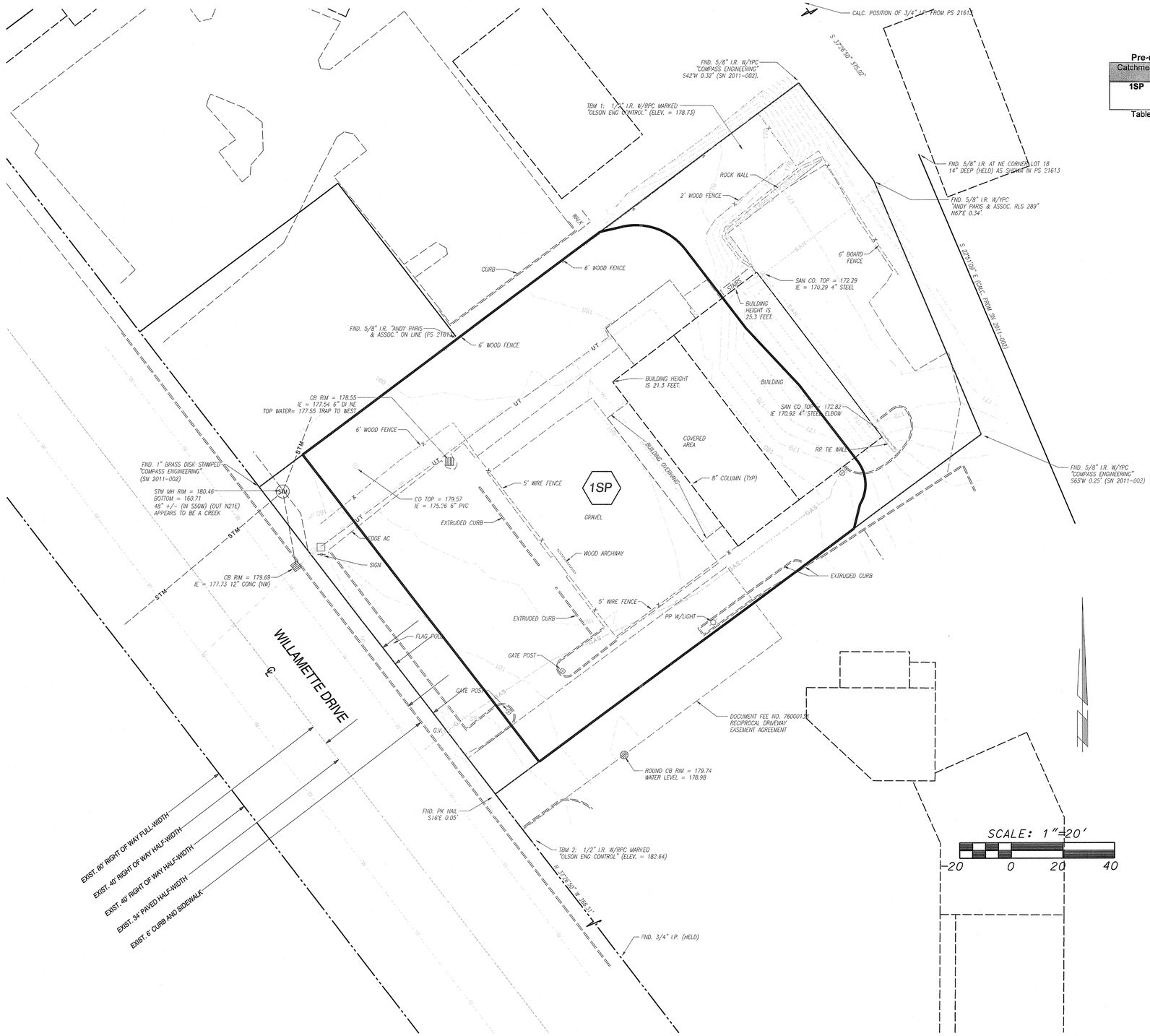
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

PROJECT #210461.89

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12
PLANNING ADD. INFO.	02/29/12

SITE PLAN

A0.1



Pre-developed Catchment Area:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SP	0.573	70	Woods, Good, HSG "C"	Sheet Flow	167	1.1
				Shallow Conc. Flow	30	11.0

Table 1: Hydrologic parameters used in stormwater analysis.

J:\data\8000\8700\8701\Engineering\8701.e.Border.catch predev.dgn
M:\MicroStation V8\pen tables\OCE table setup\oce catch dev.tbl

CHASE

CEDAR OAK & WILLAMETTE RETAIL BANKING CENTER

19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 21046I.89

ARCHITECT OF RECORD

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

ENGINEER OF RECORD

OLSON ENGINEERING INC. LAND SURVEYORS ENGINEERS
1111 BRUNDAGE, VANCOUVER, WA 98660

SEAL

REGISTERED PROFESSIONAL ENGINEER
60784PE
OREGON
MAY 17, 1985
CHRIS R. WONDERLY
EXPIRES: 6/30/12
2/17/12

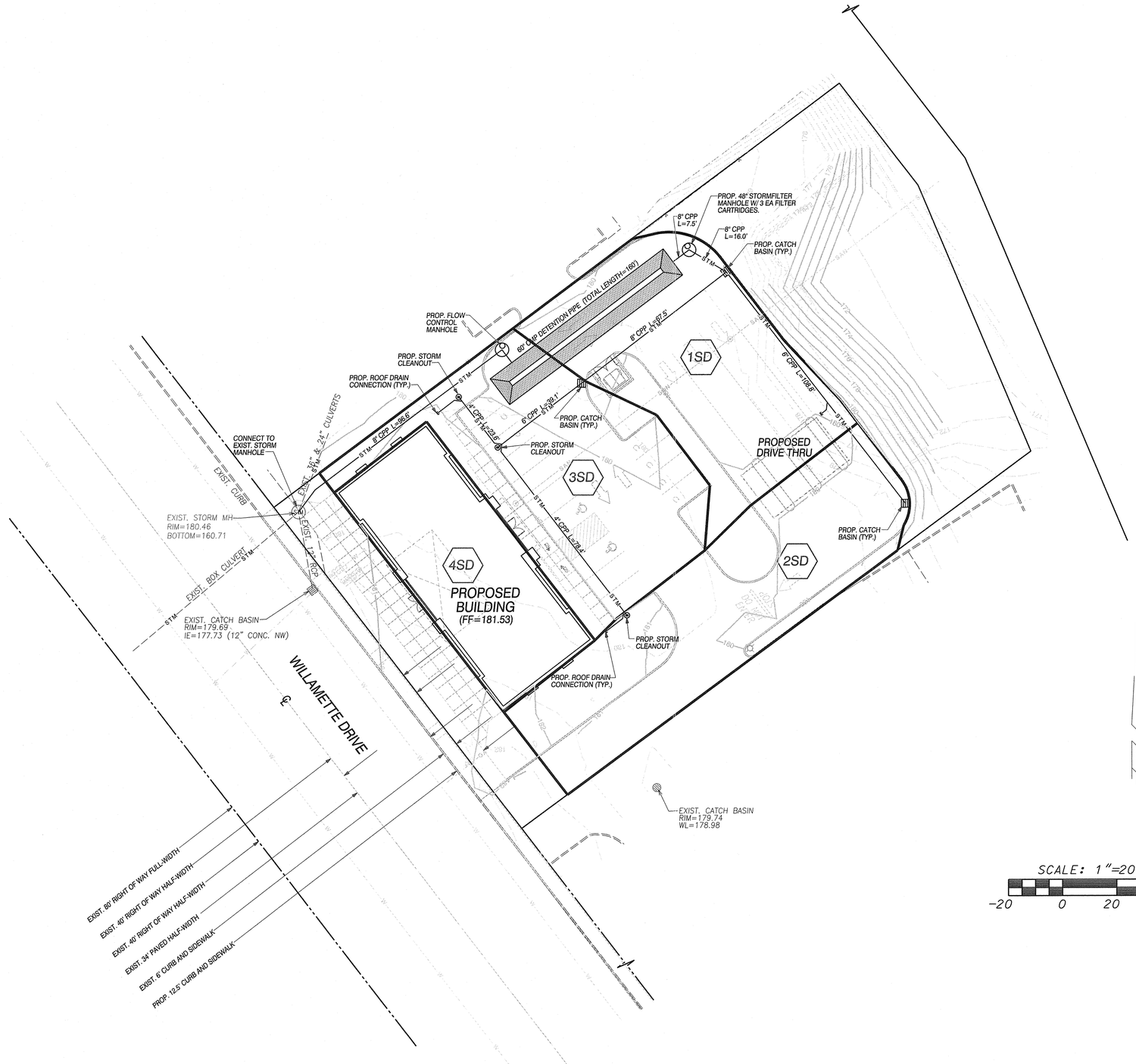
ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION

SHEET TITLE

PRELIMINARY PRE-DEVELOPED CATCHMENT PLAN

SHEET NUMBER

1 OF 2



Developed Catchment Areas:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SD	0.127	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.022	74	>75% Grass cover, Good, HSG C			
2SD	0.105	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.058	74	>75% Grass cover, Good, HSG C			
3SD	0.110	98	Paved parking	Direct entry (5.0 Min.)	-	-
	0.016	98	Sidewalk			
	0.034	74	>75% Grass cover, Good, HSG C			
4SD	0.101	98	Roof	Direct entry (5.0 Min.)	-	-
					-	-

Table 2: Hydrologic parameters used in stormwater analysis.

J:\data\8000\8700\8701\Engineering\8701.e.Border.catch dev.dgn
M:\MicroStation V8\pen tables\OCE table setup\oce catch dev.tbl

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ARCHITECT OF RECORD
CALLISON
CALLISON ARCHITECTS, P.C.
www.callison.com

ENGINEER OF RECORD
OLSON ENGINEERING INC. LAND SURVEYORS ENGINEERS
1111 BROADWAY, VANCOUVER, WA 98660

SEAL
REGISTERED PROFESSIONAL ENGINEER
60784PE
OREGON
JANUARY 17, 1997
DARIS R. WONDERLY
EXPIRES: 6/30/
2/13/12

ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION

SHEET TITLE
PRELIMINARY DEVELOPED CATCHMENT PLAN

SHEET NUMBER
2 OF 2

City of West Linn

Planning & Development • 22500 Salamo Rd #1000 • West Linn, Oregon 97068
Telephone 503.656.4211 • Fax 503.656.4106 • westlinnoregon.gov

DEVELOPMENT REVIEW APPLICATION

For Office Use Only		
STAFF CONTACT	PROJECT NO(S).	
NON-REFUNDABLE FEE(S)	REFUNDABLE DEPOSIT(S)	TOTAL

Type of Review (Please check all that apply):

- ☐ Annexation (ANX)
- ☐ Appeal and Review (AP) *
- ☐ Conditional Use (CUP)
- ☒ Design Review (DR)
- ☐ Easement Vacation
- ☐ Extraterritorial Ext. of Utilities
- ☐ Final Plat or Plan (FP)
- ☐ Flood Management Area
- ☐ Hillside Protection & Erosion Control
- ☐ Historic Review
- ☐ Legislative Plan or Change
- ☐ Lot Line Adjustment (LLA) */**
- ☐ Minor Partition (MIP) (Preliminary Plat or Plan)
- ☐ Non-Conforming Lots, Uses & Structures
- ☐ Planned Unit Development (PUD)
- ☐ Pre-Application Conference (PA) */**
- ☐ Street Vacation
- ☐ Subdivision (SUB)
- ☐ Temporary Uses *
- ☐ Time Extension *
- ☐ Variance (VAR)
- ☐ Water Resource Area Protection/Single Lot (WAP)
- ☐ Water Resource Area Protection/Wetland (WAP)
- ☐ Willamette & Tualatin River Greenway (WRG)
- ☐ Zone Change

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

Site Location/Address: 19080 WILLAMETTE DRIVE, WEST LINN, OR

Assessor's Map No.: 21 E 23 AA
Tax Lot(s): 00360656 & 674
Total Land Area: +/- 0.87 Acres

Brief Description of Proposal: DEMOLISH EXISTING KASCH'S NURSERY. CONSTRUCT +/- 4,335 SF, ONE-STORY CHASE BANK BRANCH WITH REMOTE 3-LANE DRIVE-THRU (2 VAT & 1 ATM) TOGETHER WITH ASSOCIATED SITE IMPROVEMENTS, LANDSCAPING, AND REQUIRED FRONTAGE IMPROVEMENTS.

Applicant Name: (please print) JP MORGAN CHASE, N/A (STEPHEN CARY) — Phone: 253-305-5034
Address: 10011 GRAVELLY LAKE DR. SW – 2ND FLOOR — Email: stephen.cary@chase.com
City State Zip: LAKEWOOD, WA 98499

Owner Name (required): (please print) Florence Ellen Ethington — Phone: 208-398-7716
Address: 3777 4A AVE — Email:
City State Zip: Emmett, Idaho 83617

Consultant Name: (please print) CALLISON ARCHITECTS, P.C.(HANS CHRISTIANSEN) — Phone: 206-623-4646
Address: 1420 FIFTH AVENUE, SUITE 2400 — Email:
City State Zip: SEATTLE, WA 98101 — hans.christiansen@callison.com

1. All application fees are non-refundable (excluding deposit). Any overruns to deposit will result in additional billing.
2. The owner/applicant or their representative should be present at all public hearings.
3. A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.
4. Three (3) complete hard-copy sets (single sided) of application materials must be submitted with this application. One (1) complete set of digital application materials must also be submitted on CD in PDF format. If large sets of plans are required in application please submit only two sets.

* No CD required / ** Only one hard-copy set needed

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

Applicant's signature — 2.16.12 — Date
Owner's signature (required) — Florence Ellen Ethington — February 7, 2012 — Date

Development_Review_Application_.Doc.Docx

CALLISON

February 23, 2012

Mr. Peter Spir
Associate Planner
City of West Linn
22500 Salamo Rd.
West Linn, OR 97068

Re: Chase – Cedar Oak & Willamette, 19080 Willamette Drive, West Linn, OR
210461.89
Class II Design Review Application & Transparency Exception Request

Dear Mr. Peter Spir:

On behalf of JPMorgan Chase, N.A. we are submitting the attached Class II Design Review Application & Variance Request for the proposed Chase – Cedar Oak & Willamette project located at 19080 Willamette Drive, West Linn, OR. Below we have provided a list of our submittal materials and the Narrative for the Class II Design Review Application followed by the Narrative for our Transparency Exception Request.

CLASS II DESIGN REVIEW APPLICATION:

Application materials included with this submittal are as follows:

3-copies	Architectural Drawings (Site Plan, A0.1; Floor Plan, A1.1; & Elevations, A4.1, A4.2, & A4.3
3-copies	Color Building Elevations
3-copies	Preliminary Development Plan (Civil, Utilities & Grading), 1 of 1
3-copies	ALTA Survey (Existing Conditions), 1 of 1, dated 8/22/11
3-copies	Landscape Plan (L-1) & Irrigation Plan (L-2)
3-copies	Site Electrical Plan (Lighting), SE1.0
3-copies	Site Photometric Plan (Lighting), SP1.0
1-set	Exterior Building Material Samples with colors included
3-copies	Preliminary Sign Plan (**to follow under separate cover**)
1-copy	Preliminary Drainage Analysis, 2/13/12
3-copies	Traffic Impact Analysis (**to follow under separate cover**)
3-copies	Noise Study, 2/22/12
3-copies	Neighborhood Meeting Minutes (Robinwood Neighborhood Association- **to follow under separate cover**) 2/14/12
1-CD	Neighborhood Meeting Audio Recording
1-copy	Copy of Letter to officers of association w/copies of return receipt (President & VP).
1-copy	Mailing Label List (and supporting documentation from First American Title)
1-copy	Letter to Neighborhood Association

1420 FIFTH AVENUE #2400 SEATTLE, WASHINGTON 98101-2343
T 206 623 4646 F 206 623 4625 www.callison.com

1-copy	Notice of Proposed Development (required posted notice)
1-copy	Affidavit of Posting

All drawings are dated 2/23/12 unless noted above. Drawings submitted include full size and 11" x 17" as required.

CLASS II DESIGN REVIEW NARRATIVE:

Basic Project Description:

Overview: The proposed project site is zoned GC – General Commercial. The proposal is as follows: Demolish former Kasch's nursery building and site improvements. Construct a 4,335 SF, 1-story Chase Bank Branch with remote 3-lane drive-thru. The Drive-thru will consist of 2 VAT (Vacuum Assisted Tellers) and 1-ATM. The project will also include construction of site improvements including but not limited to, on-site parking for 14-vehilces, onsite pedestrian walkway, trash enclosure, landscaping, and site lighting. As required by the City of West Linn the project proposes to replace the existing curb and sidewalk along the project frontage on Willamette Drive, with new curb and 12' sidewalk. Three tree wells are also provided along the project frontage.

Site Access: Primary vehicle access will be via an existing shared driveway with the 7-11 (along SE Boundary of Site); however the project will also have access via the retail project to the northeast of the site, as required by the City of West Linn. Parking will be at the rear of the building. The project will also be providing bicycle parking at the storefront, as well as additional plaza area between the sidewalk and building to enhance bicycle and pedestrian accessibility.

Hours of Operation: Bank hours of operation are Monday –Friday 9AM-6PM, Saturday 9AM-1PM. ATM's at the building and Drive-thru ATM are operational 24hrs, all days of the week.

Building Design: The Chase building incorporates cast stone veneer, brick, and stucco as the primary exterior building materials. A hipped roof tower element emphasizes the primary building entrance on Willamette Drive and provides additional interest to the building design. The building includes modulation and changes in materials to provide architectural interest. As required by code the building incorporates flat canopies along the length of the storefront. Additionally, blue metal canopies are provided over widows on the side and rear elevations. And a flat canopy, matching the storefront canopy is provided over the rear entry. The drive-thru canopy structure is finished with similar materials to the Bank branch to provide uniformity in design.

CDC 55.100 Approval Standards – Class II Design Review

A. Provisions for the following chapters shall be met:

1. Chapter 33 CDC. A Preliminary Drainage Analysis was included with this application. In addition, the preliminary stormdrainage configuration is reflected on the Preliminary Development Plan, 1 of 1 included with this application.

2. Chapter 34 CDC. The property is commercially zoned. While we believe that Chapter 34 CDC is not applicable to this project because of the zoning of the property, the remote drive-through canopy could be considered an accessory structure and it should therefore be noted that the drive-through canopy complies with section *34.060 Setback Provisions For Accessory Structures (Non-Dwelling)* by meeting all of the applicable requirements for the principal use.

3. Chapter 38 CDC. We have reviewed Chapter 38 CDC and do not believe any of the sections of this chapter to be applicable to the project.

4. Chapter 40 CDC. The proposed Chase Bank Branch building's maximum height is 26'-6" above finished grade. The proposed drive-thru canopy's maximum height above finished grade is 14'-10". Neither structure exceeds the 45' maximum height allowed by the GC zone for structures located 50' or more from a low or medium density residential zone.

5. Chapter 42 CDC. The project site has been configured so that the site's primary access from Willamette Drive meets the 30' clear vision area required under section 42.040.

6. Chapter 44 CDC. There are currently no new fences proposed in conjunction with the proposed project. The proposed Trash Enclosure will be screened with a CMU walls and metal frame gates clad with wood pickets, which will meet the requirements of section 44.030.

7. Chapter 46 CDC. As required by Chapter 46, off-street parking is located at the rear of the site. Based on the building square footage (4,335 SF) 12 parking spaces are allowed by code. The project will provide 14 parking stalls, which falls within the 10% maximum increase allowed by this Chapter. 7-standard stalls (2 will be accessible, one of which is van accessible) and 7-compact stalls will be provided. Compact stalls are identified on the Site Plan, A0.1. and Preliminary Development Plan, 1of 1.

   4 stacking spaces per drive-through lane are provided, which exceeds the requirements of this chapter for *Drive-in banks*.

   Off-street loading requirements are not applicable to this project, nor does the bank require loading spaces.

   2 covered bicycle parking spaces are provided within 50 of the primary building entrance which meets and exceeds the bicycle parking requirements of this chapter. Bicycle parking cover is provided for by the storefront canopies.

   We have reviewed the remainder of Chapter 46 CDC and believe the project meets all of the remaining, applicable, requirements of the code.

8. Chapter 48 CDC. The proposed project proposes to retain the existing point of access as the primary access to the site; which is a shared drive way with the 7-11 development located southeasterly of the site.

It is important to note that the proposed drive-through will exit at the point where the shared access turns northwesterly onto the project site. To eliminate potential vehicular conflicts a "STOP" marking with stop bar is indicated at the exit of the drive-thru with "EXIT ONLY" marking indicated on the opposite side of the stop bar. Additionally, directional arrows are provided along the drive aisles and parking lot to indicate acceptable flow of traffic.

It is our understanding that the development to the northwest of the site was required to provide provision for access to and from the Chase project site. As a result, the proposed site configuration reflects cross access with the commercial development to the northwest of the site. Because the connection shown to the development to the northwest connects to an existing parking area, the connection point is shown as 23' wide, which meets the parking lot drive-aisle dimensional minimum width.

The project is built as close to the Willamette Drive right-of-way as possible to facilitate pedestrian and bicycle access. As discussed previously, the project will also be providing bicycle parking at the storefront, as well as additional plaza area between the sidewalk and building to enhance bicycle and pedestrian accessibility.

9. Chapter 52 CDC. Signage will be submitted under separate cover to follow. Chase's signage consultant will respond to the applicable sections of this Chapter when the signage plans are submitted.

10. Chapter 54 CDC. More than 20% of the gross site area will be landscaped. More than 5% of the interior parking lot area is landscaped. A combined 5' wide landscape area is provided adjacent to the 7-11site beyond where the shared access terminates. A combined landscape area greater than 5' in width is provided adjacent to the commercial development to the northwest of the site. A large 50' or greater landscape area is provided at the rear of the site, adjacent to the multi-family development to the northeast. We have reviewed the remainder of Chapter 54 CDC and believe the project meets all of the remaining, applicable, requirements of the code.

B. Relationship to the natural and physical environment

1.& 2.

As discussed in the City's June 2, 2011 Revised Summary Notes for the project's Pre-Application Conference Meeting, The site extends back or northeasterly +/- 260 feet from the Willamette Drive ROW. The front two-thirds of the lot are flat. The land them drops down about 10 feet to a lower flat area at the rear of the existing Kasch's building.

There are no drainageways, riparian zones, wetlands or other natural features as defined by the CDC on the property. The trees are few and limited to the area along the rear property line. They appear to be three cottonwoods about 30-40 feet tall. These trees provide some screening between the site and the apartments to the rear of the site. Although the tree locations were not surveyed, the trees are known to be located beyond the existing, rear wood fence line.

These three existing cottonwood trees are proposed to remain and proposed site grading will not impact the area where the trees are located. While these trees are proposed to remain, it should

be noted that besides providing screening, cottonwood is not considered a high priority tree species for preservation and in our opinion these trees would not qualify as heritage trees. Therefore there are no plans to provide further protection for these trees via dedication or conservation easements.

3. Site grading will not significantly alter natural drainage patterns. Refer to the Preliminary Development Plan, 1 of 1 included with this application for additional information.

4. Site indicated to be in type 13 C soils classification per NRCS *Soil Survey of Clackamas County Area. Oregon – Sheet Number 6*, additional information included in Appendix B of Preliminary Drainage Analysis also portion of map included on Preliminary Development Plan, 1 of 1.

5. Project meets requirements of section 5.

6. Architecture

a. b. c. & e *Design*: The proposed building is a single story structure. As seen from Willamette Drive, the front elevation is broken into three parts with a central entry way section that is capped with a hipped roof. The hipped roof tower element over the entry helps to emphasize the primary building entry and also provides for an element of contextual design, having a similar design to the Starbucks up the street. Additionally, flat storefront awnings have been incorporated into the design Exterior building materials incorporate cast stone veneer, brick , and stucco and the primary building materials. Materials and colors of materials are primarily earth tones.

Overall, building lines, roof form and rhythm of windows, scale and massing, materials and colors are similar to newer buildings in the vicinity and in line with the vision for the neighborhood. Human scale is provided the buildings horizontal and vertical modulation, use of windows along the majority of the front façade and by flat awnings that extend the length of the building. The building will be within approximately 13' 6" of the required 12-foot sidewalk along Willamette Drive. The additional area will be hardscaped, providing additional plaza area for a more pedestrian friendly environment at the storefront.

d. Contrasting architecture is not proposed and therefore this section is not applicable to the project.

f. *Windows/Transparency*: The transparency provided for the front elevation exceeds the 60% transparency requirement for the project. The side elevations are both within view of Willamette Drive and therefore both elevations are required to provide 30% transparency. Transparency required for the side elevations is provided by excess transparency provided at the front elevation as allowed by exception in Section 55.100.B.6.f. of the code. Because the windows provided on the side elevations would not be considered to be at "pedestrian level" per our assumptions, we are requesting the percentage transparency exception be applied to the side elevations. Please see the *EXCEPTION REQUEST NARRATIVE*, provided following the *DESIGN REVIEW NARRATIVE* for full discussion.

g. Variation in depth and rooflines is provided along all elevations including the rear elevation, which to a great extent mirrors the front elevation, with the exception of the hipped roof.

h. Flat canopies are provided along the front elevation facing Willamette Drive. Flat canopies over the primary entry portion of the building extend 6' from the building. Flat canopies over the portions of the front façade flanking the entry extend from 3'-0" to 4'-4" from the face of the building. These canopies provide pedestrian scale as well as whether protection. Please note: Because the building is not located immediately adjacent to the public sidewalk, extending the canopies further from the front façade will not have additional benefit to pedestrians passing by on the public sidewalk.

i. We believe the building's design & location, as well as the configuration of the streetscape area in front of the building, will enhance and contribute to the development of a safe and attractive pedestrian environment along the project's frontage on Willamette Drive.

j. We have reviewed this section of the code and believe the project meets the requirements outlined.

7. Transportation Planning Rule (TPR) compliance

a. The project site has approximately 150-feet of street frontage along Willamette Drive. The building has been oriented to the street, with the primary building entrance facing Willamette Drive. The building itself occupies approximately 102-feet of the street frontage which equates to 68% of the building being adjacent to the right-of-way. Only one, existing driveway entrance (shared with 7-11) is proposed to be maintained off of Willamette Drive. Parking has been placed at the rear of the site.
b. Not applicable to Commercial projects.
c. The building is proposed to be built as close as is feasibly possible to the Willamette Drive right-of-way. The building is set back 20' from the right of way, which is the maximum setback allowed by code. CC & R's in affect for the property prohibit the building from being located any closer to the edge of the right of way. Title companies will not provide title insurance if the building is not set back as required per the CC & R's. Chase's legal council has diligently worked with the title companies to work around the CC & R requirement but has not been successful in convincing the title companies to look beyond the requirement of the CC & R's. Because the building can be located in such a manner as to meet the maximum setback allowed by code while also meeting the CC & R's, Chase has ultimately elected to locate the building in the location proposed
d. We have reviewed this section of the code and believe the project meets the requirements outlined.
e. We have reviewed this section of the code and believe the project meets the requirements outlined.
f. We have reviewed this section of the code and believe the project meets the requirements outlined.
g. We have reviewed this section of the code and believe the project meets the requirements outlined.

h. We have reviewed this section of the code and believe the project meets the requirements outlined.
i. Not applicable to commercial projects
j. Note applicable to commercial projects.

C. Compatibility between adjoining uses, buffering, and screening.

1. We have reviewed this section of the code and believe the project meets the requirements outlined. It is important to note that the buffer provided from site improvements at the rear of the project site is 49-feet or greater from the apartment parcel to the rear of the site. Landscaping with trees, shrubs, and ground cover, as well as retention of existing trees at the rear property line will provide for generous screening of the project site.
2. The onsite trash enclosure will be screened by a CMU walls and metal framed gates with wood slats. Additionally landscape screening is provided around 3 sides of the trash enclosure. There are no other areas that we believe require screening from adjoining properties.
3. Rooftop mechanical equipment is screened by raised parapets.

D. Privacy and noise.

1. Residential dwelling units are not proposed for this project and therefore this section does not apply to the project
2. Residential dwelling units are not proposed for this project and therefore this section does not apply to the project
3. The drive-through area will be screened from the adjacent apartments located to the rear of the site. Screening will be provided by landscaping with trees, shrubs, and ground cover, as well as retention of existing trees at the rear property line.
4. A noise study is included with this application. The noise study concludes that the business and its activities do not exceed the noise standards contained in the West Linn Municipal Code.

E. Private Outdoor Area – Not applicable to commercial projects

F. Shared Outdoor Recreation – Not applicable to commercial projects

G. Demarcation of public, semi-public, and private spaces.

The 12-foot wide public sidewalk along Willamette Drive will be paved per City of West Linn public works standards. The additional 13' 6" of hardscaped plaza area between the front of the building and public sidewalk will be paved with concrete, but will use an alternate scoring pattern to differentiate the plaza area from the public sidewalk. The parking area located at the rear of the site is separated from the front of the building and public sidewalks by landscaping, demarcating the difference between the public and semi-public space at the rear of the site.

H. Public Transit

1. The project is immediately adjacent to Willamette Drive. There is a bus stop approximately 60-feet west of the site on Willamette Drive. Public sidewalks currently extend across the project

site's frontage to the bus stop. Sidewalks will be replaced along the project frontage and built to a width of 12-feet providing improved access to the adjacent public transit stop.

2. No additional facilities are proposed at this time
3. We have reviewed this section of the code and believe the project meets the requirements outlined.
4. This section is not applicable to this project. The project is not part of a larger commercial business center (greater than 3 acres in size). Additionally there is a transit stop within 400 yards of the site.

I. Public Facilities

1. *Streets*: No requirements for additional right-of-way dedication have been noted by the City. The project will be providing new curb and 12-foot wide public sidewalk along the project frontage along Willamette Drive. Street trees will also be provided along the project frontage. Code required trees be placed in 5' x 5' tree wells at 35-feet on center. Due to design limitations street tree spacing proposed does not meet the standard exactly, but is designed in the spirit of the 35' on center spacing requirement. The center of the first tree well is located 30' westerly of the driveway opening in order to meet the 30' clear site triangle requirement. The second street tree is placed 35' from the first tree, and the third tree is located 40' from the second tree. The 40' spacing was is necessary to avoid utility conflicts that would result if the third tree was placed 35' from the second tree.
2. *Drainage*: The proposed project is required to meet storm drainage requirements. A Preliminary Drainage Analysis is included with the application. The stormwater collection and management system proposed to serve the project site is shown on the Preliminary Development Plan, 1 of 1.

J. Crime Prevention and Safety/Defensible Space

We have reviewed the requirements of this section and believe the project is designed to meet all the criteria of this section. Being a bank, security is of the highest importance. Lines of site into the developed areas of the site, allow for the site to be visible from the roadway, and adjacent commercial properties. Additionally, Chase's security requirements exceed the security lighting levels required by the City.

K. Provisions for Persons with Disabilities

The front building entry, facing Willamette Drive, will be designed to be accessible from to building to the adjacent public sidewalk. The public sidewalk connects to the bus stop located easterly of the site in front of the 7-11 on Willamette Drive. The secondary, rear entry will be accessible from the accessible parking stalls located at the rear of the site.

L. Signs

1. The project will have addressing sized to adequately identify the premises as required by the local fire department.

2. Signage on the building and site will be specific to Chase and will be of similar or better quality than the newer commercial development located northwesterly of the site. Chase's signage consultant, Signtech, will be responsible designing and permitting of all building and site signage, including but not limited to building signage, monument/pylon signage, directional signage, and accessible parking signage.
3. Directional signage will be provided on site to clearly inform customers and those passing through the site of the specific designations of areas on the site, including the entry and exit of the drive-through as well as the functions of the drive-thru lanes. Directional arrows and other pavement markings will be used to clearly direct vehicle traffic on site.
4. Signs will be located as to not obscure vehicle diver's site distance.
5. Not applicable to commercial projects.
6. Due to the scale of the project there are no pedestrian or bicycle routes running through the parking areas.

M. Utilities

Utilities to serve the project will be coordinated during the design and development of the site. Utilities serving the bank and exterior portions of the site, such as the drive-through canopy and parking lot lighting will be placed underground.

N. Wireless Communication Facilities

No wireless communication facilities are proposed to serve the project, with the possible exception of a small rooftop mounted satellite dish. If installed for this project the satellite dish will be screened by parapets that extend above the rooftop and will not be visible from street level.

O. Refuse and Recycling

We have reviewed the requirements of this section and believe the project is designed to meet all the criteria of this section. For privacy and security reasons Chase banks are serviced by a third party provider for paper shredding and recycling. The service is conducted after business hours. The bank therefore only generates a relatively small amount of waste. An onsite trash enclosure is provided for as indicated on the Site Plan. The trash enclosure will be constructed of CMU painted to match the bank building and metal gates with wood slats. The trash enclosure will also be screened on three sides as indicated on the Landscape Plan, L-1.

Other design considerations:

Front Building Setback: CC & R's require that building be set back 60-feet measured from the centerline of Willamette Drive. The current half street right-of-way width is 40', as a result the effective building setback from the edge of right-of-way is 20'. The 20' setback, although not desired by the City, is allowed per CDC 19.070(A)(7), which allows for a maximum building setback of 20'.

Front Setback Landscaping: Code stipulates that *"the front setback area between the street and the building line shall consist of landscaping or a combination of non-vehicular hardscape areas (covered with impervious surfaces) and landscaped areas, with at least 25 percent of the front setback area*

consisting of landscaped areas." The City indicated they would support a variance to reduce landscaping requirement to allow for a zero foot setback. However, due to the effective 20' right of way setback required by the CC & R's and permitted by code the building will not be able to be built with the building immediately adjacent to the street.

Our current position is that a variance is not required. Approximately 132.5' of the approximately 150' of project frontage on Willamette Drive is unencumbered by vehicular access areas. Of that frontage (area between driveway and northwesterly property line) 1,917 SF of area is located between the building setback line and sidewalk. Of that area 374 SF is landscaped, which equates to 19.5% of the frontage area. We believe the minor deviation from the 25% standard does not justify requesting a variance and therefore request that as part of the Class II Design Review the City make a determination that the proposed landscaping is adequate to meet the intent of the code and that the additional hardscaping is in the interest of the City's desire to create a dynamic, more social space along Willamette Drive.

EXCEPTION REQUEST NARRATIVE:

Section 55.100.B.6.f. reads as follows:

> *The main front elevation of commercial and office buildings shall provide at least 60 percent windows or transparency at the pedestrian level to create more interesting streetscape and window shopping opportunities. One side elevation shall provide at least 30 percent transparency. Any additional side or rear elevation, which is visible from a collector road or greater classification, shall also have at least 30 percent transparency. Transparency on other elevations is optional. The transparency is measured in lineal fashion. For example, a 100-foot-long building elevation shall have at least 60 feet (60 percent of 100 feet) in length of windows. The window height shall be, at minimum, three feet tall. The exception to transparency would be cases where demonstrated functional constraints or topography restrict that elevation from being used. When this exemption is applied to the main front elevation, the square footage of transparency that would ordinarily be required by the above formula shall be installed on the remaining elevations at pedestrian level in addition to any transparency required by a side elevation, and vice versa. The rear of the building is not required to include transparency. The transparency must be flush with the building elevation.*

Transparency Calculation Assumptions: The above referenced code section states that *"Transparency is measured in lineal fashion"* but then goes on to state that *"The window height shall be, at minimum, three feet tall."* Furthermore, when exception to transparency is discussed, the above referenced code section states that *"the square footage of transparency that would ordinarily be required by the above formula shall be installed on the remaining elevations at pedestrian level in addition to any transparency required..."* Based on the above, it is our interpretation that transparency transfer is based on square footage of required transparency area. Therefore we will apply the following formula for the purposes of calculating the minimum required transparency:

Building Length x Percent Transparency Required x 3-feet (min. window height) = Minimum Transparency Area Required

"Pedestrian level" transparency is not defined; however, based on our experience with similar projects, "pedestrian level" transparency from will include transparency provided from ground level to 9-feet in height. Windows with a bottom sill greater than 5' above the ground level will not be counted as "pedestrian level" transparency (as an example the two clerestory windows located at each end of the front elevation would not be counted. Neither would the two clerestory windows on either of the side elevations.) We will assume these parameters for the purposes of calculating "pedestrian level" transparency provided.

Based on the above parameters the following formula will be used for the purposes of calculating transparency provided.

"Pedestrian Level" Transparency Length x "Pedestrian Level" Transparency Height = Transparency Provided

Overview: Interior bank functions preclude use of windows for security and or privacy purposes. Please see Floor Plan, A1.1 included with this application; specifically at the ends of the building.

Front Elevation Transparency: Where possible, pedestrian level windows are provided along the front elevation. The front elevation is 102' in length. 61'-2" of transparency length would be required to meet the 60% transparency requirement. Based on the formula above, Minimum Transparency Area Required is 183.6 SF.

The front elevation includes 4 large pedestrian level windows (34 SF each) and the entry storefront (174 SF). The Transparency Provided at the storefront is 310 SF, which exceeds the Minimum Required Transparency Area by 126.4 SF

Side Elevations Transparency: Because both side elevations are visible from an arterial the 30 percent transparency requirement applies to each elevation. The side elevations of the building are identical. The opportunity for transparency along the side elevations is severely limited due to the interior bank functions; however two clerestory windows are added to each elevation. The side elevations also include horizontal and vertical modulation which helps to break up the facades and create more visual interest. The side elevations are each 43' long. 12' 10" of transparency length for each side elevation would be required to meet the 30% transparency requirement. Based on the formula above, Minimum Transparency Area Required for each side is 38.7 SF. Combined 77.4 SF of transparency is required along the side elevations.

Due to functional constraints outlined above in the *Overview* above, pedestrian level windows cannot be provided at the side elevations. We therefore request an exception to allow the extra 126.4 SF of transparency provided at the front elevation be credited toward meeting the required 77.4 SF of transparency area required for the side elevations.

Based on our interpretation of the code above and the application of exception allowed by the code for the side elevations, the project meets and exceeds the overall transparency required by 46 SF.

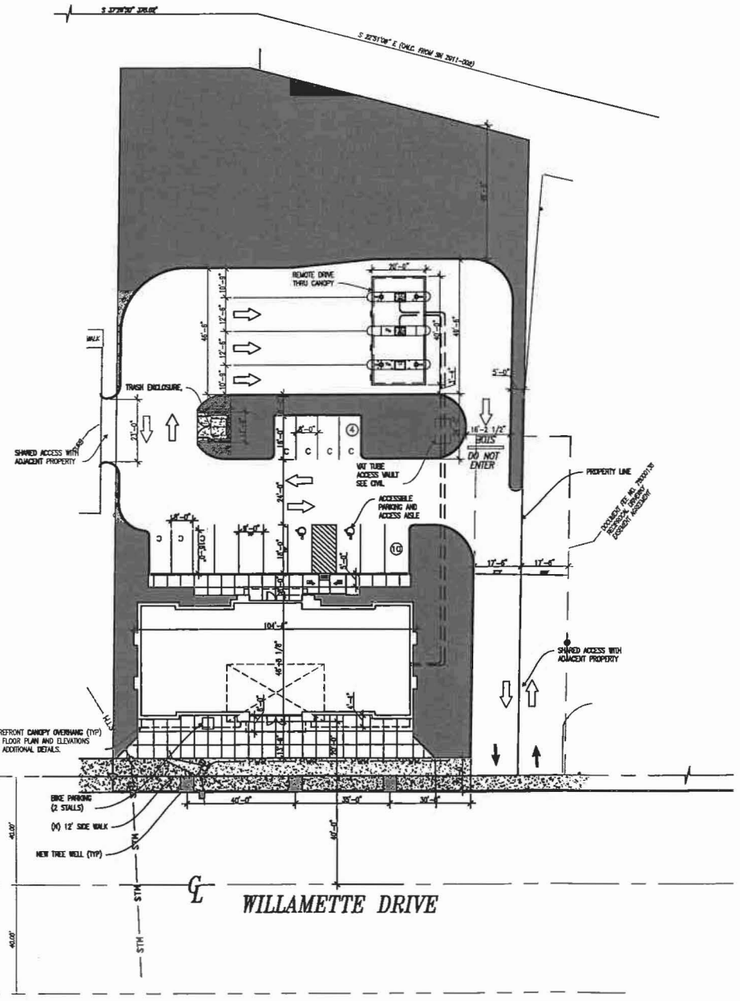
CLOSING:

Please note the additional materials to follow under separate cover as noted at the beginning of this letter. If any additional materials or information are required for the review of this application please do not hesitate to let me know.

Sincerely,

Hans Christiansen
Associate

Enclosure

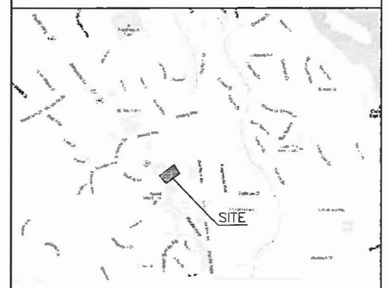


1 SITE PLAN

TRUE NORTH

SITE PLAN SCALE 1"=20' 1

VICINITY PARCEL MAP



GENERAL PROJECT INFORMATION

APPLICANT
CALLISON ARCHITECTS, P C
1420 5TH AVE, SUITE 2400
SEATTLE, WA 98101
CONTACT: HANS CHRISTIANSEN
EMAIL: HANS.CHRISTIANSEN@CALLISON.COM

TAX IDENTIFICATION NO.
00360556 & 00360574

ZONING CLASSIFICATION
GC - GENERAL COMMERCIAL

ENTIRE SITE AREA
39,059 SF

BUILDING AREA
4,535 SF (11.4%)

IMPERMOUS AREA
18,076 SF (50.1%)

LANDSCAPE AREA
14,543 SF (36.5 %)

TOTAL # PARKING STALLS
14 PARKING STALLS 7 STANDARD, 7 COMPACT
(INCLUDES 1 VAN ACCESSIBLE AND 1 STANDARD ACCESSIBLE STALL)
REQ. = 12, MAX = 14

BUILDING HEIGHT
26'-9"/ONE STORY

ESTIMATED PROJECT VALUATION
$685,000

PRE-APPLICATION MEETING DATE
JUNE 2, 2011

LANDSCAPING

PLAN NORTH

CHASE

CALLISON
CALLISON ARCHITECTS, P.C.
www.callison.com

SIGNED: XX/XX/XX

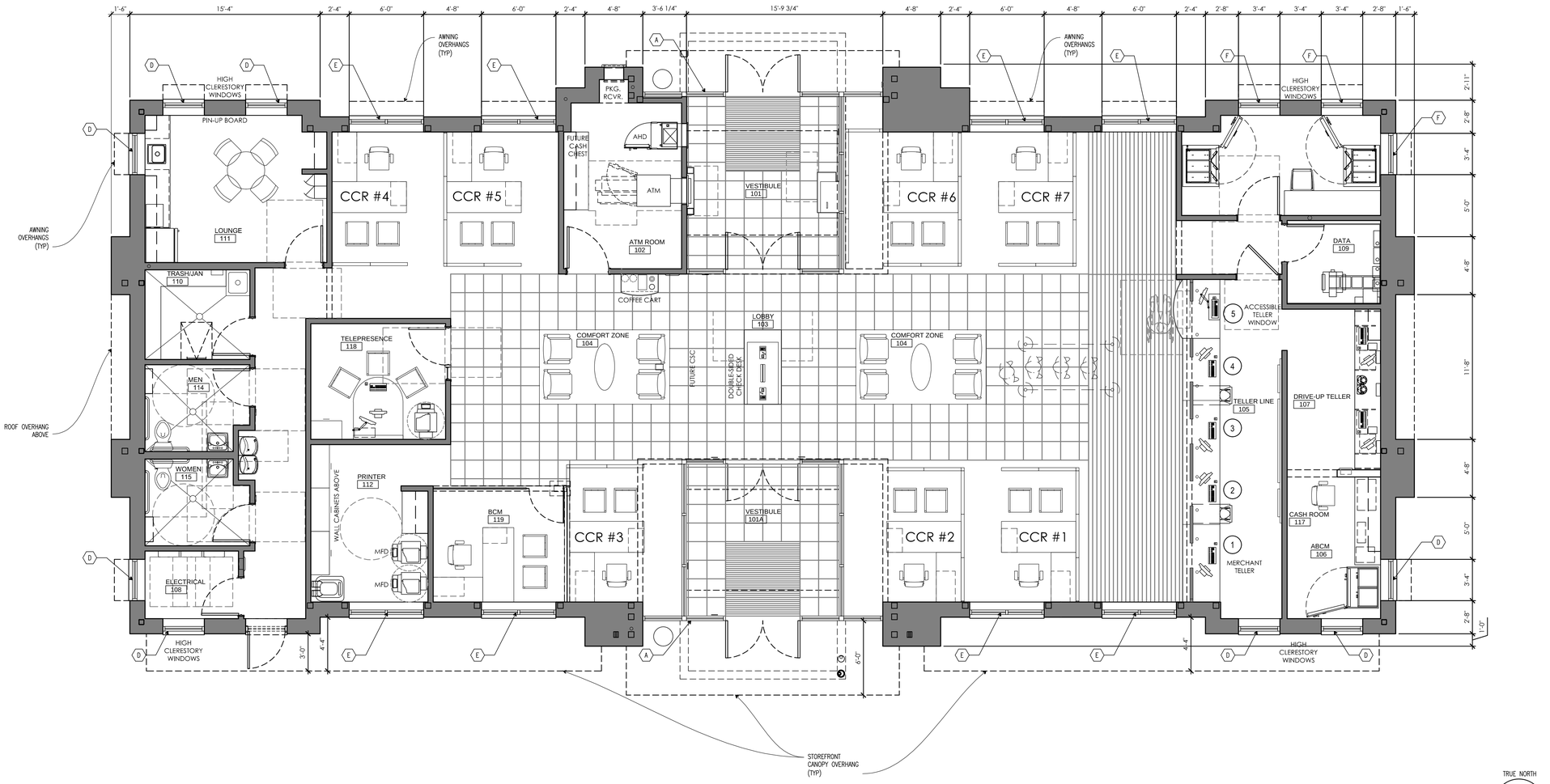
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

PROJECT #210451.86

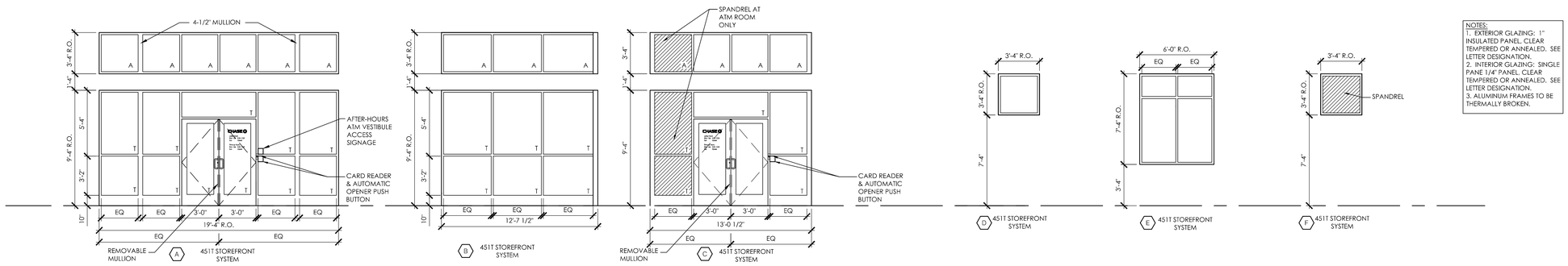
ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

SITE PLAN

A0.1



1 FLOOR PLAN
1/4"=1'-0"



2 WINDOW TYPE
1/4"=1'-0"

SHEET NOTES

SHEET SYMBOLS

FEC — LOCATE TOP OF CABINET AT 4'-6" AFF (FEC HANDLE TO BE AT 48" AFF MAX) PROVIDE 2A-10BC EXTINGUISHER
FIRE EXTINGUISHER CABINET

5' CLEAR TURN AROUND

SCALE: 1/4" = 1'-0"

PLAN NORTH

CHASE

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

SIGNED: XX/XX/XX

CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

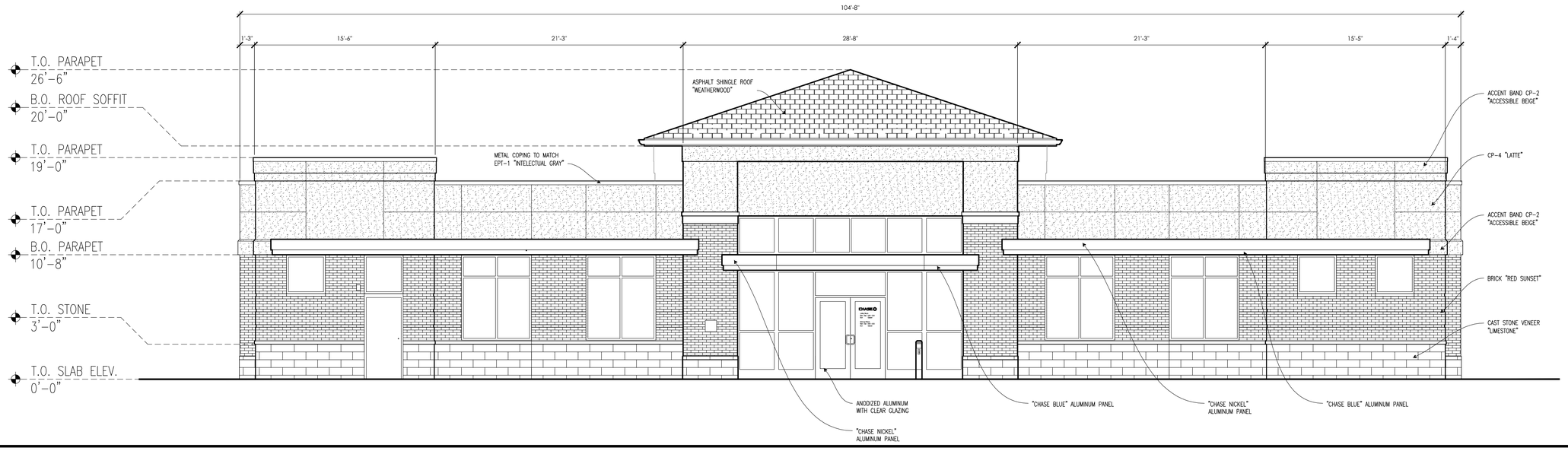
PROJECT #210461.89

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

Floor Plan

A1.1

Plot date: February 9, 2012 \\SEANAS4\Program Mgmt\Projects\Chase\New Build\Oregon\Cedar Oak & Willamette-WestLinn\Caddchow\chcow_a_fp0001.dwg



SOUTH ELEVATION | SCALE 1/4"=1'-0" | 1

EXTERIOR FINISH LEGEND

PAINTS:

EPT-1 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7045 (INTELLECTUAL GRAY)
FINISH: SEMI-GLOSS

EPT-2 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EIFS-2)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7036 (ACCESSIBLE BEIGE)
FINISH: SEMI-GLOSS

EPT-3 APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EIFS-4)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 6108 (LATTE)
FINISH: SEMI-GLOSS

EPT-4 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 00366 (CHASE BLUE)
FINISH: SEMI-GLOSS

EPT-5 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 19891 (CHASE NICKEL)
FINISH: SEMI-GLOSS

EPT-6 APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 18248 (CHASE DARK NICKEL)
FINISH: SEMI-GLOSS

CEMENT PLASTER:

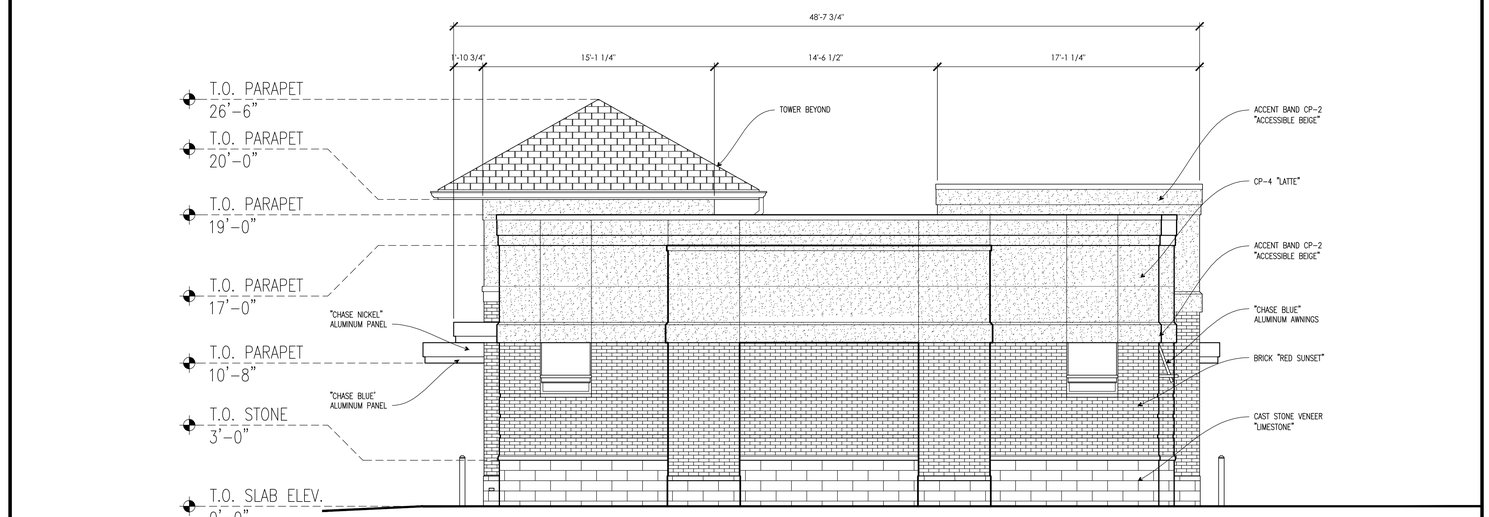
CP-1 CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (REAR WALLS & SOFFIT SURFACES OF ENTRY TOWER)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7045 (INTELLECTUAL GRAY)
FINISH: STO SILICO LIT 1.0 (FINE)

CP-2 CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (EIFS ACCENT BANDS)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7036 (ACCESSIBLE BEIGE)
FINISH: STO SILICO LIT 1.0 (FINE)

CP-3 CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (EIFS PARAPET)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 6108 (LATTE)
FINISH: STO SILICO LIT 1.0 (FINE)

METAL:

MT-1 ALUMINUM: FLASHING, COPING, GUTTERS, DOWNSPOUTS
MANUFACTURER: AEP SPAN OR EQUAL
PRODUCT: REFER TO SPECIFICATIONS
COLOR: COOL PARCHMENT



EAST ELEVATION | SCALE 1/4"=1'-0" | 2

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS: REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB & ISLANDS

E3 CAST STONE STARTER COURSE: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.) TEXTURE: SMOOTH COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.) TEXTURE: ROCKFACE COLOR: "LIMESTONE #3"

E5 CAST STONE TRIM: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS TEXTURE: SMOOTH COLOR: "LIMESTONE #3"

E6 BRICK VENEER: DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL). MORTAR COLOR TO BE NATURAL (NO COLOR ADDED).

E7 BRICK REVEAL: 3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A6.6). FIELD CUT BRICK TO MAINTAIN AIRSPACE.

E8 "V"-GROOVE: 3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT: CONTINUOUS VERTICAL CONTROL JOINT. REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING: PRE-FINISHED METAL COPING. FINISH: MT-1

E11 ROOFING SHINGLES: ARCHITECTURAL ASPHALT ROOF SHINGLES. "INDEPENDENCE SHANGLE" AS MANUFACTURED BY CERTAINTEED. COLOR: "WEATHERWOOD"

E12 GUTTERS & DOWNSPOUTS: 6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH: MT-1

E13 SCUPPER: PREFINISHED ALUMINUM OVERFLOW SCUPPER, MT-2. REFER TO DETAIL 13/A6.5 FOR ADDL INFO

E14 CANOPY FLASHING: PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 19/A6.5 FOR ADDL INFO. FINISH: MT-2. VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E15 FASCIA PANEL - "LATTE": PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E16 FASCIA PANEL - "CHASE NICKEL": PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL - "CHASE BLUE": PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN: PAINT EPT-6.

E19 GUARDRAIL: 1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1. CORE DRILL & EPOXY GROUT INTO CONCRETE MIN. 8" DEPTH.

E20 STOREFRONT SYSTEM: CLEAR ANODIZED ALUMINUM FRAMES. SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME: PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND.

E23 BOLLARD: PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX: MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXTI (ONE LOACTION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.

E25 BANK EQUIPMENT: TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.

E26 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3, LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING: G.C. TO PROVIDE 5/8" THICK 'EXPOSURE 1' PLYWOOD SHEATHING FOR SIGN MOUNTING.

E29 ADDRESS NUMBER: 6" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE: REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & OVERRIDE SWITCH: REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAT TUBE OPENINGS, SEE DETAIL 17/A6.5.

E33 CAST ALUMINUM DUCT VENT, PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E36 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL, SCREENED BEHIND PARAPET.

E37 LINE OF ROOF SURFACE BEYOND.

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED.

CHASE

SIGNED: XX/XX/XX

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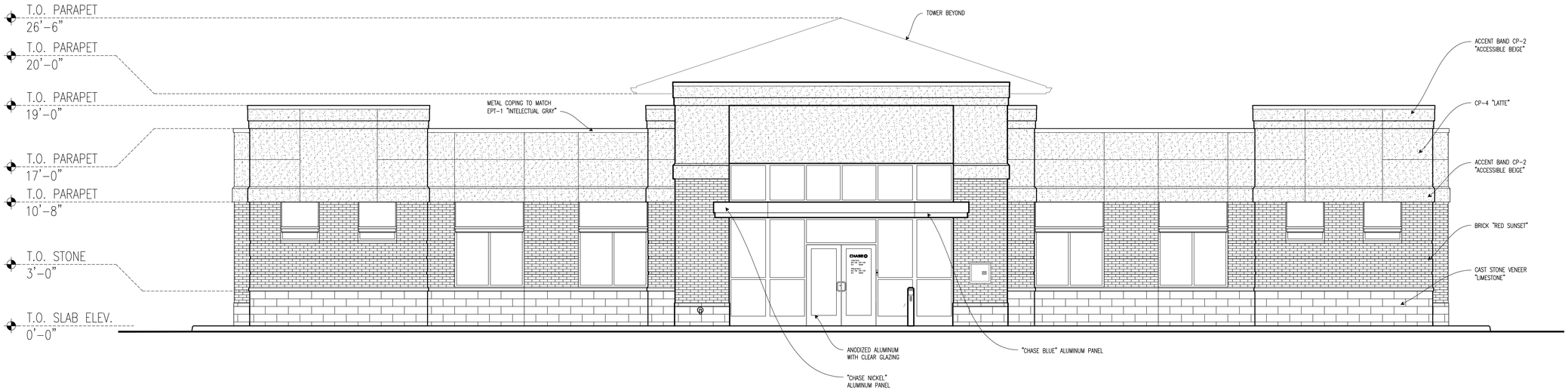
West Linn, OR 97068
PROJECT #210461.89

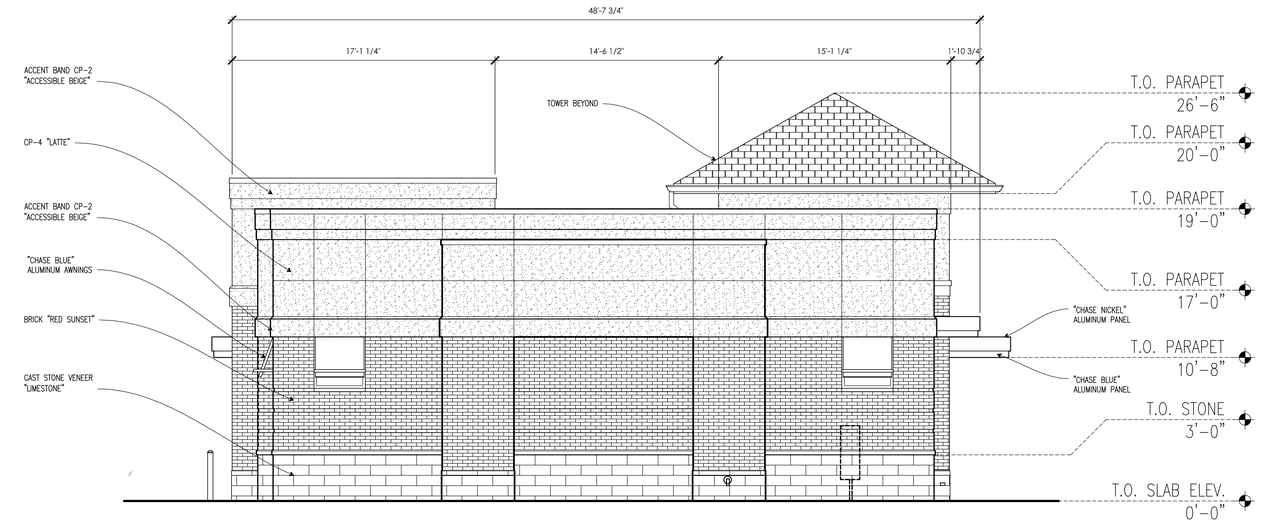
ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

Exterior Elevations

A4.1



NORTH ELEVATION | SCALE 1/4" = 1'-0" | 1



WEST ELEVATION | SCALE 1/4" = 1'-0" | 2

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS:
REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB & ISLANDS

E3 CAST STONE STARTER COURSE:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.)
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.)
TEXTURE: ROCKFACE
COLOR: "LIMESTONE #3"

E5 CAST STONE TRIM:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E6 BRICK VENEER:
DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL). MORTAR COLOR TO BE NATURAL (NO COLOR ADDED).

E7 BRICK REVEAL:
3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A6.6). FIELD CUT BRICK TO MAINTAIN AIRSPACE.

E8 "V"-GROOVE:
3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT:
CONTINUOUS VERTICAL CONTROL JOINT. REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING:
PRE-FINISHED METAL COPING. FINISH: MT-1

E11 ROOFING SHINGLES:
ARCHITECTURAL ASPHALT ROOF SHINGLES. "INDEPENDENCE SHANGLE" AS MANUFACTURED BY CERTAINTEED. COLOR: "WEATHERWOOD"

E12 GUTTERS & DOWNSPOUTS:
6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH: MT-1

E13 SCUPPER:
PREFINISHED ALUMINUM OVERFLOW SCUPPER, MT-2. REFER TO DETAIL 13/A6.5 FOR ADDL INFO

E14 CANOPY FLASHING:
PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 19/A6.5 FOR ADDL INFO. FINISH: MT-2. VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E15 FASCIA PANEL - 'LATTE':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E16 FASCIA PANEL - 'CHASE NICKEL':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL - 'CHASE BLUE':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN:
PAINT EPT-6.

E19 GUARDRAIL:
1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1. CORE DRILL & EPOXY GROUT INTO CONCRETE MIN. 8" DEPTH.

E20 STOREFRONT SYSTEM:
CLEAR ANODIZED ALUMINUM FRAMES. SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME:
PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND.

E23 BOLLARD:
PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX:
MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXTI (ONE LOACTION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.

E25 BANK EQUIPMENT:
TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.

E26 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3, LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING:
G.C. TO PROVIDE 5/8" THICK 'EXPOSURE 1' PLYWOOD SHEATHING FOR SIGN MOUNTING.

E29 ADDRESS NUMBER:
6" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE:
REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & OVERRIDE SWITCH:
REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAT TUBE OPENINGS, SEE DETAIL 17/A6.5.

E33 CAST ALUMINUM DUCT VENT, PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E36 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL, SCREENED BEHIND PARAPET.

E37 LINE OF ROOF SURFACE BEYOND.

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED.

CHASE

SIGNED: XX/XX/XX

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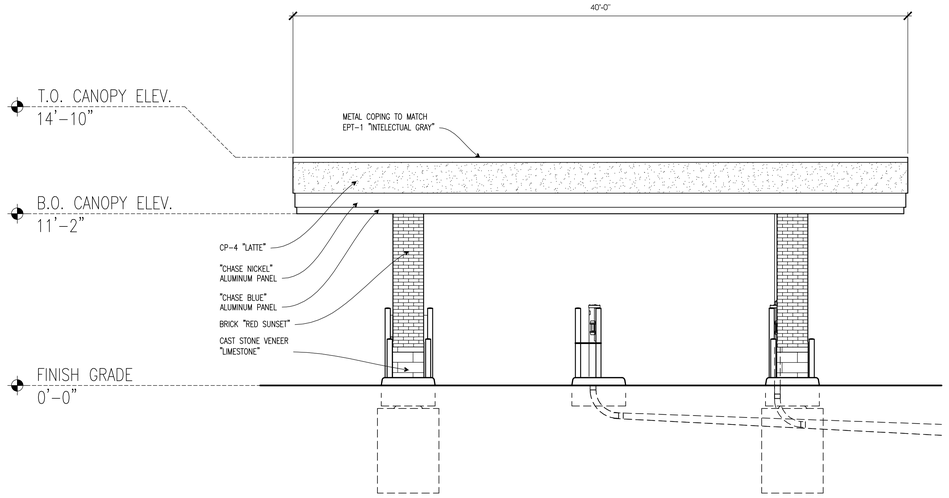
PROJECT #210461.89

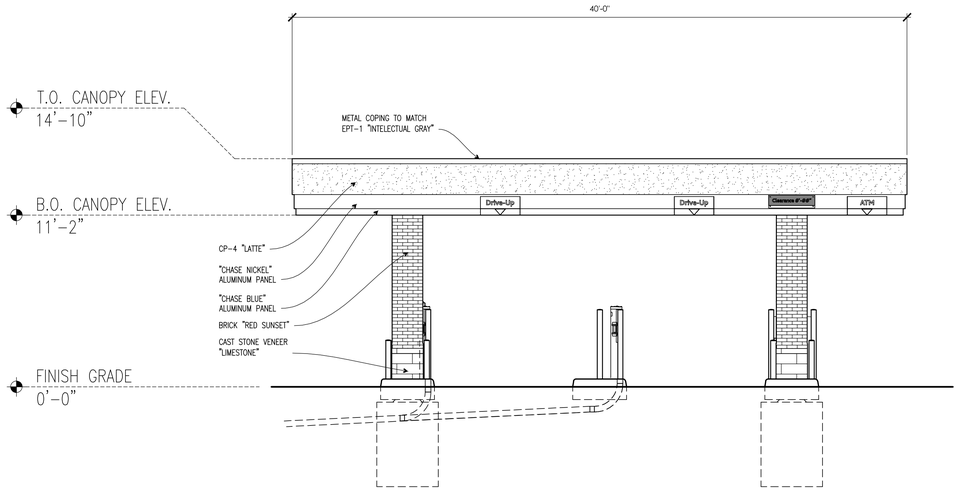
ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

Exterior Elevations

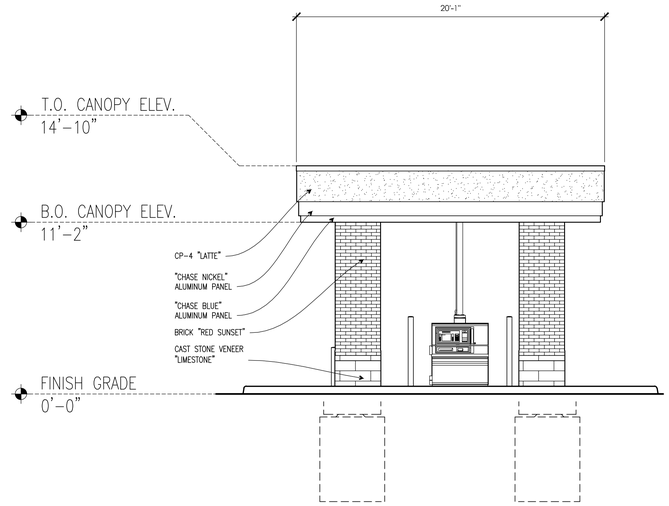
A4.2



1 EAST ELEVATION
1/4"=1'-0"



2 WEST ELEVATION
1/4"=1'-0"



4 BACK OF TOWER ELEVATION
SCALE: 1/4"=1'-0"

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS:
REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB & ISLANDS

E3 CAST STONE STARTER COURSE:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.)
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.)
TEXTURE: ROCKFACE
COLOR: "LIMESTONE #3"

E5 CAST STONE TRIM:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E6 BRICK VENEER:
DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL). MORTAR COLOR TO BE NATURAL (NO COLOR ADDED).

E7 BRICK REVEAL:
3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A6.6). FIELD CUT BRICK TO MAINTAIN AIRSPACE.

E8 "V"-GROOVE:
3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT:
CONTINUOUS VERTICAL CONTROL JOINT. REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING:
PRE-FINISHED METAL COPING. FINISH: MT-1

E11 ROOFING SHINGLES:
ARCHITECTURAL ASPHALT ROOF SHINGLES. "INDEPENDENCE SHANGLE" AS MANUFACTURED BY CERTAINTEED. COLOR: "WEATHERWOOD"

E12 GUTTERS & DOWNSPOUTS:
6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM "K-STYLE" GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH: MT-1

E13 SCUPPER:
PREFINISHED ALUMINUM OVERFLOW SCUPPER, MT-2. REFER TO DETAIL 13/A6.5 FOR ADDL INFO

E14 CANOPY FLASHING:
PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 19/A6.5 FOR ADDL INFO. FINISH: MT-2. VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E15 FASCIA PANEL - 'LATTE':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E16 FASCIA PANEL - 'CHASE NICKEL':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL - 'CHASE BLUE':
PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN:
PAINT EPT-6.

E19 GUARDRAIL:
1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1. CORE DRILL & EPOXY GROUT INTO CONCRETE MIN. 8" DEPTH.

E20 STOREFRONT SYSTEM:
CLEAR ANODIZED ALUMINUM FRAMES. SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME:
PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND.

E23 BOLLARD:
PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX:
MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXTI (ONE LOACTION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.

E25 BANK EQUIPMENT:
TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.

E26 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3, LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING:
G.C. TO PROVIDE 5/8" THICK 'EXPOSURE 1' PLYWOOD SHEATHING FOR SIGN MOUNTING.

E29 ADDRESS NUMBER:
6" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE:
REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & OVERRIDE SWITCH:
REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAT TUBE OPENINGS, SEE DETAIL 17/A6.5.

E33 CAST ALUMINUM DUCT VENT, PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E36 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL, SCREENED BEHIND PARAPET.

E37 LINE OF ROOF SURFACE BEYOND.

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED.

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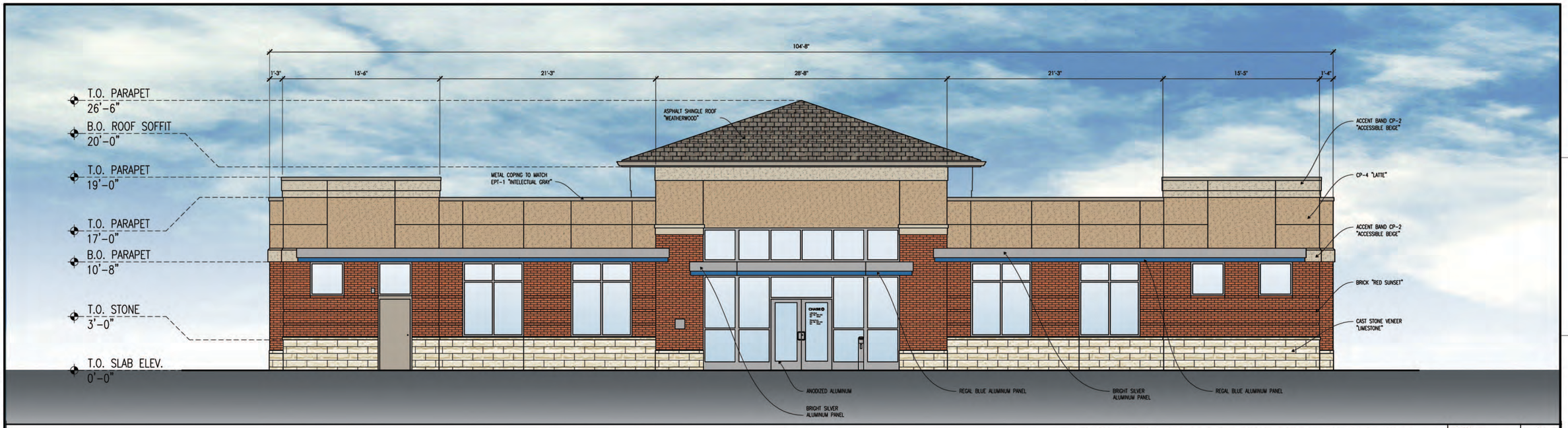
Exterior Elevations

A4.3



SOUTH EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 1

EXTERIOR FINISH LEGEND

PAINTS:

(EPT-1) APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7045 (INTELLECTUAL GRAY)
FINISH: SEMI-GLOSS

(EPT-2) APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EIFS-2)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 7036 (ACCESSIBLE BEIGE)
FINISH: SEMI-GLOSS

(EPT-3) APPLICATION: EXTERIOR ALUMINUM / GALVANIZED METAL SURFACES (CORRESPONDS W/EIFS-4)
MANUFACTURER: SHERWIN WILLIAMS
PRODUCT: METALATEX ACRYLIC SEMI-GLOSS
PRODUCT NO.: B42 SERIES
COLOR: SW 6108 (LATTE)
FINISH: SEMI-GLOSS

(EPT-4) APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 00366 (CHASE BLUE)
FINISH: SEMI-GLOSS

(EPT-5) APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 19891 (CHASE NICKEL)
FINISH: SEMI-GLOSS

(EPT-6) APPLICATION: EXTERIOR ACCENTS
MANUFACTURER: MATTHEWS PAINT
PRODUCT:
PRODUCT NO.:
COLOR: MP 18248 (CHASE DARK NICKEL)
FINISH: SEMI-GLOSS

CEMENT PLASTER:

(CP-1) CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (REAR WALLS & SOFFIT SURFACES OF ENTRY TOWER)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7045 (INTELLECTUAL GRAY)
FINISH: STO SILICO LIT 1.0 (FINE)

(CP-2) CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (EIFS ACCENT BANDS)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 7036 (ACCESSIBLE BEIGE)
FINISH: STO SILICO LIT 1.0 (FINE)

(CP-3) CEMENT PLASTER: EXTERIOR CEMENT PLASTER SURFACES (EIFS PARAPET)
MANUFACTURER: REFER TO SPECIFICATIONS
PRODUCT: REFER TO SPECIFICATIONS
COLOR: TO MATCH SHERWIN WILLIAMS #SW 6108 (LATTE)
FINISH: STO SILICO LIT 1.0 (FINE)

METAL:

(MT-1) ALUMINUM: FLASHING, COPING, GUTTERS, DOWNSPOUTS
MANUFACTURER: AEP SPAN OR EQUAL
PRODUCT: REFER TO SPECIFICATIONS
COLOR: COOL PARCHMENT

EAST EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 2

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS: REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB & ISLANDS

E3 CAST STONE STARTER COURSE: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.) TEXTURE: SMOOTH COLOR: 'LIMESTONE #3"

E4 CAST STONE VENEER: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.) TEXTURE: ROCKFACE COLOR: 'LIMESTONE #3'

E5 CAST STONE TRIM: AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL). SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS TEXTURE: SMOOTH COLOR: 'LIMESTONE #3'

E6 BRICK VENEER: DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL). MORTAR COLOR TO BE NATURAL (NO COLOR ADDED).

E7 BRICK REVEAL: 3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A6.6). FIELD CUT BRICK TO MAINTAIN AIRSPACE.

E8 "V"-GROOVE: 3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT: CONTINUOUS VERTICAL CONTROL JOINT. REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING: PRE-FINISHED METAL COPING. FINISH: MT-1

E11 ROOFING SHINGLES: ARCHITECTURAL ASPHALT ROOF SHINGLES. 'INDEPENDENCE SHANGLE" AS MANUFACTURED BY CERTAINTEED. COLOR: 'WEATHERWOOD'

E12 GUTTERS & DOWNSPOUTS: 6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM 'K-STYLE' GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH: MT-1

E13 SCUPPER: PREFINISHED ALUMINUM OVERFLOW SCUPPER, MT-2. REFER TO DETAIL 13/A6.5 FOR ADDL INFO

E14 CANOPY FLASHING: PRE-FINISHED ALUMINUM FLASHING TO SPAN GAP BETWEEN CANOPY AND BUILDING. REFER TO DETAIL 19/A6.5 FOR ADDL INFO. FINISH: MT-2. VERIFY FINAL FLASHING LENGTH AND CONFIGURATION WITH APPROVED CANOPY SHOP DWGS

E15 FASCIA PANEL - 'LATTE': PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-3 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E16 FASCIA PANEL - 'CHASE NICKEL': PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-5 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E17 FASCIA PANEL - 'CHASE BLUE': PRE-FINISHED ALUMINUM FASCIA PANEL TO MATCH EPT-4 (SUBMIT SHOP DRAWINGS AND COLOR SAMPLES FOR APPROVAL)

E18 CANOPY SUPPORT COLUMN: PAINT EPT-6.

E19 GUARDRAIL: 1 1/2" DIAMETER PRE-FINISHED ALUMINUM RAIL TO MATCH EPT-1. CORE DRILL & EPOXY GROUT INTO CONCRETE MIN. 8" DEPTH.

E20 STOREFRONT SYSTEM: CLEAR ANODIZED ALUMINUM FRAMES. SEE SHEET A8.1 FOR ADDL INFO

E21 HOLLOW METAL DOOR & FRAME: PAINT TO EPT-1. SEE DOOR SCHEDULE FOR ADDL INFO

E22 PROVIDE WEATHER TIGHT SHEET ALUM BOX OVER CONDUIT STUB OPENING IN ISLAND.

E23 BOLLARD: PROVIDED AND INSTALLED BY G.C. REFER TO DETAILS ON SHEET A5 FOR ADDL INFO

E24 KNOX BOX: MOUNTED FLUSH WITH SURROUNDING WALL SURFACE. INSTALL AT FRONT ENTRY OR REAR EXTI (ONE LOACTION ONLY) VERIFY LOCATION WITH LOCAL MUNICIPALITY TO INSURE COMPLIANCE.

E25 BANK EQUIPMENT: TO BE PROVIDED AND INSTALLED BY OWNER'S EQUIPMENT VENDOR. G.C. TO PROVIDE OPENINGS AND ELECTRICAL REQUIREMENTS IN ACCORDANCE WITH FINAL APPROVED BANK EQUIPMENT SHOP DRAWINGS.

E26 ELECTRICAL SERVICE EQUIPMENT. PAINT COLOR EPT-3, LATTE

E27 HOSE BIB

E28 SIGNAGE BACKING: G.C. TO PROVIDE 5/8" THICK 'EXPOSURE 1' PLYWOOD SHEATHING FOR SIGN MOUNTING.

E29 ADDRESS NUMBER: 6" TALL WHITE VINYL ADDRESS NUMBER WITH 1/2" THICK STROKE MOUNTED ON INTERIOR FACE OF GLASS TRANSOM

E30 LIGHT FIXTURE: REFER TO ELEC DWGS FOR ADDL INFO

E31 CARD READER & OVERRIDE SWITCH: REFER TO SECURITY DWGS FOR ADDL INFO

E32 VAT TUBE OPENINGS, SEE DETAIL 17/A6.5.

E33 CAST ALUMINUM DUCT VENT, PRE-FINISHED TO MATCH ADJACENT WALL

E34 OFF-RIDGE ROOF VENT PREFINISHED TO MATCH ROOFING

E36 MECHANICAL EQUIPMENT BEYOND IN ROOF WELL, SCREENED BEHIND PARAPET.

E37 LINE OF ROOF SURFACE BEYOND.

E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED.

CHASE

SIGNED: XX/XX/XX

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

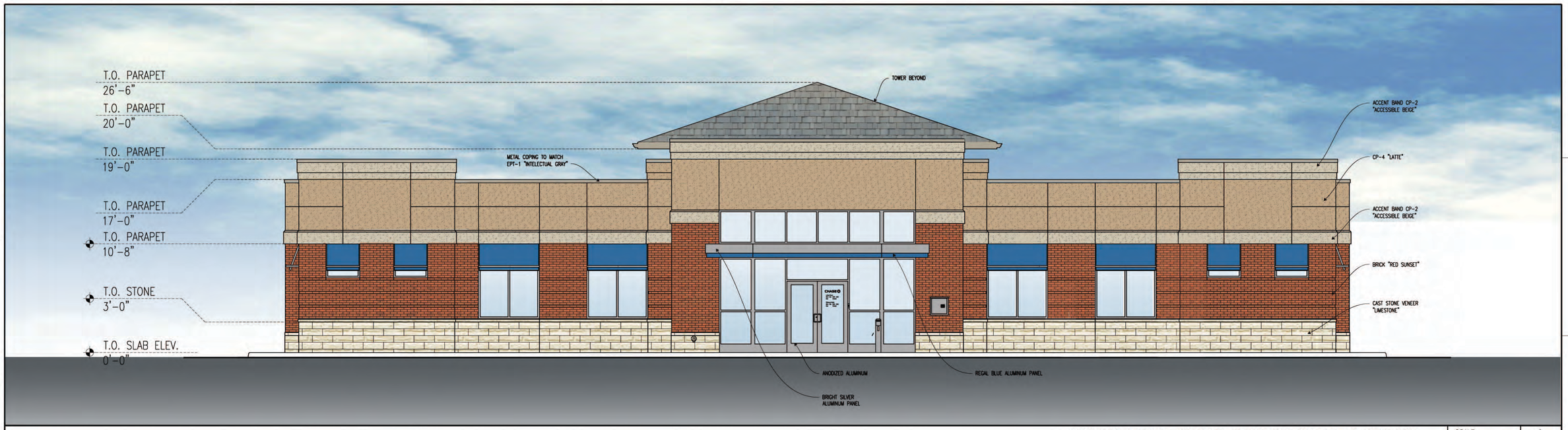
CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

PROJECT #210461.89

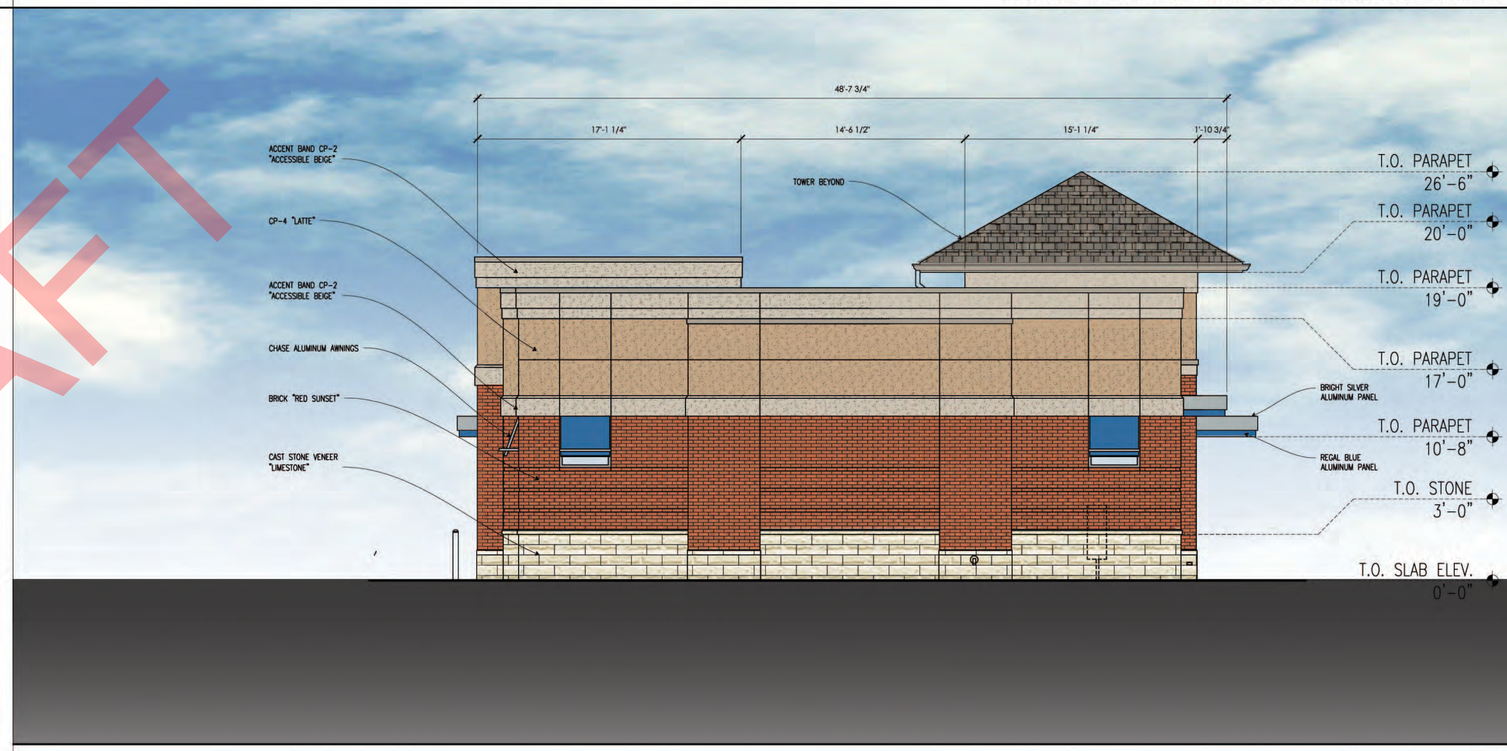
ISSUED / REVISED	DATE
PERMIT SET	XX/XX/XX

Exterior Elevations

A4.1



NORTH EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 1



WEST EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 2

ELEVATION KEYNOTES

E1 CONCRETE FOOTINGS/FOUNDATIONS:
REFER TO STRUCT DWGS FOR ADDL INFO

E2 CONCRETE CURB & ISLANDS

E3 CAST STONE STARTER COURSE:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 4" HIGH x 4" DEEP (U.N.O.)
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E4 CAST STONE VENEER:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
NOMINAL SIZE: 24" WIDE x 8" HIGH x 4" DEEP (U.N.O.)
TEXTURE: ROCKFACE
COLOR: "LIMESTONE #3"

E5 CAST STONE TRIM:
AS MANUFACTURED BY SAVANNA STONE (OR APPROVED EQUAL).
SEE REFERENCED DETAILS FOR PROFILES AND DIMENSIONS
TEXTURE: SMOOTH
COLOR: "LIMESTONE #3"

E6 BRICK VENEER:
DENTON 150, "RED SUNSET" AS MANUFACTURED BY ACME BRICK COMPANY (OR APPROVED EQUAL). MORTAR COLOR TO BE NATURAL (NO COLOR ADDED).

E7 BRICK REVEAL:
3/4" DEEP REVEAL. REVEAL TO STOP 4" FROM TELLER WINDOW AND BANK EQUIPMENT OPENINGS (SEE DETAIL 5/A6.6). FIELD CUT BRICK TO MAINTAIN AIRSPACE.

E8 "V"-GROOVE:
3/4" METAL PLASTER CONTROL JOINT

E9 EXPANSION JOINT:
CONTINUOUS VERTICAL CONTROL JOINT. REFER TO DETAIL 4/A6.6 FOR ADDL INFO

E10 COPING:
PRE-FINISHED METAL COPING. FINISH: MT-1

E11 ROOFING SHINGLES:
ARCHITECTURAL ASPHALT ROOF SHINGLES. 'INDEPENDENCE SHANGLE' AS MANUFACTURED BY CERTAINTEED. COLOR: "WEATHERWOOD"

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6" WIDE x 4 3/4" DEEP PRE-FINISHED ALUMINUM 'K-STYLE' GUTTERS w/ 4" WIDE x 2 1/4" DEEP CORRUGATED RECTANGULAR DOWNSPOUTS. FINISH: MT-1

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PREFINISHED ALUMINUM OVERFLOW SCUPPER, MT-2. REFER TO DETAIL 13/A6.5 FOR ADDL INFO

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CHASE

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1908O Willamette Dr
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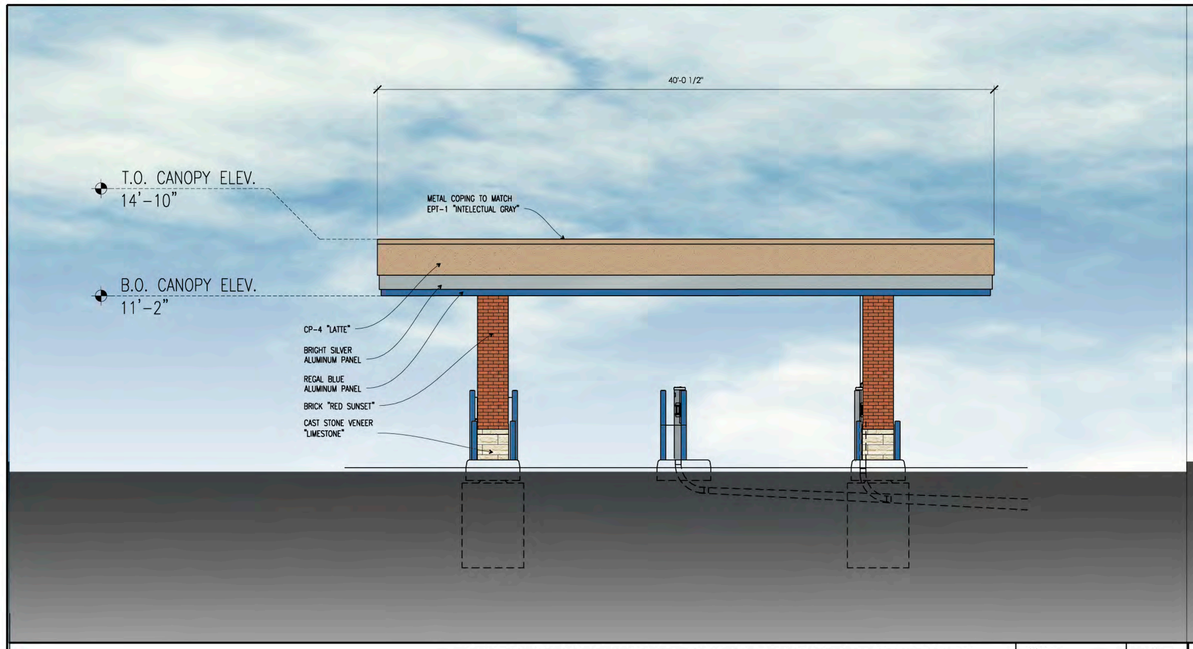
PROJECT #210461.89

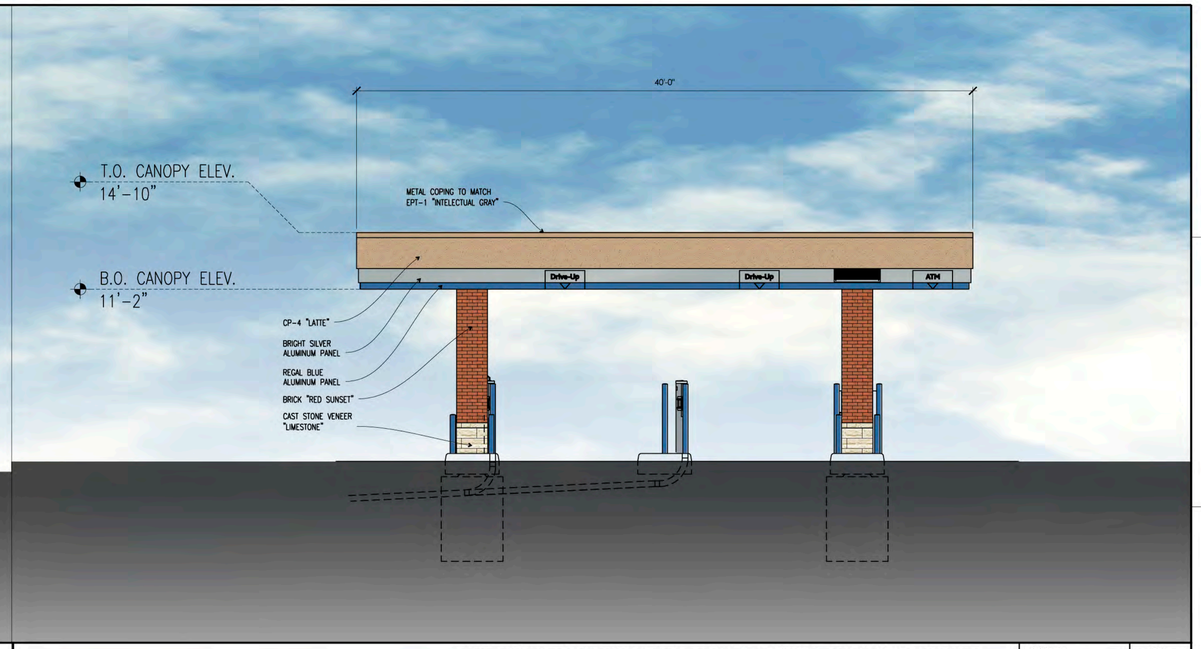
ISSUED / REVISED	DATE
PERMIT SET	XX/XX/XX

Exterior Elevations

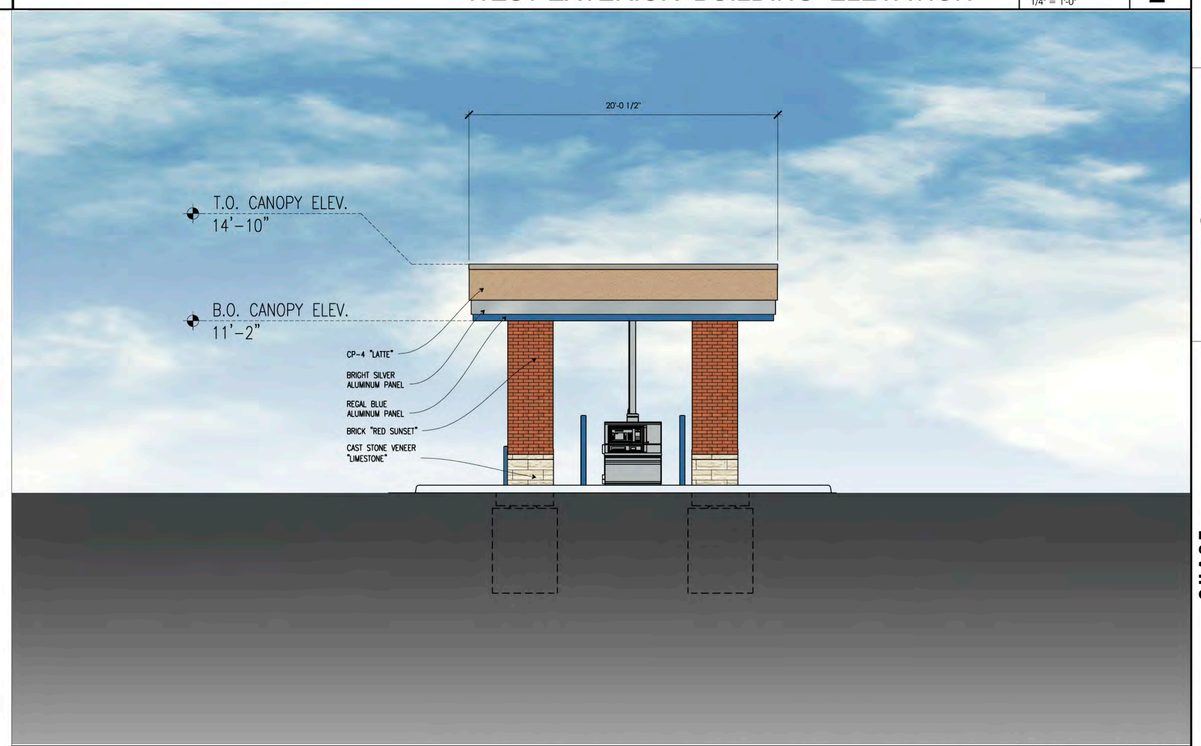
A4.2



EAST EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 1



WEST EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 2



SOUTH EXTERIOR BUILDING ELEVATION | SCALE 1/4" = 1'-0" | 4

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E38 PROVIDE RECESSED FIRE KNOX BOXES AS REQUIRED.

CHASE

SIGNED: XX/XX/XX

CALLISON ARCHITECTURE
CALLISON ARCHITECTS, P.C.
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CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068
PROJECT #210461.89

ISSUED / REVISED	DATE
PERMIT SET	XX/XX/XX

Exterior Elevations

A4.3

STORM SEWER NOTES:

1) *STORMWATER FROM THE PROPOSED DEVELOPMENT WILL BE CAPTURED BY CATCH BASINS, TREATED IN A CARTRIDGE FILTER MANHOLE, DETAINED IN THE 60" CMP DETENTION PIPE, RELEASED AT PREDEVELOPED RATES VIA A FLOW CONTROL MANHOLE, AND THEN CONVEYED VIA PIPE TO THE EXISTING STORM SYSTEM LOCATED AT THE NORTHWEST CORNER OF THE SITE.*

2) *STORMWATER TREATMENT IS PROVIDED BY A 48" STORMFILTER MANHOLE WITH 3 CARTRIDGE FILTERS.*

3) *STORMWATER DETENTION IS PROVIDED BY 160 LF OF 60" CMP PIPE WITH A FLOW CONTROL MANHOLE TO RESTRICT FLOWS TO PREDEVELOPED RATES.*

4) *EXISTING CATCH BASINS AND SERVICE LATERALS NOT BEING UTILIZED AS PART OF THE NEW DEVELOPMENT WILL BE COMPLETELY REMOVED.*

SANITARY SEWER NOTES:

1) *SANITARY SEWER SERVICE FOR THE PROPOSED DEVELOPMENT WILL BE PROVIDED BY CONNECTING TO AN EXISTING SANITARY LATERAL LOCATED NEAR THE EAST END OF THE SITE AND EXTENDING A NEW SANITARY LATERAL TO THE PROPOSED BUILDING.*

2) *EXISTING SERVICE LATERALS AND CLEANOUTS NOT BEING UTILIZED AS PART OF THE NEW DEVELOPMENT WILL BE COMPLETELY REMOVED.*

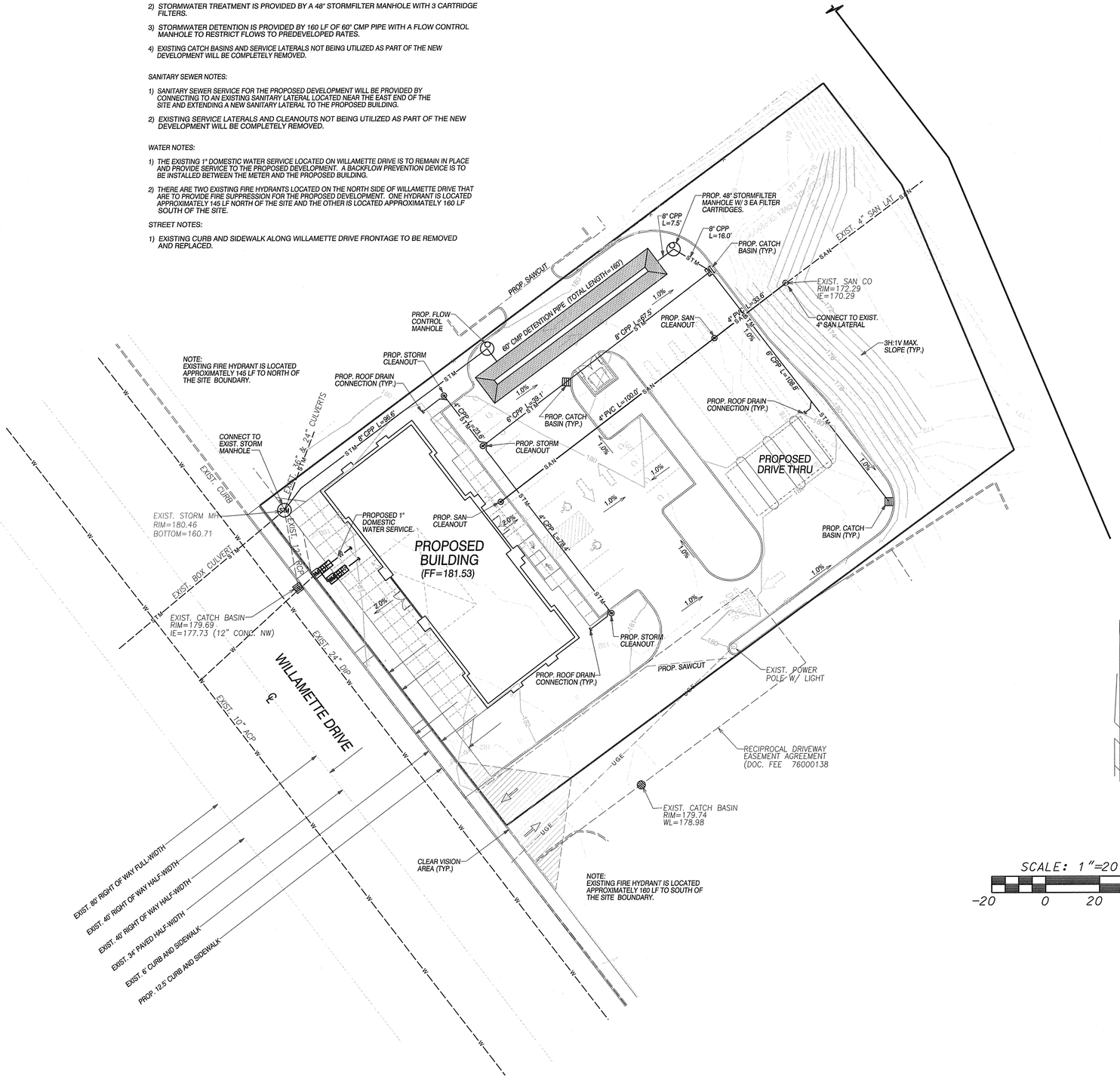
WATER NOTES:

1) *THE EXISTING 1" DOMESTIC WATER SERVICE LOCATED ON WILLAMETTE DRIVE IS TO REMAIN IN PLACE AND PROVIDE SERVICE TO THE PROPOSED DEVELOPMENT. A BACKFLOW PREVENTION DEVICE IS TO BE INSTALLED BETWEEN THE METER AND THE PROPOSED BUILDING.*

2) *THERE ARE TWO EXISTING FIRE HYDRANTS LOCATED ON THE NORTH SIDE OF WILLAMETTE DRIVE THAT ARE TO PROVIDE FIRE SUPPRESSION FOR THE PROPOSED DEVELOPMENT. ONE HYDRANT IS LOCATED APPROXIMATELY 145 LF NORTH OF THE SITE AND THE OTHER IS LOCATED APPROXIMATELY 160 LF SOUTH OF THE SITE.*

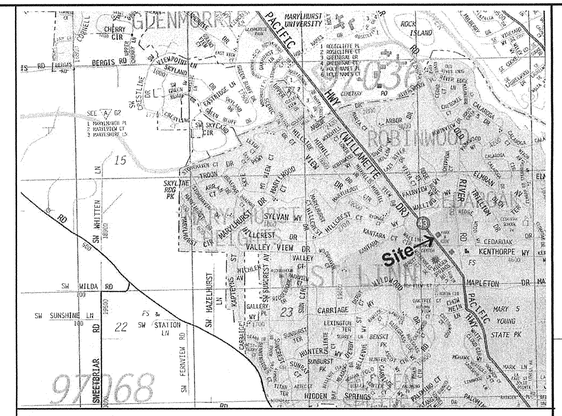
STREET NOTES:

1) *EXISTING CURB AND SIDEWALK ALONG WILLAMETTE DRIVE FRONTAGE TO BE REMOVED AND REPLACED.*



SCALE: 1"=20'

-20 0 20 40



VICINITY MAP

SOILS MAP

LEGEND

- PERIMETER OF SITE
- RIGHT-OF-WAY LINE
- CENTERLINE OF ROAD
- FACE OF CURB
- LOT LINE
- EASEMENT LINE
- STM — STORM SEWER LINE
- STM — EXIST STORM SEWER
- SAN — SANITARY SEWER LINE
- SAN — EXIST SANITARY SEWER
- W — WATER SERVICE LINE
- W — EXIST WATER LINE
- 123 — GRADED CONTOUR LINE
- 123 — EXIST CONTOUR LINE
- MANHOLE
- CLEAN OUT
- CATCH BASIN
- FIRE HYDRANT ASSEMBLY
- WATER VALVE AND BOX
- BLOWOFF ASSEMBLY
- THRUST BLOCK
- WATER SERVICE METER
- TELEPHONE RISER
- GAS RISER
- ELECTRIC RISER
- UTILITY POLE
- UTILITY POLE W/ LIGHT
- SIGN POST

CHASE

CEDAR OAK & WILLAMETTE RETAIL BANKING CENTER

19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ARCHITECT OF RECORD

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

ENGINEER OF RECORD

OLSON ENGINEERING INC. LAND SURVEYORS ENGINEERS
1111 BROADWAY, VANCOUVER, WA 98660

SEAL

REGISTERED PROFESSIONAL ENGINEER 60784PE OREGON MAY 17, 1977 CHRIS R. WONDERLY
EXPIRES: 6/30/12
2/17/12

ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION

SHEET TITLE

PRELIMINARY DEVELOPMENT PLAN

SHEET NUMBER

1 OF 1

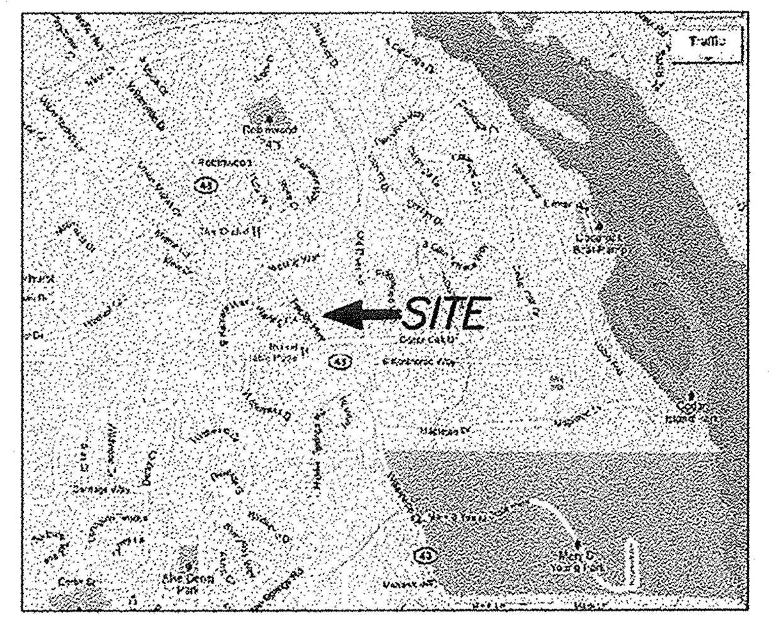
J:\data\8000\8700\8701\Engineering\8701.e.Border.prelim dev.dgn
M:\MicroStation V8\pen tables\OCE table setup\oce utilities.tbl

CLIENT:

CALLISON
1420 FIFTH AVENUE #220
SEATTLE, WA 98101
(206) 623-4646

ALTA / ACSM LAND TITLE SURVEY FOR:
CHASE – WILLAMETTE & CEDAROAK

OLSON ENGINEERING INC.
LAND SURVEYORS
ENGINEERS
1111 BROADWAY, VANCOUVER, WA 98660
360-695-1385
503-289-9936



VICINITY MAP
NO SCALE

BASIS OF BEARINGS:

THE BEARING OF N37°26'50"W ALONG THE CENTERLINE OF WILLAMETTE DRIVE ORIENTED BETWEEN EXISTING SURVEY MONUMENTS AS SHOWN IN SN2011-002.

0 20 40
SCALE: 1" = 20'

TITLE EXCEPTIONS

1-2. TAXES (NOT SHOWN)

3. CITY LIENS (NOT SHOWN)

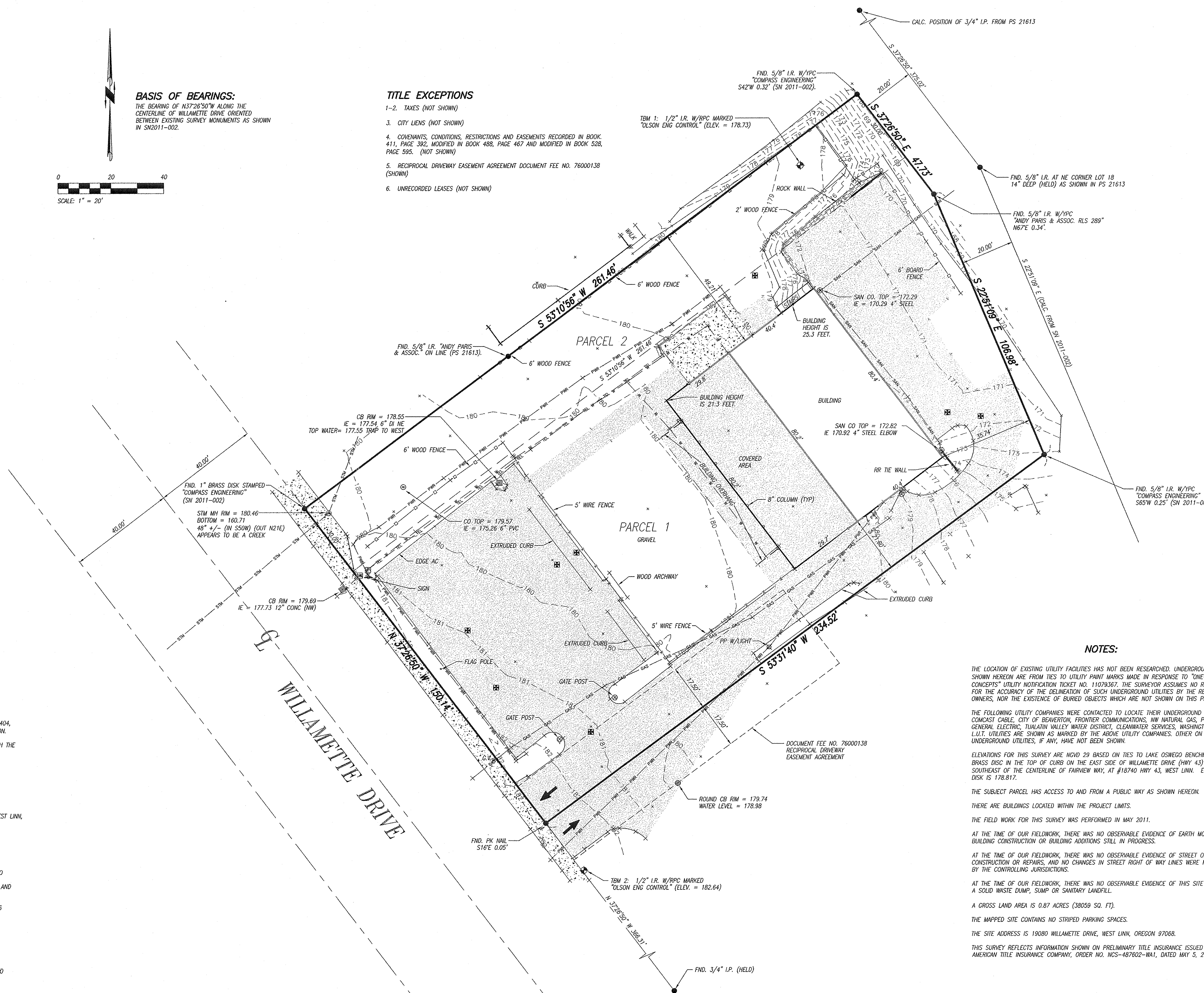
4. COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS RECORDED IN BOOK. 411, PAGE 392, MODIFIED IN BOOK 488, PAGE 467 AND MODIFIED IN BOOK 528, PAGE 595. (NOT SHOWN)

5. RECIPROCAL DRIVEWAY EASEMENT AGREEMENT DOCUMENT FEE NO. 76000138 (SHOWN)

6. UNRECORDED LEASES (NOT SHOWN)

LEGEND

- DECIDUOUS TREE AS NOTED
- BOLLARD
- STREET LIGHT
- CABLE TV BOX
- SIGN AS NOTED
- GATE POST
- STORM MANHOLE
- STORM CURB INLET
- STORM CATCH BASIN
- SANITARY MANHOLE
- CLEANOUT
- WATER VALVE
- GAS VALVE
- GAS METER
- ADA PARKING SPACE
- TELEPHONE PEDESTAL
- WATER METER
- WATER STANDPIPE
- TRAFFIC SIGNAL J-BOX
- POWER TRANSFORMER
- FOUND SURVEY MONUMENT AS NOTED
- SITE BENCHMARK AS NOTED
- ACCESS TO AND FROM A PUBLIC WAY
- SAN — SANITARY SEWER LINE
- STM — STORM SEWER LINE
- GAS — UNDERGROUND GAS LINE
- TEL — UNDERGROUND TELEPHONE LINE
- PWR — UNDERGROUND POWER LINE
- W — UNDERGROUND WATER LINE
- BUILDING OVERHANG
- FENCE (AS NOTED)
- SF — SQUARE FEET
- CONCRETE PAVING
- ASPHALT PAVING
- NO PARKING STRIPES
- BORING HOLE



LEGAL DESCRIPTION

PARCEL I:

LOT 18 AND THE SOUTHEASTERLY 20 FEET OF LOT 17, CEDAR OAK PARK (PLAT BOOK 404, PAGE 0230), IN THE CITY OF WEST LINN, COUNTY OF CLACKAMAS AND STATE OF OREGON.

EXCEPT THE EASTERLY 20 FEEF THEREOF AS CUT OFF BY A LINE DRAWN PARALLEL WITH THE NORTHEASTERLY LINES OF SAID LOTS 17 AND 18.

ALSO EXCEPTING THEREFROM THAT PORTION LYING WITHIN THE BOUNDARIES OF WILLAMETTE DRIVE.

THE LEGAL DESCRIPTION WAS CREATED PRIOR TO JANUARY 01, 2008.

PARCEL II:

PART OF LOT 17, CEDAR OAK PARK (PLAT BOOK 404, PAGE 0230), IN THE CITY OF WEST LINN, COUNTY OF CLACKAMAS AND STATE OF OREGON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF SAID LOT 17;

THENCE NORTHEASTERLY ALONG THE SOUTHEASTERLY LINE OF SAID LOT TO THE NORTHEASTERLY LINE OF PACIFIC HIGHWAY;

THENCE NORTHWESTERLY ALONG THE NORTHEASTERLY LINE OF SAID HIGHWAY 20 FEET TO THE NORTHWESTERLY CORNER OF THAT TRACT CONVEYED TO REGIS RAUJOL, ET UX, BY DEED RECORDED MAY 23, 1977 AS FEE NO. 77019608, CLACKAMAS COUNTY RECORDS, AND THE TRUE POINT OF BEGINNING;

THENCE NORTHEASTERLY ALONG THE NORTHWESTERLY LINE OF SAID RAUJOL TRACT 261.6 FEET TO THE MOST NORTHERLY CORNER THEREOF;

THENCE NORTHWESTERLY PARALLEL TO THE NORTHEASTERLY LINE OF SAID LOT 17, A DISTANCE OF 30 FEET;

THENCE SOUTHWESTERLY PARALLEL TO THE SOUTHEASTERLY LINE OF SAID LOT 17, A DISTANCE OF 261.6 FEET TO THE NORTHEASTERLY LINE AFORESAID PACIFIC HIGHWAY;

THENCE SOUTHEASTERLY ALONG THE NORTHEASTERLY LINE OF SAID HIGHWAY, 30 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION LYING WITHIN THE BOUNDARIES OF WILLAMETTE DRIVE.

THE LEGAL DESCRIPTION WAS CREATED PRIOR TO JANUARY 01, 2008.

ZONING

THIS SITE IS ZONED GENERAL COMMERCIAL (CG).

ACCORDING TO WEST LINN DEVELOPMENT CODE DEFINITIONS, BUILDING SETBACKS FOR THE CG ZONE ARE AS FOLLOWS:

MINIMUM STREET FRONTAGE: 35 FEET

FRONT YARD SETBACK: 0 FEET

REAR YARD SETBACK: 25 FEET

INTERIOR SIDE YARD SETBACK: 7.5 FEET

STREET SIDE YARD SETBACK: 15 FEET

MAXIMUM BUILDING HEIGHT: 35 FEET TO 45 FEET DEPENDING ON LOCATION OF BUILDING TYPE.

MAXIMUM LOT COVERAGE: 50%

AVERAGE LOT DIMENSIONS: 50 FOOT WIDTH AND 90 FOOT DEPTH

NOTES:

THE LOCATION OF EXISTING UTILITY FACILITIES HAS NOT BEEN RESEARCHED. UNDERGROUND UTILITIES SHOWN HEREON ARE FROM TIES TO UTILITY PAINT MARKS MADE IN RESPONSE TO "ONE-CALL CONCEPTS" UTILITY NOTIFICATION TICKET NO. 11079367. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS, NOR THE EXISTENCE OF BURIED OBJECTS WHICH ARE NOT SHOWN ON THIS PLAN.

THE FOLLOWING UTILITY COMPANIES WERE CONTACTED TO LOCATE THEIR UNDERGROUND SERVICES: COMCAST CABLE, CITY OF BEAVERTON, FRONTIER COMMUNICATIONS, NW NATURAL GAS, PORTLAND GENERAL ELECTRIC, TUALATIN VALLEY WATER DISTRICT, CLEANWATER SERVICES, WASHINGTON COUNTY L.U.T. UTILITIES ARE SHOWN AS MARKED BY THE ABOVE UTILITY COMPANIES. OTHER ON SITE UNDERGROUND UTILITIES, IF ANY, HAVE NOT BEEN SHOWN.

ELEVATIONS FOR THIS SURVEY ARE NGVD 29 BASED ON TIES TO LAKE OSWEGO BENCHMARK 21Q-1, A BRASS DISC IN THE TOP OF CURB ON THE EAST SIDE OF WILLAMETTE DRIVE (HWY 43) 80 FEET SOUTHEAST OF THE CENTERLINE OF FAIRVIEW WAY, AT #18740 HWY 43, WEST LINN. ELEVATION OF THE DISK IS 178.817.

THE SUBJECT PARCEL HAS ACCESS TO AND FROM A PUBLIC WAY AS SHOWN HEREON.

THERE ARE BUILDINGS LOCATED WITHIN THE PROJECT LIMITS.

THE FIELD WORK FOR THIS SURVEY WAS PERFORMED IN MAY 2011.

AT THE TIME OF OUR FIELDWORK, THERE WAS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS STILL IN PROGRESS.

AT THE TIME OF OUR FIELDWORK, THERE WAS NO OBSERVABLE EVIDENCE OF STREET OR SIDEWALK CONSTRUCTION OR REPAIRS, AND NO CHANGES IN STREET RIGHT OF WAY LINES WERE MADE AVAILABLE BY THE CONTROLLING JURISDICTIONS.

AT THE TIME OF OUR FIELDWORK, THERE WAS NO OBSERVABLE EVIDENCE OF THIS SITE BEING USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

A GROSS LAND AREA IS 0.87 ACRES (38059 SQ. FT).

THE MAPPED SITE CONTAINS NO STRIPED PARKING SPACES.

THE SITE ADDRESS IS 19080 WILLAMETTE DRIVE, WEST LINN, OREGON 97068.

THIS SURVEY REFLECTS INFORMATION SHOWN ON PRELIMINARY TITLE INSURANCE ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY, ORDER NO. NCS-487602-WA1, DATED MAY 5, 2011 AT 7:30 A.M.

CERTIFICATION

TO JPMORGAN CHASE BANK, NATIONAL ASSOCIATION AND FIRST AMERICAN TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 3, 4, 5, 6(b), 7(a) & (b-1) & (c), 8, 9, 11(b), 13, 14, 16, 17, 18 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MAY 24, 2011.

[signature] 8/22/11
BRUCE TOWLE, PLS 2030 DATE

REGISTERED PROFESSIONAL LAND SURVEYOR
[signature]
OREGON
FEBRUARY 3, 1983
BRUCE D. TOWLE
2030

RENEWAL DATE: 6/30/12
8/22/11

CHANGES / REVISIONS

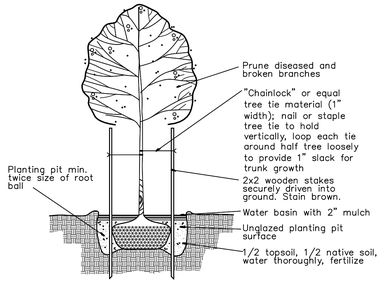
DESCRIPTION	DATE
ADDED PARCEL LINE	6/16/11
CERTIFICATION EDITS	8/22/11

DESIGNED:
DRAWN: B.D.T.
CHECKED: B.D.T.
DATE: MAY 2011
SCALE: 1" = 20'

JOB NO. 8703.01.01

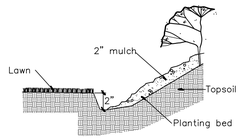
SHEET 1 of 1

FILE: J:\DATA\8000\8700\8700\8701\SURVEY\8701ALTA.DWG



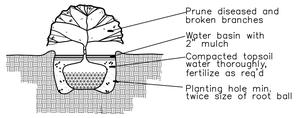
DECIDUOUS TREE PLANTING DETAIL

No Scale



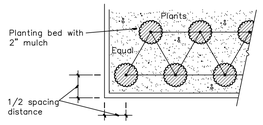
LAWN / PLANTING BED DETAIL

No Scale



SHRUB PLANTING DETAIL

No Scale



GROUND COVER SPACING DETAIL

No Scale– Triangular Spacing

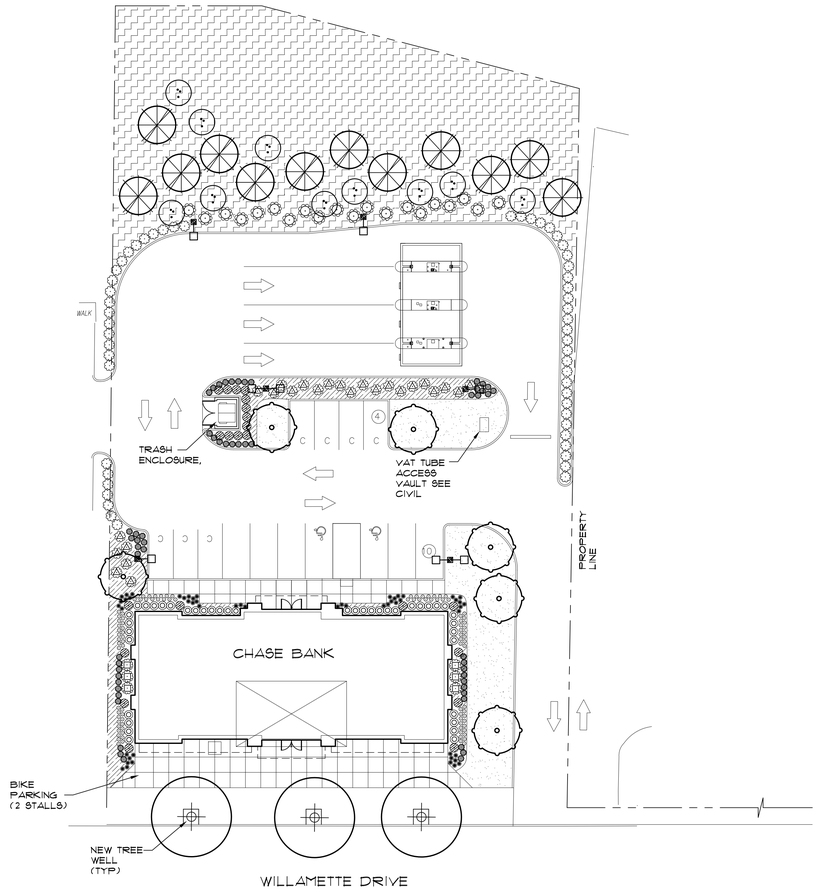
NOTES

1. Subgrades, including berms, to within 1 1/10th foot provided by General Contractor unless otherwise noted.
2. Subgrade shall be scarified or rototilled if conditions require.
3. 6" depth 3-way topsoil or equal in all planting areas.
4. 2" depth shredded cedar bark mulch in all planting beds.
5. All plant material shall be healthy, full and conform to USA standard nursery stock, latest edition.
6. Plant material or size or kind not available may be substituted only with approval of Landscape Architect or Owner.
7. All mass plantings shall have triangular spacing.
8. All tree pits shall be inspected to insure proper drainage.
9. Positive drainage shall be maintained. Mound planting areas minimum 6".
10. Landscape Contractor shall maintain site until final inspection and acceptance by Owner. Irrigation system shall be fully operational and turned on.

PLANT LIST

SYMBOL	BOTANICAL / COMMON	QUANTITY*	SIZE	SPACING	CONDITION
	Acer rubrum 'Scarsen'/ Scarlet Sentinel Maple,	3	2" Caliper	35' o.c.	B&B
	Pyrus calleryana 'Chanticleer' / Chanticleer Pear	6	2" Caliper	per plan	B&B
	Thuja plicata 'Excelsa' / Excelsa Red Cedar	12	6'-7'	per plan	B&B
	Acer circinatum / Vine Maple	10	6'-7'	per plan	B&B
	Euonymus alata 'Compacta' / Compact Burning Bush	20	5 gallon	per plan	full & bushy
	Berberis thunbergii atro. / Red Barberry	25	5 gallon	per plan	full & bushy
	Rhododendron Unique / Unique Rhododendron	6	5 gallon	per plan	full & bushy
	Viburnum tinus'Spring Bouquet'/ Spring Bouquet Viburnum	55	5 gallon	4' o.c.	full & bushy
	Thuja O. 'Emerald Green' / Emerald green arborvitae	22	6'	3' o.c.	B&B
	Prunus L. 'Otto Luyken' / Otto Luyken Laurel	39	2l"	3' o.c.	full & bushy
	Erica Carnea 'Kramers Red' / Heather	54	2 gallon	2.5'	B&B
	Hemerocallis 'Stella de Oro' / Daylily,	57	1 gallon	per plan	full
	Festuca cinerea 'Blausilber' / Blue-Silver Fescue	98	1 gallon	per plan	full
	Galtheria shallon / Salal		1 gallon	36"	full
	Arctostaphylos uva-ursi / kinnickinnik		4" pots	18"	full
	Sodded lawn - locally grown				

* CONFIRM ALL QUANTITIES



NORTH

LANDSCAPE PLAN

SCALE: 1"=20'

0 10' 20' 40'

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

ARCHITECT OF RECORD

CALLISON

CALLISON ARCHITECTS, P.C.
www.callison.com

ENGINEER OF RECORD

MAIN STREET DESIGN
LANDSCAPE ARCHITECTURE
9402 Tidal Court (206) 842-7886
Bainbridge Is., WA 98110

SEAL

REGISTERED 1444 Kenneth E. Loney OREGON LANDSCAPE ARCHITECT

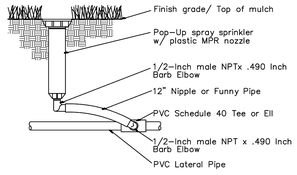
ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION

SHEET TITLE

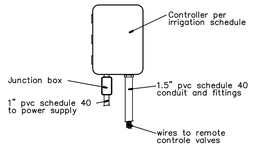
LANDSCAPE PLAN

SHEET NUMBER

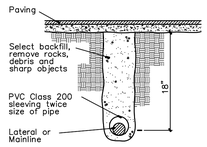
L-1



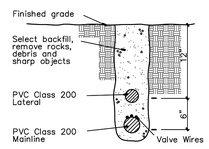
POP-UP SPRAY SPRINKLER
No Scale



WALL MOUNT CONTROLLER
No Scale



SLEEVING DETAIL
No Scale



TRENCHING DETAIL
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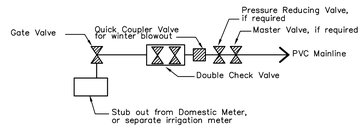


POINT OF CONNECTION
No Scale

IRRIGATION SCHEDULE

SYMBOL F	SQ	H	Q	DESCRIPTION	RADIUS	GPM	PSI
				RAINBIRD 3500 SERIES POP-UP, 2.0 NOZZLE	27'	1.69H	35
				RAINBIRD 1800 MPR 15' SERIES POP-UP, 4" LAWN, 6" G.C.	15'	1.85H	30
				RAINBIRD 1800 MPR 12' SERIES POP-UP, 4" LAWN, 6" G.C.	12'	1.30H	30
				RAINBIRD 1800 MPR 10' SERIES POP-UP, 4" LAWN, 6" G.C.	10'	Ø.79H	30
				RAINBIRD 1800 MPR 8' SERIES POP-UP, 4" LAWN, 6" G.C.	8'	Ø.52H	30
				RAINBIRD 1800 MPR 5' SERIES POP-UP, 4" LAWN, 6" G.C.	5'	Ø.2H	30
				RAINBIRD 1800 MPR SIDE STRIP POP-UP, 4" LAWN, 6" G.C.	9'X18'	1.73	30
				RAINBIRD 1800 MPR SIDE STRIP POP-UP, 4" LAWN, 6" G.C.	4'X30'	1.21	30
				RAINBIRD 1800 MPR END STRIP POP-UP, 4" LAWN, 6" G.C.	4'X15'	Ø.61	30
				RAINBIRD PEB SERIES PLASTIC VALVES			
				RAINBIRD ESP-LX MODULAR SERIES 12 STATION CONTROLLER			
				POINT OF CONNECTION: 3/4" IRRIGATION METER 3/4" FEBCO 850 DOUBLE CHECK VALVE 1" QUICK COUPLER VALVE			

1 STATION / 27 GPM

1-1/4" MAINLINE, PVC SCHEDULE 40

LATERAL LINE, PVC CLASS 200

SLEEVING, PVC CLASS 200

IRRIGATION SCHEDULE—DRIP

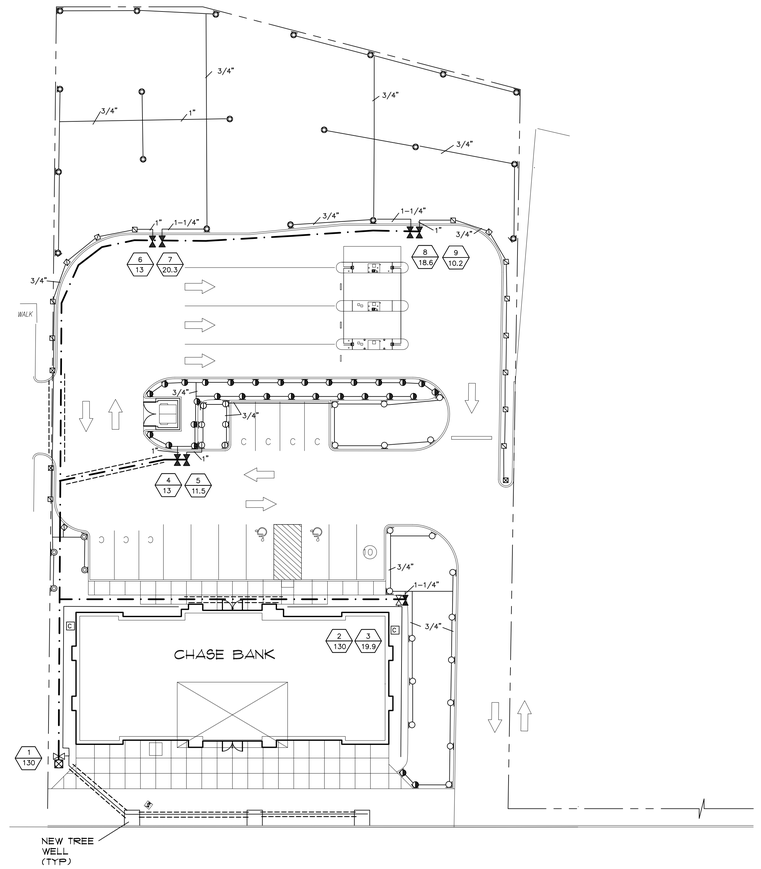
RAINBIRD LOW FLOW VALVE 1", VALVE #2
INLINE WYE FILTER & INLINE PRESSURE REGULATOR.

RAINBIRD BLACK STRIP TUBING - COIL LENGTH AS NEEDED.
TIE DOWN STAKES EVERY 24"

XERI-BUG EMITTERS - XB-10PC BARB INLET, 1.0 GPH
ONE PER SMALL SHRUB, TWO PER LARGE SHRUB, 8 PER TREE
NUMBER MAY BE ADJUSTED IN FIELD.

1 STATION / 27 GPH

- CONFIRM EXACT LOCATION OF P.O.C., CONTROLLER, AND WATER PRESSURE AT P.O.C.
- ALL VALVES IN 'AMETEK', OR 'CARSON', BOKE, OR EQUAL, SET AT FINISHED GRADE.
- ALL WORK PER PLANS, LOCAL CODES AND MANUFACTURER'S SPECS.
- PRESSURE TEST BEFORE BACKFILLING.
- PLAN IS DIAGRAMMATIC. ADJUST LINE AND HEAD LOCATIONS AS NECESSARY TO ASSURE PROPER COVERAGE AND CONFORM WITH ACCEPTED CONSTRUCTION PRACTICES.



WILLAMETTE DRIVE

IRRIGATION PLAN
SCALE: 1"= 20'

0 10' 20' 40'

CHASE

CEDAR OAK & WILLAMETTE
RETAIL BANKING CENTER
19080 WILLAMETTE DRIVE
WEST LINN, OR 97068
PROJECT #: 210461.89

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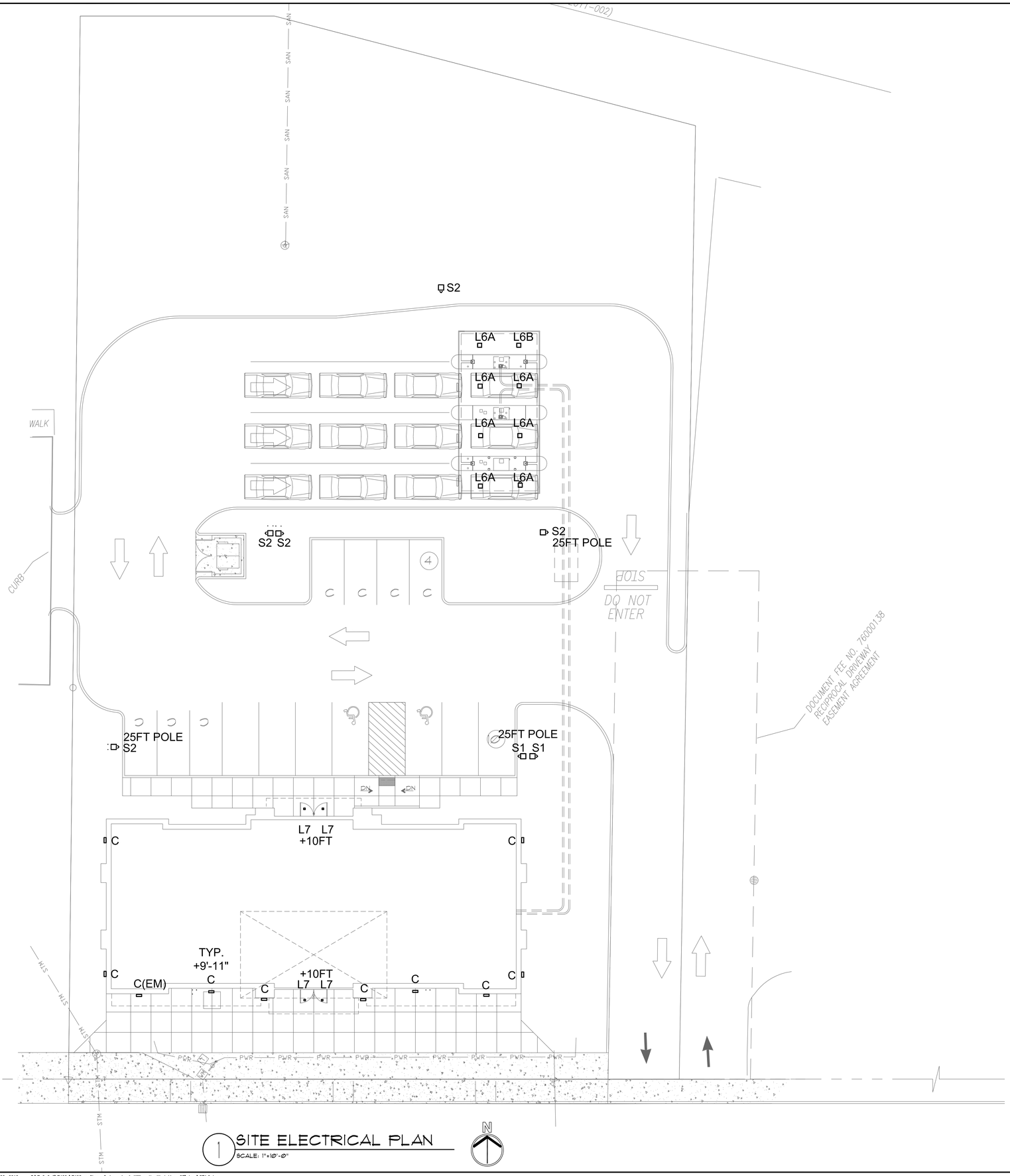
9402 Tidal Court
Bainbridge Is., WA 98110
(206) 842-7886

SEAL
REGISTERED
744
Kenneth E. Loney
OREGON
LANDSCAPE ARCHITECT

ISSUE	DATE	DESCRIPTION
	2/23/2012	DESIGN REVIEW APPLICATION

SHEET TITLE
IRRIGATION PLAN

SHEET NUMBER
L-2



1 SITE ELECTRICAL PLAN
SCALE: 1"=10'-0"

PLAN NOTES

1. ELECTRICAL CONTRACTOR TO COORDINATE UTILITY SERVICE (FROM UTILITY TRANSFORMER) IN ACCORDANCE WITH THE UTILITY COMPANY SPECIFICATIONS.
2. PROVIDE CONDUIT/ FEEDER FROM UTILITY SERVICE BOX TO SERVICE METER. COORDINATE AND PROVIDE AS REQUIRED BY UTILITY.
3. (1) 4" CONDUITS, EACH WITH 4#600MCM FROM UTILITY SERVICE BOX TO 400AMP 120/208V, 3 PH, 4 W C/T CABINET ON EXTERIOR WALL.
4. 400AMP C/T, AND METER CABINET MOUNTED ON FACE OF BUILDING. REFER TO ELECTRICAL SERVICE DIAGRAM ON SHEET #E5.0 FOR ADDITIONAL INFORMATION.
5. SITE SIGN: FIELD VERIFY EXACT LOCATION. PROVIDE DISCONNECT AS REQUIRED AND ROUTE THROUGH CONTACTOR C1-(B).
6. PROVIDE 2-4"C.O. WITH PULL WIRE FOR TELEPHONE /COMMUNICATION UTILITY SERVICE. COORDINATE WITH UTILITY AND PROVIDE REQUIREMENTS PER UTILITY STANDARDS.

SITE LIGHTING FIXTURE SCHEDULE

S1 (S1-HS)	(1) SPAULDING #NK2-A-P25-H4-F-Q-DB-ARM-S-6-S-DB, 250 WATT PULSE START METAL HALIDE LUMINAIRES, WITH FLAT GLASS & HORIZONTAL TYPE IV DISTRIBUTION OPTICS, FIXTURES MOUNTED AT 90' ON A 22'-6" HIGH, 5" SQUARE STRAIGHT STEEL POLE #SSS-22.5-50-3-BX-DB WITH 6" RIGID ARM, FINISH TO BE DARK BRONZE, VERIFY COLOR SELECTION W/ARCHITECT PRIOR TO ORDERING. LUMINAIRES TO HAVE MULTI-TAP BALLAST WIRED FOR 208V. PROVIDE POLE BASE COVER. (NOTE: S1-HS = WITH HOUSE SHIELD.)
S2 (S2-HS)	(1) SPAULDING #NK2-A-P40-H4-F-Q-DB-ARM-S-6-S-DB, 400 WATT PULSE START METAL HALIDE LUMINAIRE, WITH FLAT GLASS AND HORIZONTAL TYPE IV DISTRIBUTION OPTICS, FIXTURES MOUNTED AT 90' ON A 22'-6" HIGH, 5" SQUARE STRAIGHT STEEL POLE #SSS-22.5-50-3-BX-DB WITH 6" RIGID ARM, FINISH TO BE DARK BRONZE, VERIFY COLOR SELECTION W/ARCHITECT PRIOR TO ORDERING. LUMINAIRES TO HAVE MULTI-TAP BALLAST WIRED FOR 208V. PROVIDE POLE BASE COVER. (NOTE: S1-HS = WITH HOUSE SHIELD.)
A	KIM LIGHTING #WD18 WALL DIRECTOR, DIE CAST ALUMINUM AND LENS FRAME FABRICATED ALZAK REFLECTOR, WALL MOUNTED, 250 WATT, MH BT-28. MOUNT AT 16.5' CENTERLINE OF FIXTURE.
B	KIM LIGHTING #WD18 WALL DIRECTOR, DIE CAST ALUMINUM AND LENS FRAME FABRICATED ALZAK REFLECTOR, WALL MOUNTED, 400 WATT, SMH ED-28. MOUNT AT 16.5' CENTERLINE OF FIXTURE.
C	LITHONIA LIGHTING #WSR-2/42-MD-120-ELDWR-LP1 FULL CUTOFF WALL MOUNTED FIXTURE W/(2)42W CFL LAMP. PROVIDE FIXTURE WITH BODINE B30 BATTERY PACK.
L6A	#CRO2-S-LED-50-CW-UE, FABRICATED WHITE PAINTED METAL HOUSING,ONE CIRCUIT BOARD WITH 50 LEDS, FORMED WHITE PAINTED METAL PLATE BETWEEN REFLECTOR AND CIRCUIT BOARD, FORMED PREMIUM SPECULAR METAL REFLECTOR WITH OEN CONICAL APERTURE BELOW EACH LED, CLEAR FLAT GLASS LENS IN FABRICATED WHITE PAINTED METAL LENS FRAME.
L6B	SIMILAR TO "L6A" CRO-FO-LED-30-CW-UE. CROSSOVER FOCUS, NICHIA.
L7	LIGTHOLIER C4X4L10DL-CL-*-EM LED WITH LENS FIXTURE, INTEGRAL EMERGENCY BATTERY (90 MIN.) PACK.

NOTE: POLE AND POLE BASES ARE TO BE FINISHED WITH NON- REFLECTIVE, BLACK POWDER COATING.

CHASE LIGHTING STANDARDS

STANDARDS FOR CHASE ATM AND ND LOCATIONS ARE DETAILED IN THE CHASE CORPORATION PHYSICAL SECURITY STANDARDS, WHICH HAVE BEEN ADOPTED BY EACH STATE'S BOARD OF DIRECTORS.

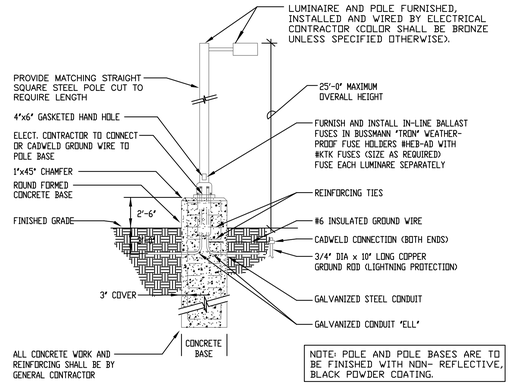
LIGHTING STANDARDS ARE SUMMARIZED AS FOLLOWS:

- CHASE WILL MEET ALL COUNTY/PARISH, CITY AND STATE REGULATIONS FOR ATM AND ND LOCATIONS.
- IN THOSE LOCATIONS WHERE STANDARDS ARE NOT MANDATED BY LOCAL OR STATE LEGISLATION, CHASE HAS ESTABLISHED THE FOLLOWING LIGHTING STANDARDS DURING THE HOURS OF DARKNESS (30 MINUTES AFTER SUNSET AND 30 MINUTES BEFORE SUNRISE):

SITE LOCATION	REQUIRED LIGHTING (IN FOOT-CANDLES)
AT THE FACE OF THE ATM AND ND, EXTENDING OUTWARD 5 FEET	10
WITHIN 50 FEET OF THE ATM AND ND	2
WITHIN THE ACCESS AREA	1
ALL PARKING AREAS WITHIN 50 FEET OF THE WALK-UP ATM AND THE WALK-UP ND	1
ALONG THE FIRST 40 UNOBSTRUCTTED FEET OF THE ADJACENT SIDE OF THE BUILDING (IF THE ATM OR ND IS WITHIN 10 FEET OF THE CORNER OF THE BUILDING AND THE ATM OR ND IS GENERALLY ACCESSIBLE FROM THE ADJACENT SIDE)	1

VISIBILITY AND ACCESS STANDARDS ARE SUMMARIZED AS FOLLOWS:

- CHASE WILL MEET ALL COUNTY/PARISH, CITY AND STATE REGULATIONS FOR ATM AND ND LOCATIONS.
- IN THOSE LOCATIONS WHERE STANDARDS ARE NOT MANDATED BY LOCAL OR STATE LEGISLATION, CHASE HAS ESTABLISHED THE FOLLOWING STANDARDS AS THEY PERTAIN TO VISIBILITY AND ACCESS:
  - ATMS AND NDS MUST BE LOCATED IN AREAS WITH HIGH VISIBILITY.
  - LANDSCAPING, LIGHTING, VEGETATION, AND OTHER OBSTRUCTIONS MUST BE CONSIDERED.



2 POLE DETAIL
SCALE: 1"=10'-0"

CHASE

ENCON
ENERGY ■ CONSERVATION ■ COMPANY
4040 El Camino Reed
Los Altos, California, 94022
tel # (650) 961-8095
fax # (650) 964-3754
email info@encon.com

ENCON Project #: CE7244.00

DATE:
Mar 05, 2012

REGISTERED PROFESSIONAL ENGINEER
10663
OREGON
MECHANICAL
ROBERT P. TRIFUNOV
EXP. DATE: 06/30/12

CALLISON
CALLISON ARCHITECTS, P.C.
www.callison.com

CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

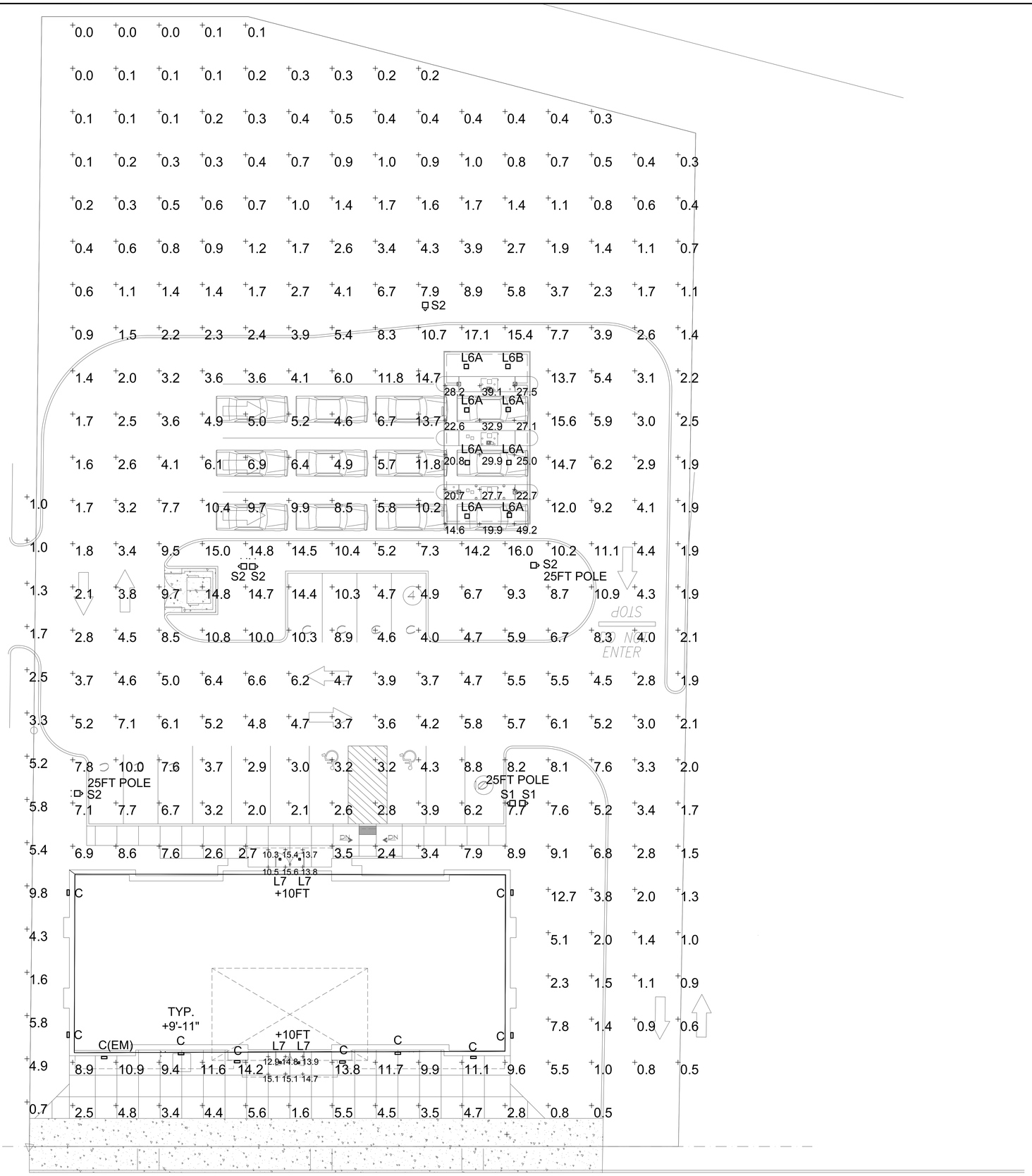
PROJECT #210461.89

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

SITE ELECTRICAL PLAN

SE1.0

Plot date: February 22, 2012 P:\7 0 0 0\7400a\7408 - Chase Cedar oaks & Willamette-West Linn, OR\dwgs\SE1.0.dwg



1 SITE PHOTOMETRIC PLAN

SCALE: 1"=10'-0"

N

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ATM Drive-Thru	+	27.2 fc	49.2 fc	14.6 fc	3.4:1	1.9:1
Entry Canopy Lighting	+	14.4 fc	15.1 fc	12.9 fc	1.2:1	1.1:1
North Entry CAnopy	+	13.2 fc	15.6 fc	10.3 fc	1.5:1	1.3:1
Site Lighting	+	4.6 fc	17.1 fc	0.5 fc	34.2:1	9.2:1

LUMINAIRE SCHEDULE

Symbol	Label	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	A	WD18x3/250MHxx x/xx	WALL DIRECTOR 18 WALL MOUNTED LUMINAIRE DIE-CAST ALUM HOUSING & LENS FRAME FABRICATED ALZAK REFLECTOR	250 WATT MH BT-28 CLEAR MOG. BASE HORZ.	W83-250M.ies	23000	0.75	250
	B	WD18x3/400MHxx x/xx	WALL DIRECTOR 18 WALL MOUNTED LUMINAIRE DIE-CAST ALUM HOUSING & LENS FRAME FABRICATED ALZAK REFLECTOR	400 WATT SMH ED-28 CLEAR MOG. BASE HORZ.	W83-400M.ies	40000	0.75	400
	C	WSR 42TRT MD	ARCHITECTURAL SCONCE WITH MEDIUM THROW DISTRIBUTION WITH CLEAR, FLAT GLASS LENS.	TWO 42-WATT TRIPLE TUBE COMPACT FLUORESCENT, HORIZONTAL POSITION.	Lti11979.ies	6400	0.95	96
	L7	C4X4L10DL30KCLW	LED 20 W DOWNLIGHT 4.5" SQUARE 3000K CL FINISH	LED LUMEN RATING = 1049 LMS	C4X4Lt10DL30KCLW.IES	1049	1.00	19.6
	L6A	CRO2-S-LED-50-CW-UE	**FABRICATED WHITE PAINTED METAL HOUSING, ONE WHITE CIRCUIT BOARD WITH 50 LEDS, FORMED WHITE PAINTED METAL PLATE BETWEEN REFLECTOR AND CIRCUIT BOARD, FORMED PREMIUM SPECULAR METAL REFLECTOR WITH ONE CONICAL APERTURE BELOW EACH LED, CLEAR FLAT GLASS LENS IN FABRICATED WHITE PAINTED METAL LENS FRAME.**	FIFTY WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDS), VERTICAL BASE--UP POSITION.	CRO2-S-LED-50-CW-UE.IES	4957	0.95	60
	L6B	CRO-FO-LED-30-CW-UE	CROSSOVER FOCUS	NICHIA	CRO-FO-LED-30-CW-UE.IES	2400	0.95	50
	S1	NK2-CM-H25-H3-F	NEWARK 2 SQUARE SURFACE LIGHT TYPE III REFLECTOR CLEAR FLAT GLASS LENS	250W CLEAR ED28 METAL HALIDE, HORIZONTAL POSITION	L4903NKC.ies	23000	0.75	250
	S2	NK2-CM-H40-H3-F	NEWARK 2 SQUARE SURFACE LIGHT TYPE III REFLECTOR CLEAR FLAT GLASS LENS	400W CLEAR ED28 METAL HALIDE, HORIZONTAL POSITION	L4890NKC.ies	41000	0.75	400

CHASE

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ROBERT P. TRIFUNOVIC
EXP. DATE: 06/30/12

CALLISON

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CHASE
NEW BUILD
CEDAR OAK & WILLAMETTE
19080 Willamette Dr
West Linn, OR 97068

PROJECT #210461.89

ISSUED / REVISED	DATE
PLANNING SUBMITTAL	02/23/12

SITE PHOTOMETRIC PLAN

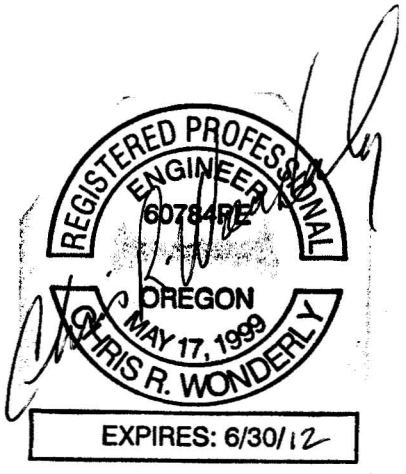
SP1.0

Plot date: February 22, 2012 P:\7 0 0 0\7400a\7408 - Chase Cedar oaks & Willamette-West Linn, OR\dwgs\SP1.0.dwg

Chase Bank –
Cedar Oak & Willamette,
Retail Banking Center

Callison Architects

Project No. 8701.01.01



February 13, 2012

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REVISION	BY	DATE	COMMENTS

Table of Contents

Narrative

Project Overview 1
Existing Conditions 1
Proposed Land Use 2
Stormwater Design 3
Quantity Control 4
Water Quality 5
Conveyance System Analysis 5
Downstream Capacity Analysis 6

Appendices

Rainfall Data ..... A
- Vicinity Map
- Table C-1 - Design Storms from C.O.P. Stormwater Management Manual
- Table C-2 – Runoff Curve Numbers from C.O.P. Stormwater Management Manual

Soil Data ..... B
- Soils Map
- Hydrologic Soil Group
- Table 11 – Engineering Properties
- Table 12 – Physical and Chemical Properties

Geotechnical Engineering Report by Terracon on June, 7, 2001 C

Stormwater Facility Details & Specifications ..... D
- StormFilter Manhole Details
- StormFilter Operation and Maintenance Guidelines

Water Quality Hydro-CAD Analysis ..... E
- Pre-developed and Developed Water Quality

2-Year Hydro-CAD Analysis ..... F
- Pre-developed and Developed 2-Year

5-Year Hydro-CAD Analysis ..... G
- Pre-developed and Developed 5-Year

10-Year Hydro-CAD Analysis ..... H
- Pre-developed and Developed 2-Year

25-Year Hydro-CAD Analysis I
- Pre-developed and Developed 10-Year

100-Year Hydro-CAD Analysis ..... J
- Pre-developed and developed 100-Year

City of West Linn Pre-Application Conference Meeting Notes ..... K

Preliminary Plans L
- Preliminary Development Plan
- Pre-developed Catchment Plan
- Developed Catchment Plan

Tables

1: Hydrologic parameters used in stormwater analysis 2
2: Hydrologic parameters used in stormwater analysis 2
3: Pre-developed and developed flows from the site 4
4: Developed flows and stormwater facility storage volumes 4
5: Stormwater treatment facility sizing 5
6: Characteristics of the conveyance system for the 100-year design storm 5

NARRATIVE

Chase Bank Drainage Analysis

Project Overview:

The proposed Chase Bank development consists of a 4,120 SF commercial building, associated concrete sidewalk, paved parking area, and landscape. Frontage improvements are proposed along Willamette Drive (Highway 43). These improvements include new concrete vertical curb with a 12' wide attached concrete sidewalk. The site is approximately 0.873 acres in size and located in West Linn, OR at 19080 Willamette Drive (NE quarter of Section 23, Township 2 South, Range 1 East of the Willamette Meridian). The site is bounded on the west by Willamette Drive (Highway 43), on the north by tax parcels #700 and 702, on the south by tax parcel #704, and on the east by the Cedar Oak Apartment Complex.

All stormwater runoff from Willamette Drive and the associated sidewalk area will continue to drain to the existing storm sewer system located within that road. Stormwater runoff from the new building roof, parking lot, and sidewalks is to be collected and treated in a StormFilter manhole and then detained in a subsurface detention structure prior to being conveyed via pipe to the existing storm sewer system located at the northwest corner of the site. The existing storm system currently conveys stormwater runoff in the northeast direction from Willamette Drive to an existing stream located north of the commercial site on tax parcel #700. This existing storm sewer system is comprised of a 5' x 5' box culvert located under Willamette Drive which transitions into 24" and 36" culverts beneath the existing commercial site on tax parcel #700. This transition is made at an existing vault located at the northwest corner of the Chase Bank site. It is proposed that the connection to the existing storm sewer system be made at this vault. The proposed storm sewer system has been designed per the requirements set forth in the 2010 City of West Linn Public Works Design Standards and the 2008 City of Portland Stormwater Management Manual.

Existing Conditions:

The site was previously occupied by Kasch's Nursery which included a 5,630 SF building, a 14,630 SF parking lot, grass landscape areas, and an existing retaining wall, which are all to be completely removed as part of the proposed development. The existing topography falls generally from southwest to northeast with slopes ranging from 1% to 20%. Stormwater runoff from the site either drains to the existing storm system or flows overland off the site in the northeast direction.

For purposes of the stormwater calculations, the site was assumed to be in its undeveloped condition (forested), as required in Section 1.3.2 in the 2008 City of Portland Stormwater Management Manual.

The following table is a summary of the pre-developed catchment area:

Pre-developed Catchment Area:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SP	0.573	70	Woods, Good, HSG "C"	Sheet Flow Shallow Conc. Flow	167 30	1.1 11.0

Table 1: Hydrologic parameters used in stormwater analysis.

- **See Appendix A for Table C-2 Runoff Curve Numbers from C.O.P. Stormwater Management Manual.**
- **See Appendix L for the Pre-developed Catchment Plan.**

Proposed Land Use:

With Hydrologic Group "C", the following CN values were used:

Description	Group "C"
Roofs	CN=98
Paved parking	CN=98
Sidewalk	CN=98
>75% Grass cover, Good, HSG C	CN=74

Approximately 0.573 AC of the 0.873 AC site is to be disturbed for construction of the proposed building, parking area, sidewalks, and landscape areas. This development will result in a total of 0.523 AC of new impervious surface. This includes 0.101 AC of new building roof area, 0.351 AC of new pavement, and 0.071 AC of new sidewalk. In addition, there is 0.113 AC of new grass/landscape. The following table is a summary of the developed catchments:

Developed Catchment Areas:

Catchment	Area (AC)	CN*	Description	Type of Flow	Length (Ft.)	Slope (%)
1SD	0.127 0.022	98 74	Paved parking >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
2SD	0.105 0.058	98 74	Paved parking >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
3SD	0.110 0.016 0.034	98 98 74	Paved parking Sidewalk >75% Grass cover, Good, HSG C	Direct entry (5.0 Min.)	-	-
4SD	0.101	98	Roof	Direct entry (5.0 Min.)	- -	- -

Table 2: Hydrologic parameters used in stormwater analysis.

- **See Appendix A for Table C-2 Runoff Curve Numbers from City of Portland Stormwater Management Manual.**
- **See Appendix L for Developed Catchment Plan.**

Stormwater Design:

All stormwater runoff from Willamette Drive and the associated sidewalk area will continue to drain to the existing storm sewer system located within that road. Stormwater runoff from the new building roof, parking lot, and sidewalks is to be collected and treated in a StormFilter manhole and then detained in a subsurface detention structure prior to being conveyed via pipe to the existing storm sewer system located at the northwest corner of the site. The proposed storm sewer system has been designed per the requirements set forth in the 2010 City of West Linn Public Works Design Standards and the 2008 City of Portland Stormwater Management Manual.

According to the USDA Soil Survey of Clackamas County, the soil within the proposed development area is classified as:

1. Cascade Silt Loam (13C).

2. Permeability (from Table 12):

   Cascade Silt Loam (13C) –
   0-11 inch depth 0.6-2.0 inches/hour
   11-21 inch depth 0.6-2.0 inches/hour
   21-60 inch depth 0.06-0.2 inches/hour

3. Soil hydrologic groups:

   Cascade Silt Loam (13C) –
   Soil group C

- **See Appendix B for Soils Map and associated data.**
- **See Appendix C for Geotechnical Engineering Report by Terracon.**

The water quality design storm for this project was determined per Section 1.3.3 of the 2008 City of Portland Stormwater Management Manual. The 2-year through 100-year design storms were taken from the 24-Hour Rainfall Depths Table provided Appendix A of this report. The design storms are tabulated as follows:

Water Quality	0.83 in / 24 hrs
2-year	2.40 in / 24 hrs
5-year	2.90 in / 24 hrs
10-year	3.40 in / 24 hrs
25-year	3.90 in / 24 hrs
100-year	4.40 in / 24 hrs

- **See Appendix A for Table C-1 Design Storms from City of Portland Stormwater Management Manual.**

Quantity Control:

Section 2.0013 of the 2010 City of West Linn Public Works Design Standards and Section 1.3.2 of the 2008 City of Portland Stormwater Management Manual both specify that release rates for the developed sites shall not exceed the respective runoff rates from the pre-developed site in the 2-year, 5-year, 10-year, and 25-year storms. In addition, the stormwater facility must provide safe overflow conveyance for the 100-year storm if it exceeds the pre-developed 100-year rate. A subsurface detention facility with flow control manhole is proposed to provide sufficient detention storage for the development and maintain the allowed developed discharge rates. More specifically, the detention facility is to be comprised of 160 LF of 60" diameter corrugated metal pipe. For the purpose of the calculations, the base elevation of the detention facility is assumed to be at 0 FT elevation and, therefore, the top of the storage facility is at an elevation of 5 FT. The following table summarizes the pre-developed and developed flows from the Chase Bank site:

Design Storms	Pre-developed Flow From Site (Reach 1SP) (CFS)	Allowable Flow From Site (CFS)	Developed Flow From Site (Reach 1RD) (CFS)
2-yr (2.40")	0.02	0.02	0.04
5-yr (2.90")	0.03	0.03	0.05
10-yr (3.40")	0.05	0.05	0.05
25-yr (3.90")	0.07	0.07	0.07
100-yr (4.40")	0.10	0.10	0.09

Table 3: Pre-developed and developed flows from the site.

It can be seen from the table above that the developed flows for each of the design storms meets the specified requirements, with the exception of the 2-year and 5-year storms. The developed flows for these two storms slightly exceed the pre-developed flows from the site because Section 2.0013 of the 2010 City of West Linn Public Works Design Standards prohibits the use of any flow control orifice smaller than 1 inch in diameter and states that the allowable rate provided by a 1 inch orifice will be considered adequate as approved by the City Engineer. A summary of the developed flows and stormwater facility storage volumes and stage elevations is shown in the following table:

Design Storms	Developed Flow From The Site (Reach 1RD) (CFS)	Detention Volume (Pond 1P) (CF)	Detention Stage Elevation (Pond 1P) (CF)
2-yr (2.40")	0.04	1,425	2.32
5-yr (2.90")	0.05	1,963	2.99
10-yr (3.40")	0.05	2,541	3.77
25-yr (3.90")	0.07	2,755	4.10
100-yr (4.40")	0.09	3,018	4.59

Table 4: Developed flows and stormwater facility storage volumes.

It can be seen from the table above that the detention facility has sufficient detention volume to meet the specified quantity control requirements.

- **See Appendices F, G, H, I, & J for a detailed analysis for the 2, 5, 10, 25, and 100-year design storms.**

Water Quality:

Water quality treatment for stormwater runoff from the proposed site is to be provided by a 48 inch diameter StormFilter manhole with 3 replaceable filter cartridges. The StormFilter manhole was sized to treat the water quality storm which was determined to be 0.83 inches per Section 1.3.3 of the 2008 City of Portland Stormwater Management Manual. The StormFilter manhole was sized according to Stormwater Management specifications using the following equation:

$$\text{Number of Cartridges} = \frac{\text{Qtreat X 449 gpm/cfs}}{\text{15gpm/cartridge}}$$

The following table summarizes the flow that will be treated by the stormwater treatment facility for the water quality design storm of 0.83 inches. It also indicates the number of cartridge filters that are required to treat the flow and the model of StormFilter required:

Design Storm	Node Number	Flow to Stormfilter (CFS)	Filter Cartridges Required (EA)	Stormfilter Model Required
WQ (0.83")	2RD	0.07	3	48" StormFilter manhole-3 Cart.

Table 5: Stormwater treatment facility sizing.

From the table above, it can be seen that 3 filter cartridges are required to treat the water quality flow from the proposed development. Maintenance for the Stormfilter manhole will be performed by the property owner.

- **See Appendix D for stormwater facility details, specifications, and operations and maintenance guidelines.**
- **See Appendix E for a detailed analysis of the water quality storm.**

Conveyance System Analysis:

The behavior of the conveyance system was analyzed using HydroCAD to verify capacity requirements. The capacities of the pipes were determined using nomographs provided by the manufacturer. The table below summarizes the characteristics of the conveyance system for the 100-year design storm:

Reach	Description	Diameter (in.)	Length (ft.)	Slope (%)	Capacity (cfs)	Peak Q (cfs)	Peak Depth (ft.)	Peak Velocity (fps)
1RD	Pipe (CPP)	8	96.6	1.00	1.21	0.09	0.13	2.06
2RD	StormFilter	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3RD	Pipe (CPP)	8	16.0	1.00	1.21	0.53	0.31	3.33
4RD	Pipe (CPP)	6	108.2	1.00	0.56	0.13	0.17	2.33
5RD	Pipe (CPP)	8	67.5	1.00	1.21	0.25	0.20	2.73
6RD	Pipe (CPP)	6	39.1	1.00	0.56	0.10	0.15	2.18

Table 6: Characteristics of the conveyance system for the 100-year design storm.

- **See Appendix J for a detailed analysis of the 100-year design storm.**

Downstream Capacity Analysis:

All developed stormwater flows from the site will be less than or equal to the pre-developed rates and, therefore, a downstream analysis should not be required.

APPENDIX

APPENDIX

Table of Contents

Rainfall Data ..... A
- Vicinity Map
- Table C-1 - Design Storms from C.O.P. Stormwater Management Manual
- Table C-2 – Runoff Curve Numbers from C.O.P. Stormwater Management Manual

Soil Data ..... B
- Soils Map
- Table C-3 – NRCS Hydrologic Soil Group Descriptions from C.O.P. Stormwater Management Manual
- Table 12 – Engineering Index Properties
- Table 13 – Physical and Chemical Properties of Soils
- Table 14 – Soil and Water Features

Geotechnical Engineering Report by Terracon on June, 7, 2001 C

Stormwater Facility Details & Specifications..... D
- StormFilter Manhole Details
- StormFilter Operation and Maintenance Guidelines

Water Quality Hydro-CAD Analysis..... E
- Pre-developed and Developed Water Quality

2-Year Hydro-CAD Analysis..... F
- Pre-developed and Developed 2-Year

5-Year Hydro-CAD Analysis..... G
- Pre-developed and Developed 5-Year

10-Year Hydro-CAD Analysis..... H
- Pre-developed and Developed 2-Year

25-Year Hydro-CAD Analysis..... I
- Pre-developed and Developed 10-Year

100-Year Hydro-CAD Analysis..... J
- Pre-developed and developed 100-Year

City of West Linn Pre-Application Conference Meeting Notes ..... K

Preliminary Plans..... L
- Preliminary Development Plan
- ALTA / ACSM Land Title Survey
- Pre-developed Catchment Plan
- Developed Catchment Plan

A


SEE 656 MAP
PORTLAND
GLENMORRIE
MARYLHURST
MARYLHURST UNIVERSITY
ROCK ISLAND
97036
97068
ROBINWOOD
CEDAROAK
MARYLHURST HEIGHTS
WEST LINN
Site
PACIFIC HWY
MARY S YOUNG STATE PK
SEE 687 MAP
ROSEMONT
OPPENLANDER ATHLETIC FIELDS
FRWY
SW SUNSHINE LN
SW WILDA RD
SW CLEMATIS RD
SW GRAPEVINE RD
SW WISTERIA RD
BRANDYWINE DR
SW JOHNSON RD
LANCASTER ST
PARKER RD
SEE 716 MAP
© 2004 Thomas Bros. Maps®
miles 1 in. = 1900 ft.

Design Storm

The SBUH method also requires a design storm to perform the runoff calculations. For flow control calculations, BES uses a NRCS Type 1A 24-hour storm distribution. This storm is shown in Figure C-1 and Table C-4. The depth of rainfall for the 2 through 100-year storm events is shown below in Table C-1.

Table C-1
24-HOUR RAINFALL DEPTHS AT PORTLAND AIRPORT

Recurrence Interval, Years	2	5	10	25	100
24-Hour Depths, Inches	2.4	2.9	3.4	3.9	4.4

Table C-2
RUNOFF CURVE NUMBERS

Runoff curve numbers for urban areas*

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, etc.):					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Runoff curve numbers for other agricultural lands*

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range-continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch	Poor	68	79	86	89
50 to 75% ground cover and not heavily grazed	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed	Good	39	61	74	80
Meadow-continuous grass, protected from grazing and generally mowed for hay	-	30	58	71	78
Brush--weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50 to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30	48	65	73
Woods-grass combination (orchard or tree farm)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79

Runoff curve numbers for other agricultural lands*

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30	55	70	77

Runoff curve numbers for Simplified Approaches**

Cover description		Curve numbers for hydrologic soil group			
Simplified Approaches	Hydrologic condition	A	B	C	D
Eco-roof	Good	n/a	61	n/a	n/a
Roof Garden	Good	n/a	48	n/a	n/a
Contained Planter Box	Good	n/a	48	n/a	n/a
Infiltration & Flow-Through Planter Box	Good	n/a	48	n/a	n/a
Pervious Pavement	-	76	85	89	n/a
Trees					
New and/or Existing Evergreen	-	36	60	73	79
New and/or Existing Deciduous	-	36	60	73	79

n/a - Does not apply, as design criteria for the relevant mitigation measures do not include the use of this soil type.
*Soil Conservation Service, *Urban Hydrology for Small Watersheds*, Technical Release 55, pp. 2.5-2.8, June 1986.
**CNs of various cover types were assigned to the Proposed Simplified Approaches with similar cover types as follows:
Eco-roof – assumed grass in good condition with soil type B.
Roof Garden – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Contained Planter Box – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Infiltration & Flow-Through Planter Box – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Pervious Pavement – assumed gravel.
Trees – assumed woods with fair hydrologic conditions.

Note: To determine hydrologic soil type, consult local USDA Soil Conservation Service Soil Survey.

B

SOIL SURVEY OF CLACKAMAS COUNTY AREA, OREGON — SHEET NUMBER 6

TABLE C-3
NRCS HYDROLOGIC SOIL GROUP DESCRIPTIONS

NRCS Hydrologic Soil Group	Description
Group A	Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.
Group B	Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
Group C	Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.
Group D	Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a fragipan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
12A, 12B--------- Canderly	0-7	Sandy loam--------	SM	A-2, A-4	0	100	100	60-80	30-40	20-25	NP-5
	7-46	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	100	100	60-80	30-40	20-25	NP-5
	46-60	Loamy sand, coarse sandy loam, gravelly loamy sand.	SM	A-2, A-1	0	75-100	70-100	35-75	15-30	---	NP
13B, 13C, 13D, 13E---------- Cascade	0-11	Silt loam--------	ML	A-4	0	85-100	80-100	80-100	70-90	25-35	NP-10
	11-21	Silt loam, silty clay loam.	ML	A-4, A-6	0	95-100	95-100	95-100	80-90	25-40	NP-15
	21-60	Silt loam, silty clay loam.	ML	A-4	0	100	100	95-100	85-95	25-35	NP-10
14C, 14D, 14E---- Cascade	0-24	Silt loam--------	ML	A-4	0	90-100	90-100	90-100	80-90	25-35	NP-10
	24-32	Silt loam, silty clay loam.	ML	A-4, A-6	0	100	100	95-100	85-95	25-40	NP-15
	32-60	Very stony silty clay loam, very stony clay loam.	CL	A-6, A-7	45-55	65-95	60-90	55-90	50-85	35-45	15-25
15B, 15C, 15D---- Cazadero	0-21	Silty clay loam	ML	A-6	0	90-100	80-100	75-100	70-90	35-40	10-15
	21-60	Clay, silty clay	MH	A-7	0	100	100	95-100	85-100	50-65	15-25
16---------- Chehalis	0-7	Silt loam--------	ML	A-4	0	100	100	95-100	80-90	25-35	NP-10
	7-44	Silt loam, silty clay loam.	ML	A-4, A-6, A-7	0	100	100	95-100	85-95	35-45	5-15
	44-60	Stratified fine sandy loam to silty clay loam.	ML	A-4, A-6, A-7	0	100	75-100	70-90	50-85	30-45	NP-15
17---------- Clackamas	0-7	Silt loam--------	ML	A-4	0	80-100	75-100	70-100	50-90	25-35	NP-5
	7-36	Gravelly clay loam, gravelly silty clay loam, silty clay loam.	CL, GC	A-6	0-5	60-85	60-85	45-80	40-75	35-40	15-20
	36-60	Extremely gravelly clay loam, extremely gravelly silty clay loam, extremely grav.	GC	A-2	5-15	20-35	15-30	10-30	10-30	35-40	15-20
18---------- Clackamas	0-7	Gravelly loam----	GM, ML, SM	A-4, A-2	0-5	55-80	50-75	40-70	30-55	25-35	NP-5
	7-20	Gravelly clay loam, gravelly silty clay loam, silty clay loam.	CL, GC	A-6	0-5	60-85	60-85	45-80	40-75	35-40	15-20
	20-60	Extremely gravelly clay loam, extremely gravelly silty clay loam, extremely grav.	GC	A-2	5-15	20-35	15-30	10-30	10-30	35-40	15-20
19---------- Cloquato	0-15	Silt loam--------	ML	A-4	0	100	100	95-100	80-95	20-30	NP-5
	15-42	Silt loam--------	ML	A-4	0	100	100	95-100	75-90	20-30	NP-5
	42-60	Sandy loam--------	SM	A-2, A-1	0	100	100	45-75	20-35	---	NP
20---------- Coburg	0-20	Silty clay loam	CL	A-6	0	95-100	90-100	85-100	80-95	30-40	10-15
	20-60	Silty clay loam, silty clay.	CL	A-7	0	95-100	90-100	85-100	80-95	40-50	15-25
21---------- Concord	0-6	Silt loam--------	ML	A-4	0	100	100	95-100	85-95	30-40	5-10
	6-60	Silty clay, silty clay loam, clay.	CL	A-7	0	100	100	95-100	80-90	40-50	15-25

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
1A, 1B----------	0-8	15-20	1.35-1.55	0.6-2.0	0.19-0.21	5.6-6.0	Low----------	0.43	5	2-3
Aloha	8-35	18-27	1.40-1.55	0.2-0.6	0.19-0.21	5.6-6.5	Low----------	0.55		
	35-60	10-25	1.45-1.60	0.2-0.6	0.16-0.21	5.6-6.5	Low----------	0.55		
2B, 2C, 2D, 2E---	0-14	27-35	1.00-1.20	0.6-2.0	0.16-0.21	5.6-6.0	Moderate-----	0.24	5	5-7
Alspaugh	14-43	35-45	1.20-1.40	0.2-0.6	0.08-0.16	4.5-5.5	Moderate-----	0.24		
	43-60	35-45	1.10-1.30	0.2-0.6	0.06-0.10	4.5-5.5	Moderate-----	0.10		
3----------	0-22	15-25	1.20-1.45	0.6-2.0	0.19-0.21	5.6-6.0	Low----------	0.32	5	3-5
Amity	22-60	27-35	1.20-1.40	0.2-0.6	0.19-0.21	5.6-6.5	Moderate-----	0.49		
4E, 4F.										
Andic Cryaquepts										
5D, 5E----------	0-17	7-10	0.85-0.95	0.6-2.0	0.07-0.10	5.1-6.5	Low----------	0.10	5	7-12
Aschoff	17-60	10-18	0.85-0.95	0.6-2.0	0.07-0.10	5.6-6.5	Low----------	0.10		
6F*:										
Aschoff---------	0-17	7-10	0.85-0.95	0.6-2.0	0.07-0.10	5.1-6.5	Low----------	0.10	5	7-12
	17-60	10-18	0.85-0.95	0.6-2.0	0.07-0.10	5.6-6.5	Low----------	0.10		
Brightwood------	0-4	10-18	1.00-1.20	2.0-6.0	0.06-0.12	5.6-6.5	Low----------	0.10	2	4-8
	4-34	10-15	1.00-1.20	2.0-6.0	0.04-0.12	5.6-6.5	Low----------	0.10		
	34	---	---	---	---	---	----------	----		
7B----------	0-18	27-35	1.20-1.40	0.2-0.6	0.19-0.21	5.1-6.0	Moderate-----	0.32	5	2-4
Borges	18-45	45-60	1.20-1.40	<0.06	0.15-0.17	5.6-6.0	High---------	0.32		
	45-60	27-45	1.30-1.40	0.2-0.6	0.12-0.21	5.6-6.0	Moderate-----	0.32		
8B, 8C, 8D-------	0-8	20-27	1.30-1.50	0.6-2.0	0.15-0.17	5.1-6.0	Low----------	0.32	5	3-4
Bornstedt	8-33	27-35	1.40-1.60	0.6-2.0	0.13-0.17	5.1-6.0	Low----------	0.37		
	33-60	40-50	1.30-1.50	0.06-0.2	0.12-0.15	4.5-5.5	Low----------	0.32		
9B, 9D, 9E-------	0-19	12-20	0.70-0.75	0.6-2.0	0.18-0.24	5.1-6.0	Low----------	0.32	5	6-10
Bull Run	19-60	12-18	0.70-0.85	0.6-2.0	0.24-0.26	5.1-6.0	Low----------	0.49		
10C----------	0-14	10-20	0.70-0.85	0.6-2.0	0.18-0.24	5.1-6.0	Low----------	0.28	5	6-8
Bull Run Variant	14-48	10-20	0.75-0.85	0.6-2.0	0.20-0.24	5.1-6.0	Low----------	0.43		
	48-60	30-45	1.00-1.40	0.2-0.6	0.19-0.21	5.1-6.0	Moderate-----	0.37		
11----------	0-17	5-10	1.30-1.50	2.0-6.0	0.07-0.09	5.6-7.3	Low----------	0.10	2	1-3
Camas	17-60	0-5	1.40-1.60	>20	0.03-0.05	5.6-6.5	Low----------	0.10		
12A, 12B---------	0-7	10-18	1.00-1.20	2.0-6.0	0.11-0.13	5.6-6.5	Low----------	0.10	5	4-6
Canderly	7-46	10-18	1.00-1.20	2.0-6.0	0.11-0.13	5.6-6.5	Low----------	0.10		
	46-60	5-10	1.10-1.30	2.0-6.0	0.04-0.08	5.6-6.5	Low----------	0.17		
13B, 13C, 13D,										
13E----------	0-11	15-19	1.10-1.20	0.6-2.0	0.17-0.21	5.1-6.0	Low----------	0.24	5	4-7
Cascade	11-21	18-30	1.30-1.40	0.6-2.0	0.17-0.21	5.1-6.0	Low----------	0.28		
	21-60	17-28	1.40-1.55	0.06-0.2	0.03-0.05	5.1-6.0	Low----------	0.20		
14C, 14D, 14E----	0-24	18-25	1.20-1.30	0.6-2.0	0.17-0.21	5.1-6.0	Low----------	0.24	5	4-6
Cascade	24-32	20-30	1.60-1.85	0.06-0.2	0.03-0.05	5.1-6.0	Low----------	0.20		
	32-60	27-40	1.20-1.40	0.2-0.6	0.11-0.15	5.1-6.0	Moderate-----	0.10		
15B, 15C, 15D----	0-21	25-40	1.20-1.40	0.6-2.0	0.15-0.17	5.1-6.0	Low----------	0.24	5	3-4
Cazadero	21-60	45-60	1.30-1.50	0.2-0.6	0.11-0.13	5.1-6.0	Moderate-----	0.28		
16----------	0-7	15-25	1.10-1.30	0.6-2.0	0.19-0.21	5.6-6.5	Low----------	0.32	5	5-10
Che[illegible]s	7-44	25-35	1.20-1.30	0.6-2.0	0.17-0.21	5.6-7.3	Moderate-----	0.28		
	44-60	15-35	1.10-1.30	0.6-2.0	0.17-0.21	5.6-7.3	Moderate-----	0.28		

See footnote at end of table.

TABLE 14.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
1A, 1B--Aloha	C	None	---	---	1.0-2.0	Perched	Dec-Apr	>60	---	Moderate	Moderate
2B, 2C, 2D, 2E--Alspaugh	C	None	---	---	>6.0	---	---	>60	---	High	High.
3--Amity	D	None	---	---	0.5-1.5	Apparent	Nov-May	>60	---	Moderate	Moderate
4E, 4F. Andic Cryaquepts											
5D, 5E--Aschoff	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate
6F*:											
Aschoff	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate
Brightwood	B	None	---	---	>6.0	---	---	20-40	Hard	Moderate	Moderate
7B--Borges	D	None	---	---	0-0.5	Perched	Dec-Apr	>60	---	Moderate	Moderate
8B, 8C, 8D--Bornstedt	C	None	---	---	2.0-3.0	Perched	Dec-Apr	>60	---	High	High.
9B, 9D, 9E--Bull Run	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate
10C--Bull Run Variant	D	None	---	---	0.5-1.5	Perched	Nov-May	>60	---	Moderate	Moderate
11--Camas	A	Frequent	Brief	Nov-May	>6.0	---	---	>60	---	Moderate	Moderate
12A, 12B--Canderly	B	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate
13B, 13C, 13D, 13E, 14C, 14D, 14E--Cascade	C	None	---	---	1.5-2.5	Perched	Dec-Apr	>60	---	High	Moderate
15B, 15C, 15D--Cazadero	C	None	---	---	>6.0	---	---	>60	---	Moderate	Moderate
16--Chehalis	B	Occasional	Brief	Nov-Mar	>6.0	---	---	>60	---	Moderate	Moderate
17, 18--Clackamas	D	None	---	---	0.5-1.5	Perched	Nov-May	>60	---	Moderate	Moderate
19--Cloquato	B	Occasional	Very brief	Nov-Mar	>6.0	---	---	>60	---	Moderate	Moderate
20--Coburg	C	None	---	---	1.5-2.5	Apparent	Nov-May	>60	---	Moderate	Moderate
21--Concord	D	None	---	---	+.5-0.5	Apparent	Nov-May	>60	---	Moderate	Moderate
22--Conser	D	Rare	---	---	+1-1.5	Apparent	Nov-May	>60	---	Moderate	Moderate
23B, 23C, 23D--Cornelius	C	None	---	---	2.5-4.0	Perched	Dec-Apr	>60	---	Moderate	Moderate

See footnote at end of table.

contamination of water supplies as a result of seepage from onsite sewage disposal systems.

This map unit is in capability subclass IIe.

13B—Cascade silt loam, 3 to 8 percent slopes. This deep, somewhat poorly drained soil is on rolling uplands. It formed in silty material. The vegetation in areas not cultivated is mainly Douglas-fir, bigleaf maple, western redcedar, vine maple, salal, swordfern, grasses, and forbs. Elevation is 250 to 1,400 feet. The average annual precipitation is about 50 to 60 inches, the average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark grayish brown and dark brown silt loam about 11 inches thick. The subsoil is dark yellowish brown silt loam about 10 inches thick. Below this to a depth of 60 inches or more is a dark yellowish brown, mottled silt loam and silty clay loam hardpan. Depth to the hardpan ranges from 20 to 30 inches.

Included in this unit are small areas of Powell, Kinton, Cornelius, Delena, and Laurelwood soils. Included areas make up about 20 percent of the total acreage.

Permeability of this Cascade soil is moderate to a depth of 21 inches and slow below this depth. Available water capacity is about 5.0 to 7.5 inches. Effective rooting depth is restricted by the hardpan. Runoff is slow, and the hazard of water erosion is slight. The water table is at a depth of 18 to 30 inches in winter and early in spring. This soil is droughty in summer.

This unit is used mainly for pasture, hay, and small grain. It is also used for timber production, homesites, wildlife habitat, and recreation. This unit is subject to increased use as homesites. Where the unit has been used as homesites, as much as 50 percent of the area not covered by buildings or other impervious material has been disturbed. The disturbed areas have been covered by as much as 20 inches of fill material or have had as much as 30 inches of the original profile removed by cutting and grading. The fill material is most commonly from adjacent areas of Cascade soils that have been cut or graded.

If this unit is used for pasture, hay, and small grain, the main limitations are wetness, restricted rooting depth, and droughtiness. Wetness generally limits the suitability of this unit for deep-rooted crops. Tile drainage systems are difficult to install because of the depth to the hardpan. They should be installed across the slope. In summer, irrigation is required for maximum production of most crops. Sprinkler irrigation is a suitable method of applying water. Applications of irrigation water should be adjusted to the available water capacity and the water intake rate; overirrigating and leaching of plant nutrients should be avoided.

Excessive cultivation of the soil in this unit can result in the formation of a tillage pan, which can be broken by subsoiling when the soil is dry. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. If the soil in this unit is plowed in fall, runoff and erosion can be reduced by fertilizing and seeding to a cover crop. Diversions and grassed waterways may be needed. Grain and grasses respond to nitrogen, and legumes respond to phosphorus, boron, sulfur, and lime. When the soil is wet, grazing and other activities that cause trampling result in compaction of the surface layer, poor tilth, and excessive runoff.

This unit is suited to the production of Douglas-fir. The site index for Douglas fir ranges from 150 to 160. On the basis of a site index of 155, the potential production per acre of merchantable timber is 9,840 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 91,040 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 80 years old.

The main concerns in producing and harvesting timber on this unit are wetness and restricted rooting depth. Conventional methods of harvesting timber generally are suitable, but the soil may become compacted if heavy equipment is used when the soil is wet. Trees are subject to windthrow because of the restricted rooting depth. Roads need heavy base rock for year-round use. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills. Brushy plants such as vine maple and salal limit natural regeneration of Douglas-fir.

If this unit is used for homesite development, the main limitations are wetness and low soil strength. Drainage should be provided if buildings with basements and crawl spaces are constructed. Wetness is reduced by installing drain tile around footings. The hardpan in this soil is rippable and therefore is not a serious limitation for most engineering uses. Onsite sewage disposal systems often fail or do not function properly during periods of high rainfall because of the hardpan.

Preserving the existing plant cover on this unit during construction helps to control erosion. In summer, irrigation is required for lawn grasses, shrubs, vines, shade trees, and ornamental trees. It is difficult to establish these plants in areas that have had the surface layer and subsoil removed, exposing the hardpan. Mulch and fertilizer help to establish plants in cut areas. Plants that tolerate wetness and droughtiness should be selected if drainage and irrigation are not provided.

This map unit is in capability subclass IIIw.

13C—Cascade silt loam, 8 to 15 percent slopes. This deep, somewhat poorly drained soil is on rolling uplands. It formed in silty material. The vegetation in areas not cultivated is mainly Douglas-fir, bigleaf maple, western redcedar, vine maple, salal, swordfern, grasses, and forbs. Elevation is 250 to 1,400 feet. The average annual precipitation is about 50 to 60 inches, the

average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark grayish brown and dark brown silt loam about 11 inches thick. The subsoil is dark yellowish brown silt loam about 10 inches thick. Below this to a depth of 60 inches or more is a dark yellowish brown, mottled silt loam and silty clay loam hardpan. Depth to the hardpan ranges from 20 to 30 inches.

Included in this unit are small areas of Powell, Kinton, Cornelius, and Laurelwood soils. Included areas make up about 20 percent of the total acreage.

Permeability of this Cascade soil is moderate to a depth of 21 inches and slow below this depth. Available water capacity is about 5.0 to 7.5 inches. Effective rooting depth is restricted by the hardpan. Runoff is medium, and the hazard of water erosion is moderate. The water table is at a depth of 18 to 30 inches in winter and early in spring. This soil is droughty in summer.

This unit is used mainly for pasture, hay, and small grain. It is also used for timber production, homesites, wildlife habitat, and recreation. This unit is subject to increased use as homesites. Where the unit has been used as homesites, as much as 50 percent of the area not covered by buildings or other impervious material has been disturbed. The disturbed areas have been covered by as much as 24 inches of fill material or have had as much as 36 inches of the original profile removed by cutting and grading. The fill material is most commonly from adjacent areas of Cascade soils that have been cut or graded.

If this unit is used for pasture, hay, and small grain, the main limitations are slope, wetness, restricted rooting depth, and droughtiness. Wetness generally limits the suitability of this unit for deep-rooted crops. Tile drainage systems are difficult to install because of the depth to the hardpan. They should be installed across the slope.

In summer, irrigation is required for maximum production of most crops. Sprinkler irrigation is a suitable method of applying water. Use of this method permits the even, controlled application of water, reduces runoff, and minimizes the risk of erosion.

Excessive cultivation of the soil in this unit can result in the formation of a tillage pan, which can be broken by subsoiling when the soil is dry. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Grain and grasses respond to nitrogen, and legumes respond to phosphorus, boron, sulfur, and lime.

If the soil in this unit is plowed in fall, runoff and erosion can be reduced by fertilizing and seeding to a cover crop. All tillage should be on the contour or across the slope. When the soil is wet, grazing and other activities that cause trampling result in compaction of the surface layer, poor tilth, and excessive runoff.

This unit is suited to the production of Douglas-fir. The site index for Douglas-fir ranges from 150 to 160. On the basis of a site index of 155, the potential production per acre of merchantable timber is 9,840 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 91,040 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 80 years old.

The main concerns in producing and harvesting timber are wetness and the restricted rooting depth. Conventional methods of harvesting timber generally are suitable, but the soil may become compacted if heavy equipment is used when the soil is wet. Trees are subject to windthrow because of the restricted rooting depth. Roads for year-round use need heavy base rock. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills. Brushy plants such as vine maple and salal limit natural regeneration of Douglas-fir.

If this unit is used for homesite development, the main limitations are wetness, low soil strength, and steepness of slope. Drainage should be provided if buildings with basements and crawl spaces are constructed. Wetness is reduced by installing drain tile around footings.

Onsite sewage disposal systems often fail or do not function properly during periods of high rainfall because of the hardpan. The steepness of slope is a concern in installing septic tank absorption fields.

Preserving the existing plant cover during construction helps to control erosion. In summer, irrigation is required for lawn grasses, shrubs, vines, shade trees, and ornamental trees. It is difficult to establish these plants in areas that have had the surface layer and subsoil removed, exposing the hardpan. Mulch and fertilizer help to establish plants in cut areas. Plants that tolerate wetness and droughtiness should be selected if drainage and irrigation are not provided.

This map unit is in capability subclass IIIe.

13D—Cascade silt loam, 15 to 30 percent slopes. This deep, somewhat poorly drained soil is on rolling uplands. It formed in silty material. The vegetation in areas not cultivated is mainly Douglas-fir, bigleaf maple, western redcedar, vine maple, salal, swordfern, grasses, and forbs. Elevation is 250 to 1,400 feet. The average annual precipitation is about 50 to 60 inches, the average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark grayish brown and dark brown silt loam about 11 inches thick. The subsoil is dark yellowish brown silt loam about 10 inches thick. Below this to a depth of 60 inches or more is a dark yellowish brown, mottled silt loam and clay loam hardpan. Depth to the hardpan ranges from 20 to 30 inches.

C

Geotechnical Engineering Report

Proposed Chase Bank Branch
West Linn, Oregon
June 7, 2011
Terracon Project No. 82115014

Prepared for:
Callison Architects, Inc.
Seattle, Washington

Prepared by:
Terracon Consultants, Inc.
Portland, Oregon

June 7, 2011

Terracon

Callison Architects, Inc.
1420 Fifth Avenue, Suite 200
Seattle, Washington 98101

Attn: Mr. Jon McAuley

Re: Geotechnical Engineering Report
Proposed Chase Bank
19080 Willamette Drive
West Linn, Oregon
Terracon Project Number: 82115014

Dear Mr. McAuley:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with our proposal number P82110070 dated May 12, 2011 and authorized per our Master Service Agreement with Callison Architects, Inc by an email dated May 14, 2011..

This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Brent H. Sullivan, EIT
Staff Engineer

Kristopher T. Hauck, PE
Office Manager

TABLE OF CONTENTS

		Page
1.0	**INTRODUCTION**	**1**
2.0	**PROJECT INFORMATION**	**1**
2.1	Project Description	1
2.2	Site Location and Description	2
3.0	**SUBSURFACE CONDITIONS**	**3**
3.1	Geology	3
3.2	Typical Profile	4
3.2.1	Corrosion Considerations	5
3.3	Groundwater	6
4.0	**RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION**	**6**
4.1	Geotechnical Considerations	6
4.2	Seismic Considerations	8
4.2.1	Liquefaction Analysis	8
4.2.2	Seismic Settlement Discussion	9
4.3	Earthwork	10
4.3.1	Site Preparation	10
4.3.2	Subgrade Preparation	11
4.3.3	Fill Material Types	13
4.3.4	Compaction Requirements	14
4.3.5	Grading and Drainage	14
4.3.6	Earthwork Construction Considerations	14
4.4	Foundations	15
4.4.1	Shallow Foundation Design Recommendations	15
4.4.2	Shallow Foundation Construction Considerations	17
4.4.3	Geotechnical Review	18
4.5	Floor Slab	18
4.5.1	Floor Slab Design Recommendations	18
4.5.2	Floor Slab Construction Considerations	19
4.6	Lateral Earth Pressures	19
4.7	Pavements	21
4.7.1	Pavement Design Recommendations	21
4.7.2	Asphalt, Base Course, and Subbase Materials	22
4.7.3	Pavement Construction Considerations	22
5.0	**GENERAL COMMENTS**	**23**

APPENDIX A – FIELD EXPLORATION

Exhibit A-1	Boring Location Plan
Exhibit A-2	Field Exploration Description
Boring Logs	B-1 through B-7

APPENDIX B – LABORATORY TESTING

Exhibit B-1	Laboratory Testing
Lab Testing	Atterberg Limit Determination Results
Lab Testing	Grain Size Analysis
Lab Testing	Unconfined Compression Strength

APPENDIX C – SUPPORTING DOCUMENTS

Exhibit C-1	General Notes
Exhibit C-2	Unified Soil Classification System

GEOTECHNICAL ENGINEERING REPORT
PROPOSED CHASE BANK
WEST LINN, OREGON

Terracon Project No. 82115014
June 7, 2011

1.0 INTRODUCTION

This geotechnical engineering report has been completed for the proposed Chase Bank to be located at 19080 Willamette Drive in West Linn, Oregon. Seven (7) borings, designated B-1 through B-7 were completed to depths of approximately 11½ to 50 feet below the existing ground surface (bgs). Boring logs of the borings along with a Boring Location Plan (Exhibit A-1) are included in Appendix A of this report.

The purpose of our evaluation is to provide geotechnical recommendations and considerations for the following with respect to the proposed development:

- subsurface soil conditions
- groundwater conditions
- earthwork
- seismic considerations
- foundation design and construction
- floor slab design and construction
- lateral earth pressures
- pavement design and construction

2.0 PROJECT INFORMATION

2.1 Project Description

ITEM	DESCRIPTION
Site layout	See Exhibit A-1: Boring Location Plan. We understand that the existing building will be demolished and a new building will be constructed at the site.
Structures	The proposed building is about 4,120 square feet in size. The building is presumed to be a single-story with a concrete slab on-grade.
Building construction	Wood and/or steel framed structure typically supported on conventional spread and continuous footings (assumed).
Maximum loads	**Column Footings:** 50 kips (assumed) **Wall Footings:** 2 to 3 klf (assumed) **Floor Slabs:** 125 ksf (assumed)

ITEM	DESCRIPTION
Maximum allowable settlement	**Total Static:** 1 inch (assumed) **Differential:** ¾ inch in 40 feet (assumed) **Seismic Related Settlement:** We have prepared this report with the assumption that up to 2 inches of seismic related settlement is acceptable to the owner during a Design Level Earthquake and will be accommodated in the structural design of the building.
Grading	Cuts and fills on the order of 2 to 4 feet for site grading, mainly on the northeastern end of the site where the existing building is located and the drive-through planned. Excavation and backfill of new footings expected to be on the order of 2 to 3 feet with little to no (less than about 2 feet) net elevation change from existing grade to finished floor elevation (assumed).
Cut and fill slopes	Approximate 3% slope final grading across site from assumed finish floor elevation to the northeastern drive-through (assumed).
Free-standing retaining walls	None expected if site is graded.

2.2 Site Location and Description

ITEM	DESCRIPTION
Location	The project site is located northwest of the intersection of Willamette Drive and Cedar Oak Drive. The current physical address is 19080 Willamette Drive in West Linn, Oregon.
Existing Site Features	The site is currently developed with a two story building, including a daylight basement, wood framed building. The building is a vacated commercial retail building with an apparent concrete slab-on-grade in the daylight basement.
Surroundings	**Northwest**: Fence bordered by grass/weeds and a small single-story commercial retail development. **Southeast**: Asphalt paved drives and small single story commercial retail development. **Northeast**: Trees/shrubs and residential neighborhood. **Southwest**: Asphalt paved parking area, landscape islands and Willamette Drive.
Current ground cover	Predominately covered with a mixture of asphalt pavements and gravel on all sides of the existing building.
Existing topography	Based on elevations determined with survey level and rod during site visit, there is approximately one to one and a half feet of relief across the western majority of the site, dropping from the southwest to southeast. The east side of the site drops in grade approximately eight feet through the existing building to the eastern edge of the property, with the grade continuing to drop heading east/northeast towards the Willamette River.

3.0 SUBSURFACE CONDITIONS

3.1 Geology

We reviewed the following geologic publications:

- *Oregon Geologic Data Standard (OGDS) v. 2.1,* a geologic map database published by the Oregon Department of Geology and Mineral Industries (2009, DOGAMI).
- *Soil Survey of Clackamas County, Oregon,* Soil Conservation Service (SCS), U.S. Department of Agriculture, 2010 (data accessed via http://websoilsurvey.nrcs.usda.gov/).
- *Geologic map of the Lake Oswego Quadrangle, Clackamas, Multnomah, and Washington Counties, Oregon: United States Geological Survey (USGS)* (GMS-59) 1989.
- *Relative Earthquake Hazard Map of the Lake Oswego Quadrangle, Clackamas, Multnomah, and Washington Counties, Oregon: DOGAMI (GMS-91) 1995.*

The site is mapped in the *OGDS* and GMS-59 as consisting of near surface deposits of fine-grained facies (Qff) deposited in Pleistocene. This unit is described as coarse sand to silt deposited by the catastrophic Missoula floods. This deposit is often referred to as a rhythmically deposited sand, silt, and clay deposit. The "rhythmic" reference is to describe the layering sequence often observed within the deposit with depth. The SCS mapped the site as 13C—Cascade Silt Loam, 8 to 15 percent slopes. This soil has the following characteristics according to the SCS:

Soil Type	USCS Classification	Liquid Limits	Plasticity Index	Corrosion of Concrete	Corrosion of Steel	pH	Hydrologic Group
Cascade Silt Loam (13C)	ML (>21 in bgs)	25-35	NP - 10	Moderate	Moderate	5.1-6.0	C

The *Relative Earthquake Hazard Map (GMS-91)* indicates the site is mapped as:

Relative Hazard	Category	Scale	Explanation of Category
Ground Motion Amplification	3	1 to 3, with 3 being greatest	Category 3 corresponds to areas with amplification greater than 1.5.
Liquefaction	3	0 to 3, with 3 being greatest	Category 3 corresponds to areas with a thickness of liquefiable material greater than 20 ft. where the water table is 15-30 ft. deep or areas with liquefiable material where the water table is less than 15 ft. deep.
Slope Instability	0	0 to 3, with 3 being greatest	Category 0 corresponds to areas with slope instability only in unusual localized conditions.
Overall Earthquake Hazard	A	A to D, with A being the greatest hazard	The degree of relative hazard was based on the factors of ground motion amplification, liquefaction, and slope instability.

3.2 Typical Profile

Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/Density
Stratum 1 (FILL)	½ to 1	Variable: 3 inches of asphalt pavement over 5 to 6 inches gravel base course in borings (B-1, B-2, B-4, and B-7) and silt, gravel with silt in borings (B-3, B-5) and 3 inches topsoil over 3 inches gravel in boring B-6	Variable pavement and ground surface conditions
Stratum 2 (FILL)	1 to 6	Gravel with silt, gravel, silt, silt with gravel, silt with sand	Loose granular soils / soft to very stiff fine grained soils

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/Density
Stratum 3 (SILT and SAND)	20 feet to Undetermined: Borings B-5, B-6, and B-7 were terminated within this stratum at the planned depth of 11½ feet bgs.	Interbedded layers of silt with variable amounts of sand and fine sand with variable amounts of silt (approximately 1½ to 6½ feet in thickness). Fines vary from low plasticity to non-plastic	Soft to stiff fine grained soils / loose to medium dense granular soils
Stratum 4 (SAND)	25 feet to Undetermined: Borings B-1 was terminated within this stratum at the planned depth of 26½ feet bgs.	Silty sand, trace to with gravels generally 1 to 6 feet in thickness where encountered	Medium dense
Stratum 5 (B-3, B-4) (LEAN CLAY and SILT)	Undetermined to 50: Boring (B-3) shallower than 50 feet terminated within this stratum	Lean Clay, interbedded layers of silt with sand (approximately 5 feet in thickness)	Stiff to very stiff

The soils encountered in the borings generally confirm the presence of the silt and sand soils consistent with those described within the publications we reviewed. Conditions encountered at each boring location are indicated on the individual boring logs found in Appendix A of this report. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual.

Laboratory test results are presented on the boring logs in Appendix A and/or in Appendix B.

Based on the moderate risk of corrosion as mapped in the SCS, resistivity testing was completed. Results of the resistivity testing are presented below in the following table:

Electrical Resistivity Test Results – ASTM G57-06	
Sample ID	**Result**
B-4 (2½ feet)	5,000 ohm-cm

3.2.1 Corrosion Considerations

Based on the laboratory test result, the resistivity value for the near surface fill soil sample was 5,000 ohm-cm. Soils with resistivity values below 2,000 ohm-cm are generally associated with

soils classified as "very to very severely corrosive" towards buried metal objects while soils with resistivity values between 2,000 and 5,000 ohm-cm are generally associated with soils classified as "corrosive". Soils with resistivity values between 5,000 and 10,000 ohm-cm are generally associated with soils classified as "moderately corrosive". Due to the electrical resistivity values at the low end of the corrosive range for buried metal objects, we recommend specifying non-metallic pipes where possible. With respect to the need for protection of buried metal pipes, we recommend that the pipe manufacturers review the above soil parameters and provide a suitable level of corrosion protection.

3.3 Groundwater

Groundwater was observed in the borings at the time of drilling. Groundwater was encountered at approximately 11 to 16 feet below ground surface (bgs) while drilling and 13 to 18 feet bgs after the borings were completed. The groundwater conditions within the site soils observed appeared to be variable based on moisture condition of the samples obtained. Perched and intermittent groundwater conditions appear to be prevalent within the explorations and should be expected to be variable across the site.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were completed. Therefore, groundwater levels during construction or at other times may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The subsurface conditions at the site were evaluated to develop geotechnical related design and construction recommendations for site development. In our opinion, the site is feasible for the proposed development provided the recommendations in this report are followed. Based on the subsurface conditions and our understanding of the proposed construction, the primary geotechnical considerations associated with the proposed development is summarized below.

Support of footings, floor slabs, and pavements on or above existing fill soils is discussed in this report. However, even with the recommended improvements, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill. Therefore, complete removal of existing fill soils within the building pad limits are recommended in this report.

- **Site Specific Seismic Liquefaction:** The geologic conditions at the site are considered to be marginal for support of foundations. The site is generally underlain by 15 to 20 feet of interbedded layers of soft to very stiff silt and loose to medium dense silty sand. At depths of about 20 to 26½ feet bgs, very stiff clay and silt with sand were encountered to the bottom of the boring (B-4). These soil conditions, a shallow groundwater level, and the high risk of seismic activity in the site vicinity provides the setting for a moderate risk of intermittent layers of liquefaction of the site soils during a design level earthquake to a depth of about 16 to 20 feet bgs as encountered in Borings B-3 and B-4. However, the estimated settlements appear to be within tolerance of the building to protect life-safety, provided the recommendations for continuous footings and granular fill pads are incorporated in the construction of the building.

- **Continuous Footings with Structural Fill:** Based on the subsurface conditions, our seismic analyses, and experience with small, lightly loaded structures, we recommend that the footings for the structure be continuous (no isolated spread footings) like grade beams throughout the structure and the footings be supported on a minimum of 3 feet of structural fill. The goal of the recommendations within this report is to protect life-safety.according to the 2009 International Building Code. Therefore, we would still expect up to about 1½ to 2 inches of total settlement due to a design level seismic event.

- **Site Grading:** Due to the steeper grades on the eastern third of the site we estimate 2 to 4 feet of site grading will be necessary to make final grades for the drive-through and fill excavation from planned demolition of existing building structure onsite. If planned slope grades at site are steeper than 5H:1V, benching and keying of new fill soils will be necessary, refer to the **Earthwork** section of this report. .

- **Moisture Sensitive Native Soils:** The native soils underlying the surface coverings at the site consist of silts that are very moisture sensitive. These soils are prone to disturbance when they contain elevated moisture contents and are very difficult to compact to the project requirements. Due to the plasticity and moisture content of these soils, they should not be planned to be reused at the site for fill or backfill.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

4.2 Seismic Considerations

DESCRIPTION	VALUE
2009 International Building Code Site Classification (IBC) [1]	F[2]
Site Latitude	N 45.387565
Site Longitude	W 122.641585
S_s Spectral Acceleration for a Short Period	0.938
S_1 Spectral Acceleration for a 1-Second Period	0.332

1. In general accordance with the *2009 International Building Code,* Table 1613.5.2. IBC Site Class is based on the average characteristics of the upper 100 feet of the subsurface profile.
2. The 2009 International Building Code (IBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100 foot soil profile determination. Borings extended to a maximum depth of about 50 feet, and this seismic site class definition considers that stiff soil as noted on the published geologic mapping continues below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration. Therefore, we would interpret that site soils encountered at the site are representative of the soils to a depth of 100 feet.

As discussed below and in the **Geology** section of this report, the site soils have a high risk of liquefaction. Consequently, we have classified the Soil Site Class as F and site specific response analysis may be required to determine spectral accelerations. However, Section 20.3.1 of ASCE 7-05 allows site coefficients F_a and F_v to be determined from Tables 11.4-1 and 11.4-2 for structures with fundamental periods of vibration equal to or less than 0.5 second. We understand, based on our experience with structures similar to the proposed development, that the fundamental period of the structure is less than 0.5 seconds. Therefore, Site Class D was used to determine the values of F_a and F_v in the table below.

Site Class D Spectral Response Accelerations	
F_a site coefficient	1.125
F_v site coefficient	1.737

4.2.1 Liquefaction Analysis

Liquefaction is the phenomenon where saturated soils develop high pore-water pressures during seismic shaking and lose their strength characteristics. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow and loose granular soils or relatively non-plastic fine-grained soils are present. Wet to saturated, low plasticity and non-plastic, soft to very stiff silts/sandy silt and loose to medium dense, sands were encountered in the borings to depths of about 26½ feet bgs.

As part of this geotechnical evaluation, we performed a site-specific liquefaction analysis using the methods based on empirical methods originally developed by Seed and Idriss and subsequently modified by others. The latest recommended procedures were presented by Idriss and Boulanger (2008). The peak ground acceleration and moment magnitude used in the analysis were based on IBC derived ground motions for the design earthquake.

Using the 2009 IBC seismic parameters, we computed safety factors against liquefaction for the various soil layers below the water table encountered at the time of our exploration. For the groundwater at approximately 11 to 13 feet bgs, as encountered in our borings, the potential for liquefaction of the non-plastic to low plasticity silt with sand and the loose silty sand from about 11 to 20 feet bgs is considered to be moderate to high. We estimate that intermittent layers of soils within these depths would liquefy during a design level earthquake as described in the 2009 IBC and liquefaction-induced settlements of about 1½ up to 2 inches at the ground surface.

4.2.2 Seismic Settlement Discussion

Due to the potential seismic liquefaction settlements indicated by our analysis, we recommend that all footings for the structure be connected together with grade beams and supported on a minimum of 3 feet of granular structural fill. No isolated footing pads should be planned or constructed. In addition, the footings should be designed such that they would be able to span about 8 feet without subgrade support. The intent of these recommendations is driven by life-safety as required by the IBC and to help limit differential settlements for the building, not prevent total seismic settlements. In addition this recommendation is not intended to mitigate potential liquefaction settlements occurring due to the design level earthquake.

The 2009 IBC requires that liquefaction analyses be completed assuming a substantial earthquake with associated ground accelerations that are provided in the IBC. It is not the intent of the IBC to require a building to be in an operable condition after such event. Rather the IBC philosophy for seismic design is based on life safety with the intent of preventing building collapse as a result of such a design earthquake. Owners should understand that buildings may not be in an operational condition even with mitigation measures after such a design earthquake and significant repair or even demolition and reconstruction might be required. It therefore seems reasonable that designing a building for the potential impacts of liquefaction resulting from an IBC design earthquake event should be based on the premise of preventing building collapse.

The owner must become involved with the decision making process when it is determined that a building can tolerate predicted liquefaction settlements without collapse. Based on our experience with buildings of similar size and construction, we anticipate that the above mentioned settlements with connected footing (i.e. grade beams) are within the range of tolerance for preventing collapse and we have made design recommendations based on this

assumption. Should the settlements not be within tolerance or damage during a design level earthquake not be acceptable to the owner, liquefaction mitigation measures such as ground improvements would be necessary.

4.3 Earthwork

The following sections present recommendations for site preparation, excavation, subgrade preparation, placement and compaction of structural fill, and grading, The recommendations presented for design and construction of earth supported elements are contingent upon following the recommendations outlined in this section.

4.3.1 Site Preparation

Site preparation and initial construction activities should be planned to reduce disturbance to the existing ground surface. Construction traffic should be restricted to dedicated driveway and laydown areas. Preparation should begin with procedures intended to drain ponded water and control surface water runoff. It will be difficult to maintain stable subgrades if accumulated water is not controlled during construction. Attempting to grade the site without adequate drainage control measures will reduce the amount of on-site soil effectively available for use, increase the amount of import fill materials required, and ultimately increase the cost of the earthwork and foundation construction phases of the project.

Where fill is placed on existing slopes steeper than 5H:1V, benches should be cut into the existing slopes prior to fill placement. The benches should have a minimum vertical face height of 1 foot and a maximum vertical face height of 3 feet and should be cut wide enough to accommodate the compaction equipment, minimum of 5 feet. This benching will help provide a positive bond between the fill and natural soils and reduce the possibility of failure along the fill/natural soil interface. Furthermore, we recommend that fill slopes be over filled and then cut back to develop an adequately compacted slope face.

Although evidence of underground facilities (other than the daylight basement) such as tanks, or vaults was not observed during our fieldwork, such features could be encountered during construction. Where existing utility lines are within the building pad limits, they should be abandoned by complete removal of the utility and fill soils within the trench. The trenches should be backfilled in accordance with structural fill recommendations presented in the **Fill Material Types** and **Compaction Requirements** sections of this report. If unexpected fills or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Site preparation will require removing surface pavements and all existing fill soils within the building pad limits to a minimum depth of 1-foot below the finished floor elevation (to accommodate import granular fill for the capillary break and floor slab support). In areas of

borings B-1 through B-3, fill soils were encountered to depths of 2 to 2½ feet bgs and should be planned to be completely removed from within the building pad limits.

The near surface fill soils encountered in the borings for this project consist of fine-grained silt materials and were in a moisture condition much greater than about 2 percent over an estimated optimum moisture content. Therefore, the site soils are considered to be moisture sensitive and will be difficult or impossible to compact as structural fill. Accordingly, the fill soils from site excavations are not considered suitable as structural fill in building areas, their use in non building areas will depend on their moisture content at the time of earthwork, the prevailing weather conditions when site grading activities take place, and the proposed location for reuse.

At the time of our study, moisture contents of the surface and near-surface native soils ranged from about 24 percent to as much as 33 percent. Based on our experience with similar site soils, we estimate the native silts would have optimum moisture content less than 20 percent. Therefore, it is likely that over-optimum soils will be encountered during construction and in order to use soils that are wet of the optimum moisture content, the soils will need to be dried by aeration during dry weather conditions, or an additive, such as cement or kiln dust, may be needed to stabilize the soil. More importantly, in order to maintain a stable subgrade of the exposed soils, traffic must be limited to areas outside of the site preparation work. This may require a rock protective mat covering of exposed subgrades in order to limit disturbance of the site soils as well as provide a stable base for the ground improvement contractor's equipment.

In our opinion, earthwork should be completed during periods of the year when the moisture content can be controlled by aeration and drying. If earthwork or construction activities take place during extended periods of wet weather, or if the in-situ moisture conditions are elevated above the optimum moisture content, the soils could become unstable or not be compactable. In the event the exposed subgrade becomes unstable, yielding, or unable to be compacted due to high moisture conditions, we recommend that the materials be removed to a sufficient depth in order to develop stable subgrade soils that can be compacted to the minimum recommended levels. Successful drainage of wet to saturated soils may be relatively slow due to the fines content of the fill materials. The severity of construction problems will be dependent, in part, on the precautions that are taken by the contractor to protect the subgrade soils.

4.3.2 Subgrade Preparation

Strip and remove existing pavement, foundations, slabs, vegetation (if encountered), and other deleterious materials from the proposed foundation areas. Stripping depths to remove unsuitable materials are anticipated to be an average of about 2 to 2½ feet or less within the building pad limits due to the existing fill depths. Isolated areas requiring additional stripping could be necessary. Areas where loose or soft surface soils exist should be compacted or removed and replaced to the depth of the disturbance as subsequently recommended for

structural fill. Pavements in other areas should be left in place as long as possible to reduce erosion and prevent disturbance of the surface soils from construction traffic.

After cutting to design subgrade elevation, and prior to placement of new fill or in areas below final grades, we recommend that the exposed subgrades be observed and evaluated for the presence of soft, loose or unsuitable materials (unless the slab area will also be supported on ground improvements). We recommend testing include proofrolling and hand probing to help locate weak or unstable areas at or just below the exposed subgrade level. Proofrolling should be performed using heavy rubber-tired equipment, such as a fully-loaded dump truck, having a minimum gross weight of about 20 tons. Unsuitable areas observed at this time by the owner's representative should be excavated and replaced with structural fill. Those soils which are soft, yielding, or unable to be compacted to the specified criteria should be overexcavated and replaced with satisfactory fill material later described in the **Fill Material Types** section of this report.

Based on the outcome of the proofrolling operations, some undercutting or subgrade stabilization should be expected, especially during wet periods of the year as described in the previous section. Methods of stabilization, which are outlined below, could include scarification and recompaction and/or removal of unstable materials and replacement with granular fill (with or without geotextiles). The most suitable method of stabilization, if required, will be dependent upon factors such as schedule, weather, size of area to be stabilized and the nature of the instability.

- **Scarification and Recompaction** - It may be feasible to scarify, dry, and recompact the exposed soils only during the extended dry season. Very limited use of this method should be considered feasible for the site. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Even with adequate time and weather, stable subgrades may not be achievable if the thickness of the soft soil is greater than about 1 to 1½ feet.

- **Granular Fill** - The use of crushed stone or gravel could be considered to improve subgrade stability. Typical undercut depths would range from about ½ foot to 2 feet. The use of high modulus geotextiles i.e., engineering fabric, should be limited to outside of the Building Ground Improvements area. The maximum particle size of granular material placed immediately over geotextile fabric or geogrid should not exceed 2 inches.

- **Chemical Stabilization** - Improvement of subgrades with portland cement, lime kiln dust, or Class C fly ash could be considered for unstable and plastic soils. Chemical modification should be performed by a pre-qualified contractor having experience with

successfully stabilizing subgrades in the project area on similar sized projects with similar soil conditions.

Overexcavations should be backfilled with structural fill material placed and compacted in accordance with the **Fill Material Types** and **Compaction Requirements** sections of this report. Subgrade preparation and selection, placement, and compaction of structural fill should be performed under engineering controlled conditions in accordance with the project specifications.

4.3.3 Fill Material Types

Engineered or structural fill should meet the following material property requirements:

Fill Type [1]	Specification	Acceptable for Placement
Common Fill	Oregon Standard Specification for Construction (OSSC) 00330.13 Selected General Backfill	All locations across the site, with the exception of within the building pad limits, Dry Weather only.
Select Fill	OSSC 00330.14 Selected Granular Backfill with exception of no more than 5% passing the No. 200 sieve by weight	All locations across the site, Wet Weather and Dry Weather acceptable.
Crushed Rock Base Course (CRBC)	OSSC 02630.10 Dense Graded Aggregate (2"-0 to ¾"-0)	All locations across the site. Recommended for finished base course materials for floor slabs and pavements. Wet Weather and Dry Weather acceptable.

1. Controlled, compacted fill should consist of approved materials that are free (free = less than 3% by weight) of organic matter and debris (i.e. wood sticks greater than ¾-inch in diameter). Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

If open-graded materials with large void spaces, such as quarry spalls, are used over the fine-grained soils, we recommend that the materials be placed over a geotextile fabric separator to prevent fines migration as well as to stabilize the subgrade. The geotextile fabric should be a woven product (Mirafi 500XT or equivalent).

4.3.4 Compaction Requirements

The following compaction requirements are recommended for the prepared subgrade and structural fill expected to be placed for this site:

Item	Description
Fill Lift Thickness	**Common Fill, Select Fill and CRBC:** 8 inches or less in loose thickness when heavy, compaction equipment is used. 4 inches or less in loose thickness when compacted with light walk-behind equipment.
Compaction Requirements [1]	**Common Fill, Select Fill & CRBC:** 95% of the material's maximum Proctor dry density (ASTM D 1557) within the building pad limits and upper 2 feet below site pavements and 92% of the materials maximum Proctor dry density (ASTM D 1557) elsewhere.
Moisture Content	**Common Fill, Select Fill and CRBC:** Within ±2 percent of optimum moisture content as determined by ASTM D 1557.

1. We recommend that fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.

4.3.5 Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

Downspouts, roof drains or scuppers should discharge into splash blocks or extensions when the ground surface is not protected by exterior slabs or paving. Roof drains should not connect to footing drains. Sprinkler systems should not be installed within five feet of foundation elements. Landscaped irrigation adjacent to the foundation systems should be minimized or eliminated.

4.3.6 Earthwork Construction Considerations

The near surface native soils encountered in the borings for this project consist of fine grained silts, clayey silt, and sandy silt materials. Accordingly, the native soils from site excavations are not considered suitable as structural fill in building areas. Their suitability for reuse as common fill in non-building areas will depend on their moisture content at the time of earthwork, the prevailing weather conditions when site grading activities take place, and the proposed location for reuse.

Although the exposed subgrades are anticipated to be relatively stable upon initial exposure, unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance. Should unstable subgrade conditions develop stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

The contractor is responsible for designing and constructing stable, temporary excavations (including utility trenches) as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations to the completed subgrade.

4.4 Foundations

We recommend that the building pad be prepared as recommended in the **Error! Reference source not found.** section to reduce the liquefaction settlement risk. The ground improvement would reinforce the liquefiable non-plastic soils, thereby increasing the safety factor against liquefaction. Conventional shallow foundations and slab-on-grade floors could then be used in the design of the building. Design recommendations for foundations for the proposed structures and related structural elements are presented in the following paragraphs.

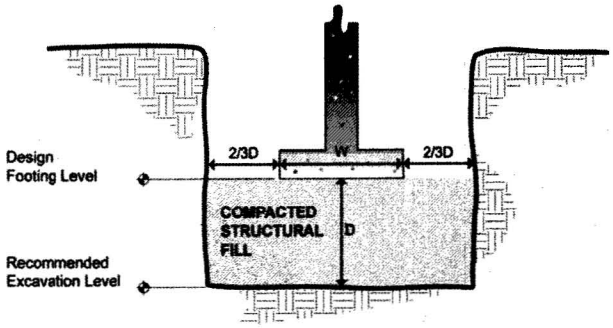
4.4.1 Shallow Foundation Design Recommendations

Due to the potential seismic liquefaction settlements indicated by our analysis, we recommend that all footings for the structure be connected together and supported on a minimum of 3 feet of granular structural fill. No isolated footing pads should be planned or constructed. In addition, the footings should be designed such that they would be able to span about 8 feet without subgrade support (similar to grade-beams). The intent of these recommendations is driven by life-safety as required by the IBC and to help limit differential settlements for the building, not

prevent total seismic settlements. In addition this recommendation is not intended to mitigate potential liquefaction settlements occurring due to the design level earthquake.

We recommend that foundations be supported on a minimum 3 feet of Select Fill placed over undisturbed, native soils. Foundations should not be supported on soft or loose soils or existing fill soils that do not meet the minimum recommended compaction levels. Overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation for excavations backfilled with soils.

Should the soils at bearing level become excessively wet, disturbed or saturated, or frozen, the affected soil should be removed prior to placing concrete. If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils. The overexcavation should then be backfilled up to the footing base elevation with the **Fill Material Types** and **Compaction Requirements** sections of this report. The overexcavation and backfill procedures are described in the adjacent figure. The base of all foundation excavations should be free of water and disturbed soil and rock prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance.



Overexcavation / Backfill

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

DESCRIPTION	Continuous / Grade-Beam Footings
Net allowable bearing pressure [1] **Structurally Connected Footings supported on a minimum of 3 feet of structural fill material placed directly on undisturbed native soil**	2,000 psf
Minimum dimensions	18 inches
Minimum embedment below finished grade for frost protection [2]	18 inches
Approximate total static settlement [3]	<1 inch
Estimated differential settlement [3]	<¾ inch over 40 feet
Allowable passive pressure [4]	250 psf/ft
Allowable coefficient of sliding friction [4]	0.33

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Assumes any unsuitable fill or soft soils, if encountered, will be undercut and replaced with structural fill. Assumes that ground improvement as discussed within this report is adequately constructed.
2. And to reduce the effects of seasonal moisture variations in the subgrade soils. For perimeter footing and footings beneath unheated areas.
3. Assumes that footing subgrades and structural connections as discussed within this report is adequately constructed. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. The above settlement estimates have assumed that the maximum footing size is 1½ feet for continuous footings.
4. The value presented is an equivalent fluid pressure. The sides of the excavation for the spread footing foundation must be nearly vertical and the concrete should be placed neat against these vertical faces for the passive earth pressure values to be valid. Passive resistance in the upper 18 inches of the soil profile should be neglected.

The net allowable bearing pressures presented in the table above may be increased by one-third to resist transient, dynamic loads such as wind or seismic forces. Please note that lateral resistance to footings should be ignored in the upper 18 inches from finish grade.

Perimeter Footing Drains: We recommend that footing drains be installed around the perimeter of the proposed building at the base of the foundations. Drains are also recommended behind all retaining and loading dock walls. Alternatively, retaining walls could be drained with weep holes on maximum 8-foot spacing. Footing drains should consist of a minimum 4-inch diameter, Schedule 40, rigid, perforated PVC pipe placed at the base of the heel of the footing with the perforations facing down. The pipe should be surrounded by a minimum of 4 inches of clean free-draining granular material. Drain rock material should conform to Section 00430.11, Granular Drain Backfill Material, as presented in the *2008 ODOT Standard Specifications for Construction*. We recommend placing a non-woven geotextile, such as Mirafi 140N, or equivalent, above the free draining backfill and below the overlying fill material. Footing drains should be directed toward appropriate storm water drainage facilities. Water from downspouts and surface water should be independently collected and routed to a suitable discharge location.

4.4.2 Shallow Foundation Construction Considerations

The base of all foundation excavations should be free of water and loose soil and rock prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, or frozen, the affected soil should be removed prior to placing concrete. Concrete shall not be placed on frozen subgrade soils. It is recommended that the geotechnical engineer be retained to observe and test the soil foundation bearing materials.

Where disturbed or otherwise unsuitable materials are exposed within the footing subgrade excavations following aggregate pier installation, the subgrades should be prepared in accordance with subgrade preparation of this report. If overexcavation and replacement is necessary, overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation in accordance with structural fill recommendations presented in the **Fill Material Types** and **Compaction Requirements** sections of this report.

4.4.3 Geotechnical Review

Design of a grade-beam type footing system requires a thorough understanding of site subsurface conditions. Furthermore, seismic related design concerns are somewhat approximate and often involves an evaluation of project risks and benefits relative to the extent of the improvement. We strongly recommend that Terracon be retained to review the plans, calculations and specifications once they have been prepared to confirm that the recommendations within this report are incorporated into the project design and construction as intended by Terracon.

4.5 Floor Slab

4.5.1 Floor Slab Design Recommendations

ITEM	DESCRIPTION
Interior floor system	Concrete slab-on-grade.
Base Material	6-inchs of CRBC material (¾"-0)
Capillary Break	6-inches of Capillary Break Material[2]
Modulus of subgrade reaction	125 pci for point load conditions

1. Floor slabs should be structurally independent of any building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Due to shallow groundwater conditions and the fine grained nature of the site soils, capillary rise within the subsurface soils has the potential of reaching the planned floor slab elevation. The floor slab design should include a capillary break, comprised of free-draining, compacted, granular material, at least 6 inches thick. Free-draining granular material should have less than 5 percent fines (material passing the #200 sieve).

The use of a vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. The slab designer and slab contractor should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder. If conditions warrant the use of a vapor retarder, we recommend using a puncture-resistant product that is classified as a Class A vapor retarder in accordance with

ASTM E 1745. To avoid puncturing of the vapor retarder, construction equipment should not be allowed to drive over any vapor retarder material.

4.5.2 Floor Slab Construction Considerations

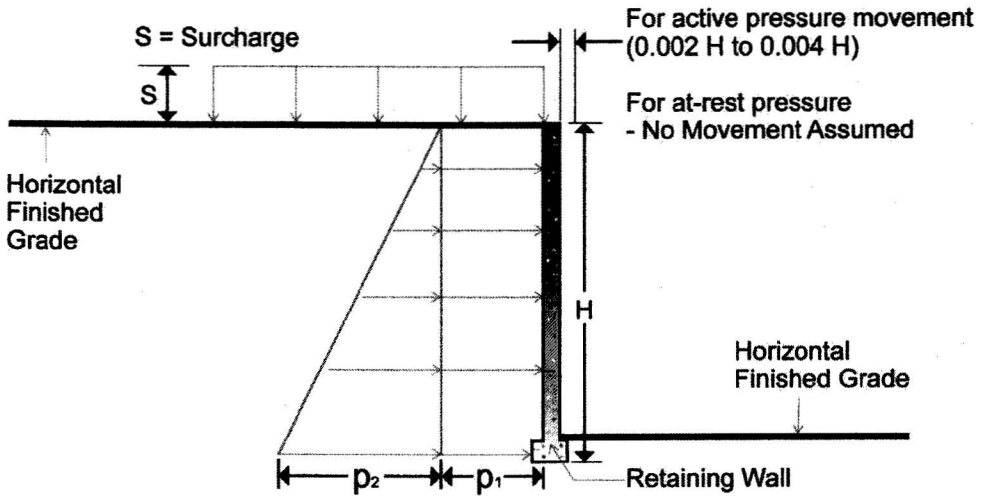
On most project sites, the site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of base rock and concrete and corrective action will be required.

We recommend the area underlying the floor slab be rough graded and then thoroughly proofrolled with a loaded tandem axle dump truck prior to final grading and placement of base rock. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the base rock and concrete.

4.6 Lateral Earth Pressures

Reinforced concrete walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the following table. Even though we do not anticipate the need for significant retaining walls on this project, we have provided the design recommendations for walls less than 4 feet in height.

Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



Earth Pressure Coefficients

Earth Pressure Conditions	Coefficient for Backfill Type	Equivalent Fluid Density (pcf)	Surcharge Pressure, p_1 (psf)	Earth Pressure, p_2 (psf)
Active (Ka)	Granular - 0.33	40	(0.4)S	(40)H
At-Rest (Ko)	Granular - 0.46	55	(0.46)S	(55)H
Passive (Kp)	Granular - 3.0	360	---	---

Applicable conditions to the above include:

- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 **H** to 0.004 **H**, where **H** is wall height
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance
- Uniform surcharge, where **S** is surcharge pressure
- In-situ soil backfill weight a maximum of 125 pcf
- Horizontal backfill, compacted between 92 and 95 percent of modified Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- No dynamic loading
- No safety factor included in soil parameters
- Ignore passive pressure in frost zone

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively. To calculate the resistance to sliding, a value of 0.33 should be used as the ultimate coefficient of friction between the footing and the underlying soil.

To control hydrostatic pressure behind the wall we recommend that a drain be installed at the foundation wall with a collection pipe leading to a reliable discharge. If this is not possible, then combined hydrostatic and lateral earth pressures should be calculated for granular backfill using an equivalent fluid weighing 85 and 90 pcf should be used for active and at-rest, respectively. These pressures do not include the influence of surcharge, equipment or floor loading, which should be added. Heavy equipment should not operate within a distance closer than the exposed height of retaining walls to prevent lateral pressures more than those provided.

4.7 Pavements

4.7.1 Pavement Design Recommendations

Traffic patterns and anticipated loading conditions were not available at the time this report was prepared. We anticipate that traffic loads will be produced primarily by automobile traffic and occasional delivery trucks. The thickness of pavements subjected to heavy truck traffic should be determined using expected traffic volumes, vehicle types, and vehicle loads and should be in accordance with local, city or county ordinances.

Pavement thickness can be determined using AASHTO, Asphalt Institute and/or other methods if specific wheel loads, axle configurations, frequencies, and desired pavement life are provided. Terracon can provide thickness recommendations for pavements for loads other than personal vehicles and occasional delivery truck if provided.

Listed below are pavement component thicknesses, which may be used as a guide for pavement systems at the site for typical commercial building traffic patterns. It should be noted that these systems were derived based on general characterization of the subgrade as predominantly fine-grained. No specific testing (such as CBR, resilient modulus test, etc.) was performed for this project to evaluate the support characteristics of the subgrade.

MINIMUM PAVEMENT THICKNESSES

COMPONENT	Material Thickness, Inches	
	Automobile Parking Areas	Drive Lanes
Asphalt Concrete	4	4
Crushed Rock Base Course (CRBC)	7	8

Prior to placement of the CRBC the pavement subgrades should be prepared as per the recommendations in the **Earthwork** section of this report. Long term pavement performance will be dependent upon several factors, including maintaining subgrade moisture levels and

providing for preventive maintenance. The following recommendations should be considered the minimum:

- The subgrade and the pavement surface have a minimum ¼ inch per foot slope to promote proper surface drainage;
- Consider appropriate edge drainage and pavement under drain systems;
- Install joint sealant and seal cracks immediately;
- Seal all landscaped areas in, or adjacent to pavements to minimize or prevent moisture migration to subgrade soils;
- Placing compacted, low permeability backfill against the exterior side of curb and gutter.

Preventive maintenance should be planned and provided for through an on-going pavement management program. Preventive maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment. Preventive maintenance consists of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Preventive maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements. Prior to implementing any maintenance, additional engineering observation is recommended to determine the type and extent of preventive maintenance.

4.7.2 Asphalt, Base Course, and Subbase Materials

Specifications for manufacturing and placement of pavements and crushed base course should conform to specifications presented in Section 00745 of the 2008 OSSC. All subbase and base course materials should be compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D 1557. We recommend that all base courses be proofrolled with a loaded dump truck prior to placing the following lift of material. We recommend that asphalt be compacted to a minimum of 92 percent of the Rice (theoretical maximum) density.

4.7.3 Pavement Construction Considerations

On most project sites, the site grading is accomplished relatively early in the construction phase. Fills are placed and compacted in a uniform manner. However, as construction proceeds, excavations are made into these areas, rainfall and surface water saturates some areas, heavy traffic from concrete trucks and other delivery vehicles disturbs the subgrade and many surface irregularities are filled in with loose soils to improve trafficability temporarily. As a result, the pavement subgrades, initially prepared early in the project, should be carefully evaluated as the time for pavement construction approaches.

We recommend the moisture content and density of the top 9 inches of the subgrade be evaluated and the pavement subgrades be proofrolled prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be

moisture conditioned and recompacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills.

After proofrolling and repairing deep subgrade deficiencies, the entire subgrade should be scarified and developed as recommended in the **Earthwork** section of this report to provide a uniform subgrade for pavement construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

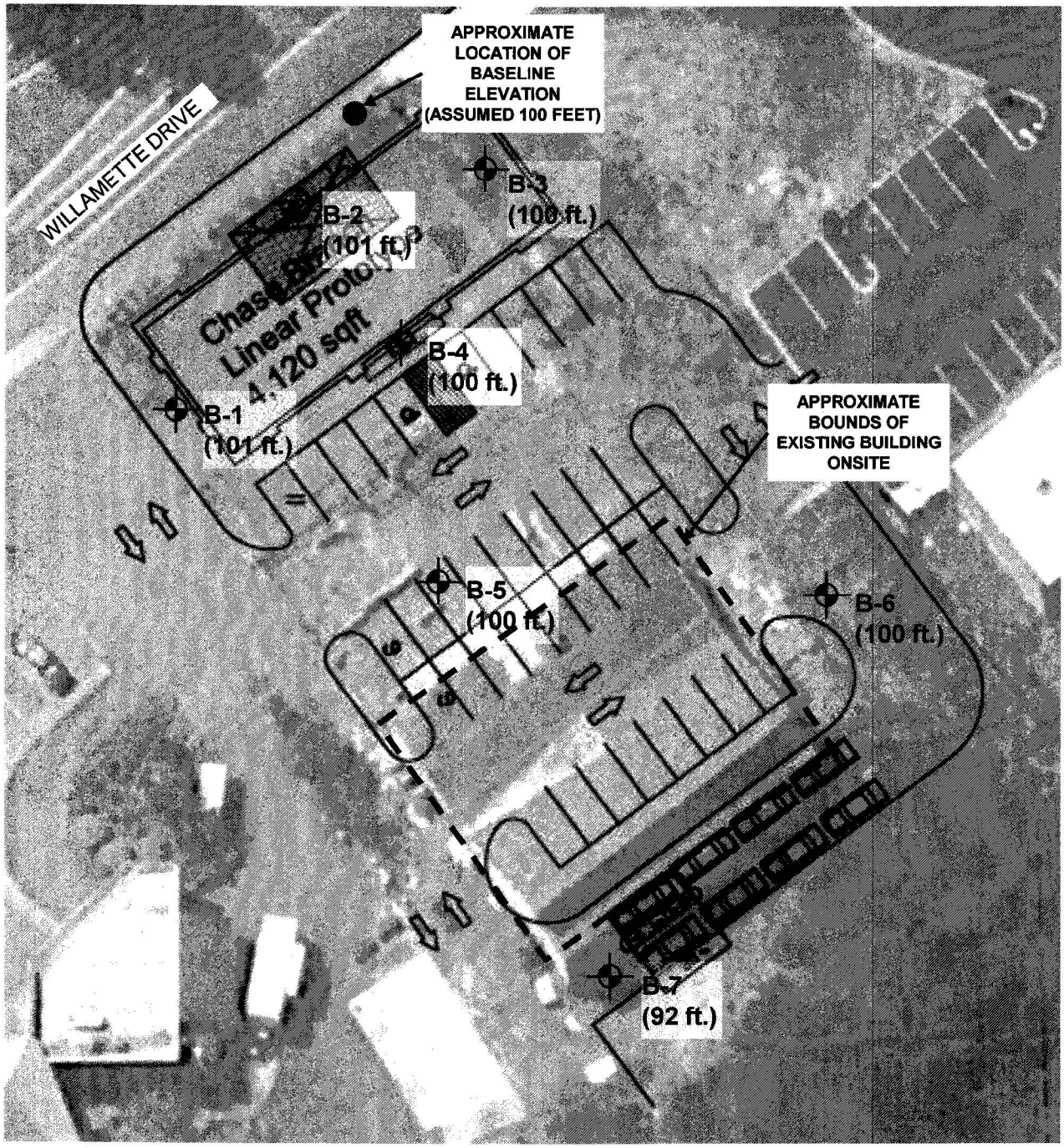
The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered

valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



LEGEND: B-1 (101 ft.) APPROXIMATE BORING LOCATION, ELEVATION, AND NUMBER

N

Drawing Reference: Proposed Site Plan – Chase, Cedar Oak & Hwy 43, Dated 3 March, 2011 by Callison Architects

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Elevation note: Boring elevations were determined in the field using a survey level and rod based on an assumed site elevation of the base location shown. The elevations should be considered accurate only to the degree implied by the means and methods used to define them and not more accurate than the nearest ½ foot.

Project Manager: KTH	Project No. 82115014	Terracon Consulting Engineers & Scientists 4103 SE International Way, Suite 300 Portland, OR 97222 PH. (503) 659-3281 FAX. (503) 659-1287	BORING LOCATION PLAN	Exhibit
Drawn by: BHS	Scale: N.T.S		PROPOSED CHASE BANK 19080 WILLAMETTE DRIVE WEST LINN, OREGON	A-1
Checked by: KTH	File Name: 82115014EXA1			
Approved by: KTH	Date: 6/1/2011			

Field Exploration Description

The boring locations were located in the field by Terracon personnel based on estimated dimension from site features and the provided site plan by Callison Architects. Terracon personnel estimated ground surface elevations of the borings (based on a site specific assumed elevation of 100 feet at a catch basin on the shoulder of Willamette Drive) by using a survey level and rod. The locations and elevations of the borings should be considered accurate only to the degree implied by the means and methods used to define them and the ground surface elevations reported on the logs have been rounded to the nearest ½ foot.

The borings were drilled with a truck-mounted drill rig under subcontract to Terracon using hollow-stem auger and mud rotary drilling methods. An engineer from our firm continuously observed the boring excavations, logged the subsurface conditions, and obtained representative soil samples. Samples of the soil encountered in the borings were obtained using the split barrel and thin-walled tube sampling procedures. The samples were stored in moisture tight containers and transported to our laboratory for further visual classification and testing. After we logged each boring, the operator backfilled each boring in general conformance of local regulations and patched the surface with concrete.

In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound auto-hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in-situ relative density of cohesionless soils and consistency of cohesive soils. An automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the soil to obtain a relatively undisturbed sample. The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions.

A field log of each boring was prepared by the field engineer. These logs included visual classifications of the materials encountered during drilling as well as the field engineer's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

BORING LOG NO. B-1

CLIENT: **Callison Architecture Inc**

SITE: **19080 Willamette Drive, West Linn, OR 97068**

PROJECT: **Cedar Oak and Willamette Chase**

Approx. Surface Elev.: 101 ft

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf	ATTERBURG LIMITS (%)	DESCRIPTION
1		1	BS							3 inches Asphalt over 6 inches of round GRAVEL, with silt, brown — 101 / 100
		2	SS	11	7			3500*		
2.5	ML	3	SS	15	9	24		2000*		**PROBABLE FILL: SILT**, trace clay, brown with gray mottling, stiff, low plasticity — 98.5
	ML	4	ST	21		33	90	4500*	LL = 34 PI = 4	**SILT**, trace sand, light brown, gray mottling and rust striations, stiff, low plasticity
7										94
10	ML	5	SS	18	5			1000*		**SILT**, with sand, brown, medium stiff
	ML	6	SS	10	3	34		1000*		-brown-gray, soft -1-inch black organic silt layer at 10 feet.
15										86
15	ML	7	SS	14	9	32				**SANDY SILT**, brown-gray, stiff -2-inch gray silt seam
20										81
20	SM	8	SS	8	8	25				**SILTY SAND**, brown-gray, loose -drill encountered isolated gravels from 20 to 25 ft. -2-inch brown clay seam with weathered rock, low plasticity
25	SM	9	SS	0	23					-medium dense
26.5										74.5
										BOTTOM OF BORING Boring advanced using hollow-stem auger methods.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 12	WD	▼ 13 AB
WL	▽		▼
WL			

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-2

CLIENT: **Callison Architecture Inc**

SITE: **19080 Willamette Drive, West Linn, OR 97068**

PROJECT: **Cedar Oak and Willamette Chase**

Approx. Surface Elev.: 101 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf	ATTERBURG LIMITS (%)
	3 inches Asphalt over 5 inches of crushed GRAVEL (1-inch minus Base Course), gray (101 / 100 / 99)			1	BS						
				2	SS	12	19			8000*	
	FILL: SILT, with gravel, gray, very stiff		ML	3	SS	10	12	30		3500*	
	SILT, gray-brown, very stiff, low plasticity										
	-stiff	5	ML	4	SS	11	7	27		2500*	
	-Non-plastic (9 / 92)		ML	5	ST	20		33	86	8000*	LL = NP PI = NP
	SANDY SILT, brown-gray with rust mottling, stiff (10.5 / 90.5)	10	ML	6	SS	14	8			2000*	
	SAND, trace silt, brown-gray, loose (▽) (15 / 86)										
	FINE SANDY SILT, trace gravel, gray-brown, medium stiff	15	ML	7	SS	15	5	29		2000*	
	-isolated gravels from 18 feet to 19½ ft. (20 / 81)										
	SILT, with sand and gravel, blue-gray, hard	20	ML	8	SS	18	50				
	(26.5 / 74.5)	25	ML	9	SS	0	19				
	BOTTOM OF BORING										
	Boring advanced using hollow-stem auger methods.										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 13	WD	▽ WCI 13	AB
WL	▽		▽	
WL				

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-3

CLIENT: **Callison Architecture Inc**

SITE: **19080 Willamette Drive, West Linn, OR 97068**

PROJECT: **Cedar Oak and Willamette Chase**

Approx. Surface Elev.: 100 ft

DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf	DESCRIPTION
		1	BS						Grass and weeds at surface over (100)
		2A	SS	17	14			5500*	**FILL: SILT**, trace gravel, trace root hairs, brown (2 / 98)
	ML	2B							
	ML	3	SS	8	6			2500*	**SILT**, trace sand, brown-gray, very stiff, low plasticity
									-trace organic wood fibers, medium stiff, low plasticity (5 / 95)
5	ML	4	SS	14	3			1000*	**CLAYEY SILT**, trace organics, brown with gray mottling, soft, low plasticity
		5	SS	0	7				-stiff
10	ML	6A	SS	14	6			2000*	-medium stiff (11 / 89)
	SP	6B							**FINE SAND**, with silt, brown, loose
	SM								(15 / 85)
15	ML	7	SS	16	2			1500*	**SILT**, with sand, gray with brown mottling, soft, low plasticity
									(20.5) -**SANDY SILT**, very stiff (79.5)
20	CL	8A 8B	SS	18	17			4500*	**LEAN CLAY**, gray, very stiff, medium plasticity
25	CL	9	SS	18	10			4500*	(26.5 / 73.5)
									BOTTOM OF BORING
									Boring advanced using hollow-stem auger methods.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 16	WD	▼ 18 AB
WL	▼		▼
WL			

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-4

CLIENT: Callison Architecture Inc

SITE: 19080 Willamette Drive, West Linn, OR 97068

PROJECT: Cedar Oak and Willamette Chase

Approx. Surface Elev.: 100 ft

DEPTH, ft.	GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf	ATTERBURG LIMITS (%)
		3 inches Asphalt over 6 inches of crushed GRAVEL (1-inch minus Base Course), gray (100 / 99)									
		SILT, gray-brown, stiff	ML	1	SS	16	10			2000*	
5		-trace clay, brown, low plasticity	ML	2	SS	18	12	32		2000*	LL = 30 PI = 5
		8.5 / 91.5	ML SP	3	SS	18	7			2000*	
		SAND, trace silt, gray, loose 10 / 90									
10		**SANDY SILT**, gray, medium stiff -2 inch silt seam, brown at 10½ and 11 ft. ▽	ML	4	SS	11	4	35			
15		-brown, very stiff -medium grained sand	ML	5	SS	13	14				
		20 / 80									
20		**SILTY MEDIUM SAND**, trace gravel, brown, medium dense -encountered gravels 21 to 23½ ft.	SM	6	SS	15	24	27			
		25 / 75									
25		**LEAN CLAY**, gray, very stiff, medium plasticity	CL	7	SS	18	17			4500*	
30		-hard	CL	8	SS	18	28			7000*	

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 11	WD	▽ N/E	AB
WL	▽		▽	
WL				

Terracon

BORING STARTED	5-17-11		
BORING COMPLETED	5-17-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-4

CLIENT: Callison Architecture Inc

SITE: 19080 Willamette Drive, West Linn, OR 97068

PROJECT: Cedar Oak and Willamette Chase

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf	ATTERBURG LIMITS (%)
	LEAN CLAY, gray, very stiff, medium plasticity	35									
	SILT, with sand, brown, very stiff	40	ML	9	SS	18	24	33		2000*	
	LEAN CLAY, light brown with rust mottling, stiff, medium plasticity -½ inch sand/weathered rock seam, rust brown	45	CL	10	SS	18	10	41		2000*	LL = 38 PI = 18
	-rust striations, very stiff, medium plasticity -3 inch zone of highly weathered rock	50	CL	11	SS	18	19	41		3000*	
	-trace sand, light brown with rust mottling		CL	12	SS	18	22	29		3500*	
	BOTTOM OF BORING Boring advanced using mud rotary drilling methods.										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft				
WL	▽ 11	WD	▼ N/E	AB
WL	▼		▼	
WL				

Terracon

BORING STARTED	5-17-11		
BORING COMPLETED	5-17-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-5

CLIENT: **Callison Architecture Inc**

SITE: **19080 Willamette Drive, West Linn, OR 97068**

PROJECT: **Cedar Oak and Willamette Chase**

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	Approx. Surface Elev.: 100 ft									
	1 **FILL: GRAVEL** (1-inch minus Base Course), gray — 99			1	BS					
	2.5 **FILL: GRAVEL**, with silt, gray, loose, (round gravels) — 97.5			2	SS	6	7			
	CLAYEY SILT, trace sand, blue-gray, medium stiff, low plasticity		ML	3	SS	17	6			2500*
	- trace organics, brown	5	ML	4	SS	17	5			2500*
	-gray									
	-gray with rust mottling		ML	5	SS	4	16			1500*
	10 — 90	10								
	11.5 **SILT**, gray with brown mottling, stiff, low plasticity — 88.5		ML	6	SS	18	7			3500*
	BOTTOM OF BORING									
	Boring advanced using hollow-stem auger methods.									
	Water not observed during or after drilling with the exception of wet augers and cuttings upon hole abandoning.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft				
WL	▽ N/E	WD	▽ DCI 7	AB
WL	▽		▽	
WL				

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-6

CLIENT: **Callison Architecture Inc**

SITE: **19080 Willamette Drive, West Linn, OR 97068**

PROJECT: **Cedar Oak and Willamette Chase**

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	Approx. Surface Elev.: 100 ft									
	1 — 3 inches **TOPSOIL**, over weed barrier fabric over 3 inches of crushed GRAVEL (5/8-inch minus Base Course) — 99			1	BS					
	2.5 — **FILL: GRAVEL**, (5/8-inch minus Base Course), with silt, gray, loose — 97.5			2	SS	5	9			
	PROBABLE FILL: SILT, with sand, gray-brown, medium stiff			3	SS	8	6			1000*
	5.5 — 94.5	5								
	SILT, trace organics, gray, stiff		ML	4	SS	16	11			3500*
	-trace gravel		ML	5	SS	8	10			5500*
	10 — 90	10								
	CLAYEY SILT, trace root hairs, gray-brown, stiff, low plasticity — 11.5 — 88.5		ML	6	SS	12	7			2500*
	BOTTOM OF BORING									
	Boring advanced using hollow-stem auger methods.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft			
WL	▽ N/E	WD	▼ DCI 6 AB
WL	▼		▼
WL			

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

BORING LOG NO. B-7

CLIENT: Callison Architecture Inc

SITE: 19080 Willamette Drive, West Linn, OR 97068

PROJECT: Cedar Oak and Willamette Chase

Approx. Surface Elev.: 92 ft

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N ** BLOWS / ft.	TESTS WATER CONTENT, %	TESTS DRY UNIT WT pcf	TESTS UNCONFINED STRENGTH, psf
	0.6 — 3 inches Asphalt over 6 inches of crushed GRAVEL (1-inch minus Base Course), gray — 92 / 91.5			1	BS					
	2.5 — **FILL: WOOD DEBRIS**, with silt and gravel — 89.5			2	SS	10	22			
	PROBABLE FILL: SILT, trace gravel, gray, soft, low plasticity			3	SS	4	3			1000*
	6 — 86	5		4	ST	8				500*
	CLAYEY SILT, trace root hairs, gray with brown mottling, soft to medium stiff, low plasticity		ML	5	SS	17	4			1500*
	-gray-brown, low plasticity	10	ML	6	SS	18	5			3000*
	11.5 — 80.5									
	BOTTOM OF BORING									
	Boring advanced using hollow-stem auger methods.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

**CME 140H SPT automatic hammer
*Calibrated Hand Penetrometer

WATER LEVEL OBSERVATIONS, ft				
WL	▽ N/E	WD	▼ DCI 7	AB
WL	▼		▼	
WL				

Terracon

BORING STARTED	5-16-11		
BORING COMPLETED	5-16-11		
RIG	D-50 Truck	DRILLER	STI
LOGGED	BHS	JOB #	82115014

BOREHOLE 99 82115014.GPJ TERRACON.GDT 6/7/11

APPENDIX B
LABORATORY TESTING

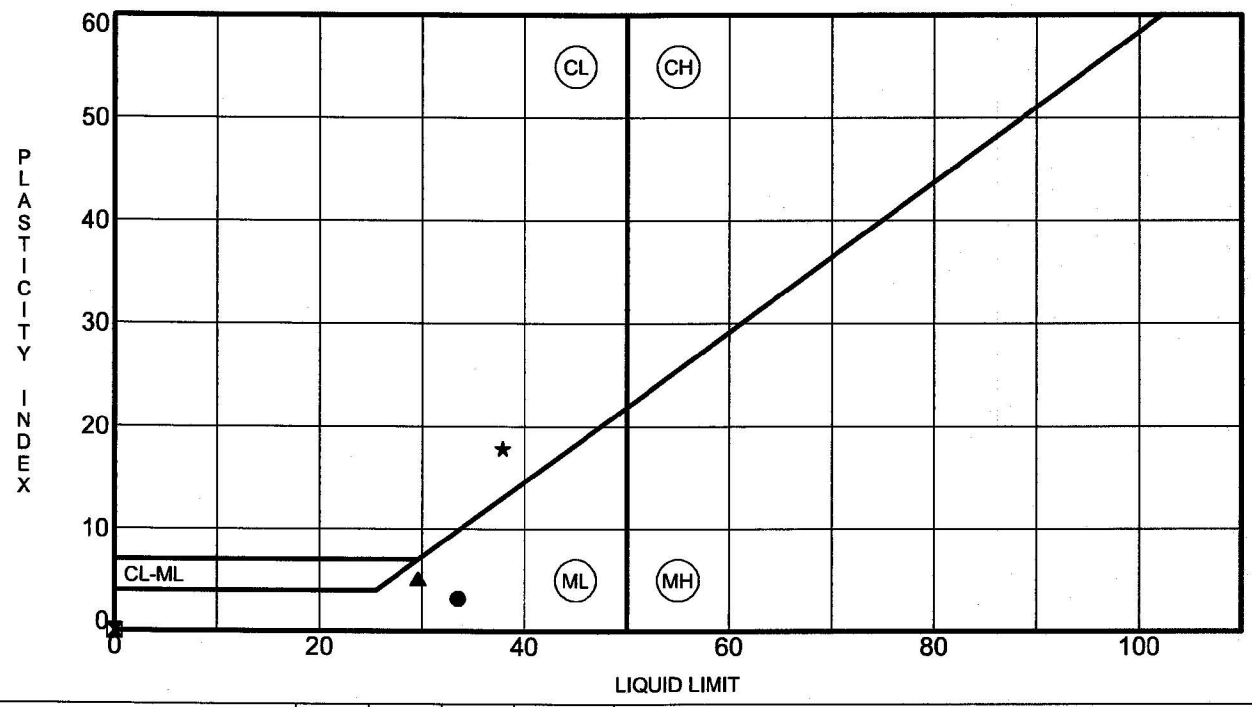
Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in general accordance with the Unified Soil Classification System (USCS) as shown in Appendix C. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples and the test results are presented in this appendix. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- In-situ Water Content
- Grain Size Analysis
- Unconfined Compressive Strength
- Atterberg Limits
- Electrical Resistivity



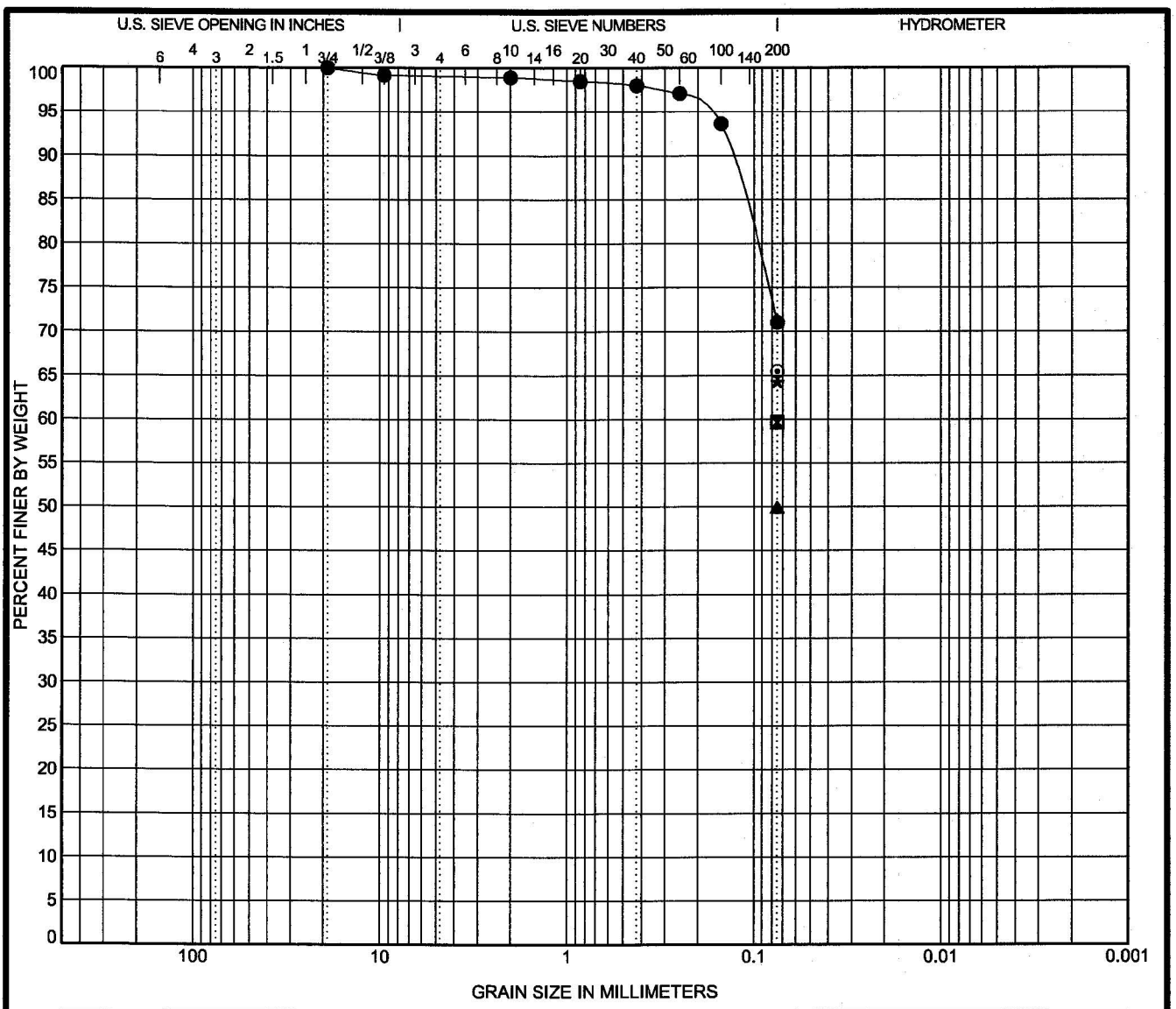
Specimen Identification		LL	PL	PI	%Fines	Classification
● B-1	6.0ft	34	30	4		**SILT, trace sand (ML)**
⊠ B-2	7.5ft	NP	NP	NP		**SILT (ML)**
▲ B-4	5.0ft	30	25	5		**SILT (ML)**
★ B-4	40.0ft	38	20	18	90	**LEAN CLAY (CL)**

Terracon

ATTERBERG LIMITS RESULTS

Project: Cedar Oak and Willamette Chase
Site: 19080 Willamette Drive West Linn, OR 97068
Job #: 82115014
Date: 6-7-11

TC ATTERBERG LIMITS 82115014.GPJ TERRACON.GDT 6/7/11



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1	10.0ft	SILT with sand (ML)					
⊠	B-1	15.0ft	SANDY SILT (ML)					
▲	B-1	20.0ft	SILTY SAND (SM)					
★	B-2	15.0ft	FINE SANDY SILT, trace gravel (ML)					
⊙	B-4	10.0ft	SANDY SILT (ML)					

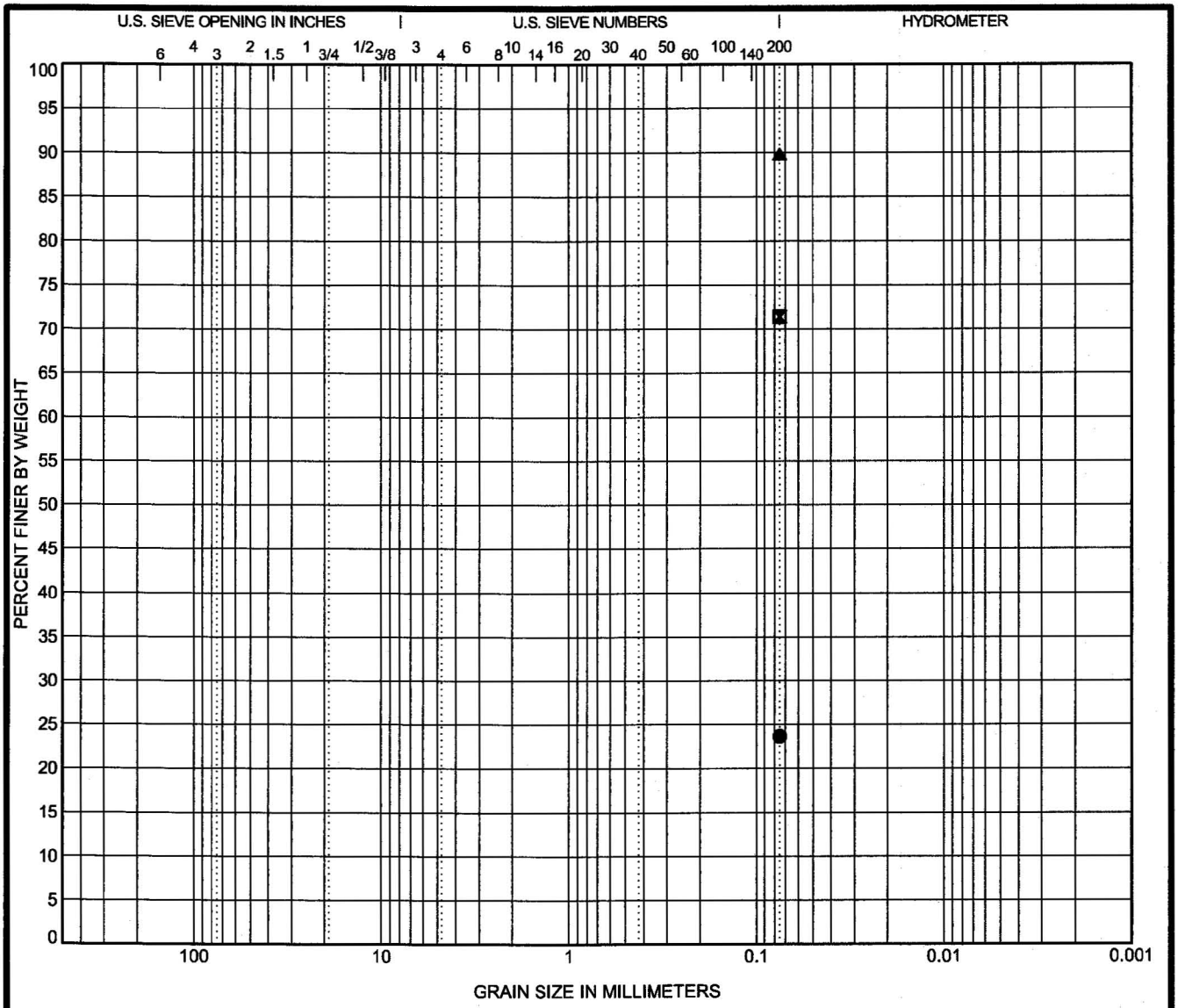
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	10.0ft	19				1.0	28.0	71.1	
⊠	B-1	15.0ft	0.075				0.0	0.0	59.7	
▲	B-1	20.0ft	0.075				0.0	0.0	49.9	
★	B-2	15.0ft	0.075				0.0	0.0	64.3	
⊙	B-4	10.0ft	0.075				0.0	0.0	65.5	

Terracon

GRAIN SIZE DISTRIBUTION

Project: Cedar Oak and Willamette Chase
Site: 19080 Willamette Drive West Linn, OR 97068
Job #: 82115014
Date: 6-7-11

TC GRAIN SIZE 82115014.GPJ TERRACON.GDT 6/7/11



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-4	20.0ft	SILTY SAND, trace gravel (SM)					
⊠	B-4	35.0ft	SILT with sand (ML)					
▲	B-4	40.0ft	LEAN CLAY (CL)	38	20	18		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-4	20.0ft	0.075				0.0	0.0	23.7	
⊠	B-4	35.0ft	0.075				0.0	0.0	71.4	
▲	B-4	40.0ft	0.075				0.0	0.0	89.8	

Terracon

GRAIN SIZE DISTRIBUTION

Project: Cedar Oak and Willamette Chase
Site: 19080 Willamette Drive West Linn, OR 97068
Job #: 82115014
Date: 6-7-11

TC GRAIN SIZE 82115014.GPJ TERRACON.GDT 6/7/11

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube – 2" O.D., 3" O.D., unless otherwise noted	PA:	Power Auger (Solid Stem)
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	BCR:	Before Casing Removal
WCI:	Wet Cave in	WD:	While Drilling	ACR:	After Casing Removal
DCI:	Dry Cave in	AB:	After Boring	N/E:	Not Encountered

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	0 – 1	Very Soft
500 – 1,000	2 – 3	Soft
1,000 – 2,000	4 – 6	Medium Stiff
2,000 – 4,000	7 – 12	Stiff
4,000 – 8,000	13 – 26	Very Stiff
8,000+	26+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 49	Dense
50+	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	0 – 14
With	15 – 29
Modifier	30+

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75 to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	0 – 4
With	5 – 12
Modifier	12+

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 – 10
Medium	11 – 30
High	30+

Exhibit C-1

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]	GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]	SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G,H,I]
			Fines classify as CL or CH	SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]	CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [K,L,M,N] / Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K,L,M]
			PI plots below "A" line	MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [K,L,M,P] / Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.

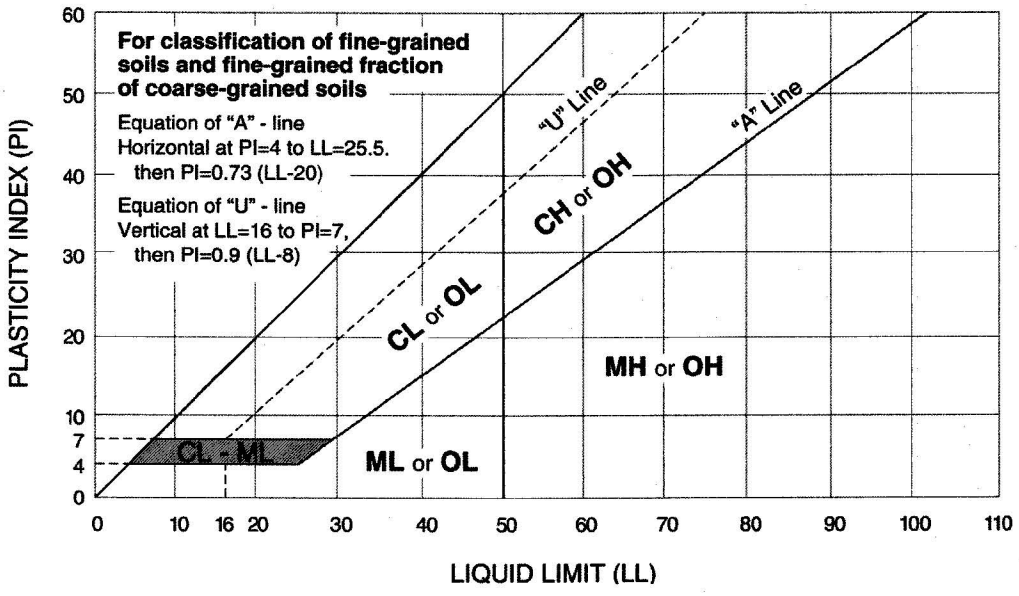


Exhibit C-2

D

Determining the number of cartridges for a highly impervious site

To determine the number of StormFilter cartridges needed for a highly impervious site (≥70% impervious):

1. Calculate the peak flow rate from the water quality storm (Q_{treat}) for your site using the approved hydrologic models established by your local agency. If there are no agency guidelines, we recommend using the Santa Barbara Urban Hydrograph Method.
2. Calculate the number of cartridges required to treat the peak water quality flow rate (N_{flow}) for your site.
   - ➡ $N_{flow} = Q_{treat}$ (449 gpm/cfs / Q_{cart} gpm/cart)

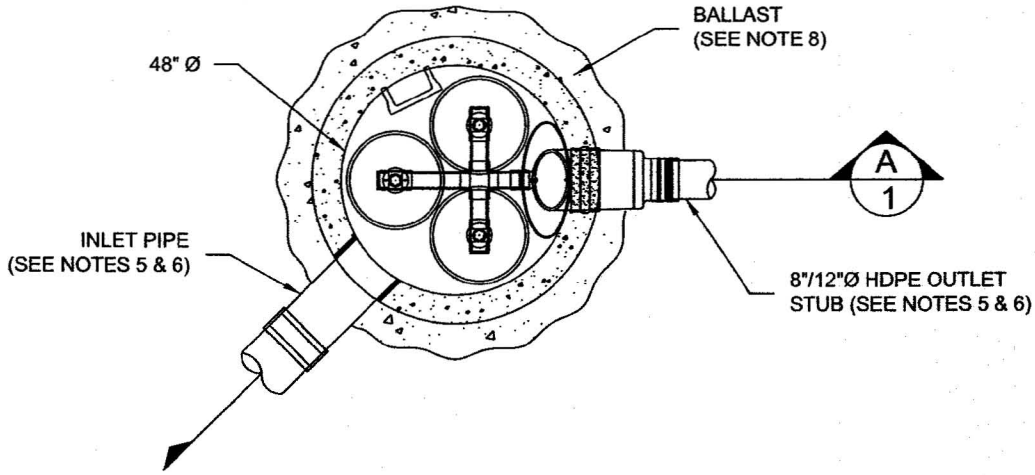
Notes:

- Assume Q_{cart} = 15 gpm/cart, which is the maximum flow rate that an individual cartridge can treat. In some areas or situations, cartridges with a flow rate other than 15 gpm may be required, resulting in a different Q_{cart} value.
- If the number of cartridges is not a whole number, round the number of cartridges up to the next whole number.

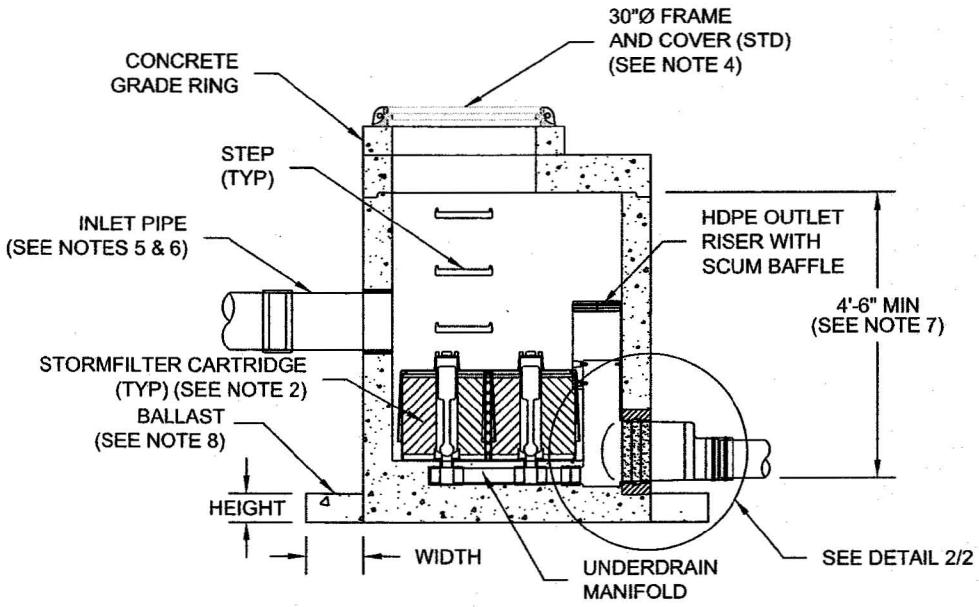
Example of cartridge number sizing for a highly impervious site:

1. Assume that a site has a peak flow rate of 0.44 cfs.
2. Determine the number of cartridges required to treat this flow rate.
   - ➡ N_{flow} = (0.44 cfs)(449 gpm/cfs / 15 gpm/cart) = 13.2 cartridges

Answer: Rounding up to the next whole number, the number of required cartridges is 14.



MANHOLE STORMFILTER - PLAN VIEW 1/1



MANHOLE STORMFILTER - SECTION VIEW A/1

THE STORMWATER MANAGEMENT StormFilter®
U.S. PATENT No. 5,322,629,
No. 5,707,527, No. 6,027,639
No. 6,649,048, No. 5,624,576,
AND OTHER U.S. AND FOREIGN
PATENTS PENDING

CONTECH® STORMWATER SOLUTIONS™
contechstormwater.com

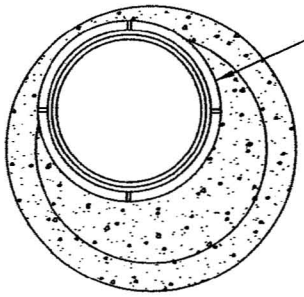
PRECAST 48" MANHOLE STORMFILTER PLAN AND SECTION VIEWS STANDARD DETAIL

DRAWING 1 1/2

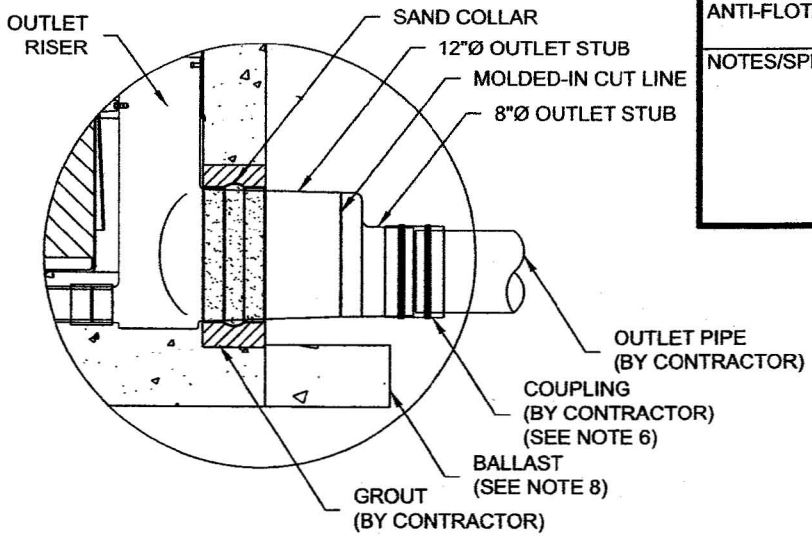
DATE: 09/26/05	SCALE: NONE	FILE NAME: MHSF3-48PC-DTL	DRAWN: MJW	CHECKED: ARG

GENERAL NOTES

1) STORMFILTER BY CONTECH STORMWATER SOLUTIONS; PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; ELKRIDGE, MD (866) 740-3318.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW.
3) PRECAST MANHOLE STRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478. DETAIL REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) STORMFILTER REQUIRES 2.3 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS. MINIMUM ANGLE BETWEEN INLET AND OUTLET IS 45°.
6) INLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR. PRECAST MANHOLE STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. EIGHT INCH DIAMETER OUTLET SECTION MAY BE SEPARATED FROM OUTLET STUB AT MOLDED-IN CUT LINE TO ACCOMMODATE A 12 INCH OUTLET PIPE. CONNECTION TO DOWNSTREAM PIPING TO BE MADE USING A FLEXIBLE COUPLING OR ECCENTRIC REDUCER, AS REQUIRED. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET AROUND THE PERIMETER OF THE STRUCTURE.
9) ALL STORMFILTERS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.



MANHOLE STORMFILTER - TOP VIEW (1/2)



MANHOLE STORMFILTER - OUTLET DETAIL (2/2)

PRECAST MANHOLE STORMFILTER DATA

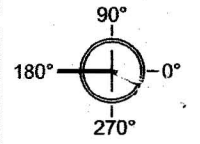
STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs)	
PEAK FLOW RATE (<1 cfs)	
RETURN PERIOD OF PEAK FLOW (yrs)	
# OF CARTRIDGES REQUIRED	
CARTRIDGE FLOW RATE (15 or 7.5 gpm)	
MEDIA TYPE (CSF, PERLITE, ZPG)	
RIM ELEVATION	

PIPE DATA:	I.E.	ORIENTATION	MATERIAL	DIAMETER
INLET PIPE #1				
INLET PIPE #2				
OUTLET STUB				

	YES\NO	SIZE
ECCENTRIC REDUCER (BY CONTRACTOR)		
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT

NOTES/SPECIAL REQUIREMENTS:

PIPE ORIENTATION KEY:



THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH® STORMWATER SOLUTIONS
contechstormwater.com

PRECAST 48" MANHOLE STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
STANDARD DETAIL

DRAWING 2 2/2

DATE: 09/26/05 | SCALE: NONE | FILE NAME: MHSF3-48PC-DTL | DRAWN: MJW | CHECKED: ARG