



**NOTICE OF
PLANNING COMMISSION MEETING
Thursday, March 27, 2014 7:00 p.m.
Community Recreation Center, 10640 N Clubhouse Drive**

Notice is hereby given that the Planning Commission of the City of Cedar Hills, Utah, will hold a regular **Planning Commission Meeting on Thursday, March 27, 2014 beginning at 7:00 p.m.** at the Community Recreation Center, 10640 N Clubhouse Drive, Cedar Hills, Utah. This is a public meeting and anyone is invited to attend.

PLANNING COMMISSION MEETING

1. Call to Order
2. Public Comment: Time has been set aside for the public to express their ideas, concerns, and comments (comments limited to 3 minutes per person with a total of 30 minutes for this item)

PUBLIC HEARING

3. Preliminary Plan for Cedar Hills Retail Center by Amsource, located at 4800 West Cedar Hills Drive
4. Amendments to the City Code, Title 10, Regarding Residential Zone Permitted Uses Relating to Foster Care Homes

SCHEDULED ITEMS

5. Approval of Minutes from the February 27, 2014 Planning Commission meeting
6. Review/Recommendation on Preliminary Plan for Cedar Hills Retail Center by Amsource, located at 4800 West Cedar Hills Drive
7. Review/Recommendation on Amendments to the City Code, Title 10, Regarding Residential Zone Permitted Uses Relating to Foster Care Homes
8. Discussion on City Code Section 10-5-18, Fences
9. Committee Assignments and Reports

ADJOURNMENT

10. Adjourn

Posted this 21st day of February, 2014

/s/ Colleen A. Mulvey, City Recorder

- Supporting documentation for this agenda is posted on the City's Website at www.cedarhills.org.
- In accordance with the Americans with Disabilities Act, the City of Cedar Hills will make reasonable accommodations to participate in the meeting. Requests for assistance can be made by contacting the City Recorder at 801-785-9668 at least 48 hours in advance of the meeting to be held.
- The order of agenda items may change to accommodate the needs of the Planning Commission, the staff, and the public.
- This meeting may be held electronically via telephone to permit one or more of the commission members to participate.

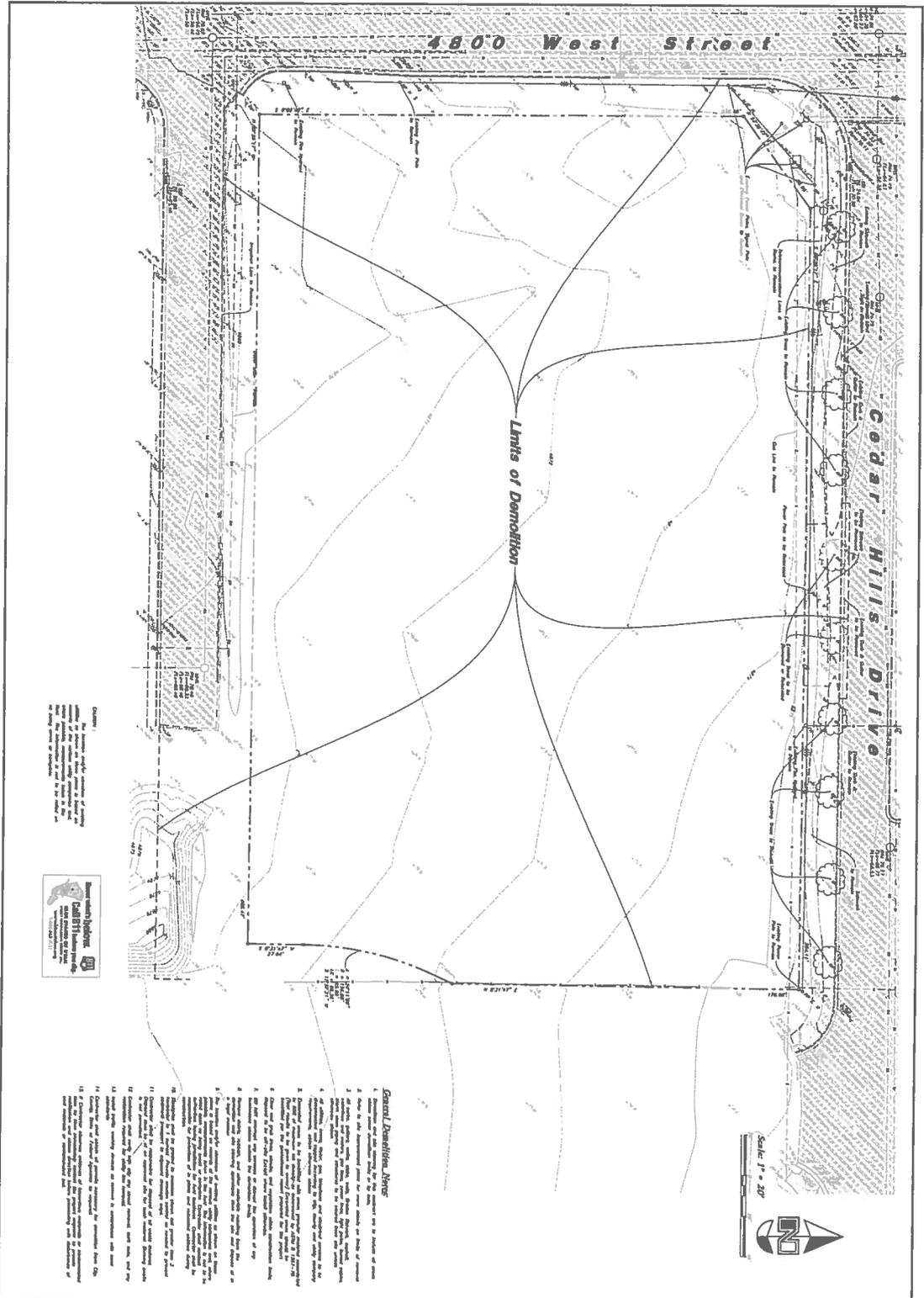


CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, Assistant City Manager
DATE:	3/27/2014

Planning Commission Agenda Item

SUBJECT:	Review/Recommendation on preliminary plans for Amsource
APPLICANT PRESENTATION:	N/A
STAFF PRESENTATION:	Chandler Goodwin, Assistant City Manager
BACKGROUND AND FINDINGS: Amsource has submitted preliminary plans for review to the Planning Commission. The Amsource property is located at 4800 W Cedar Hills Drive. The proposal includes the construction of an American First Credit Union, and an additional two retail pads. Amsource has submitted the required studies to the City, and paid the application fee. Of concern to the City is the construction of the access road that runs adjacent to the Smart property and the Amsource property. The entrance to that road is on the Smart property, but the road would need to be installed in order for Amsource to build according to their plans.	
PREVIOUS LEGISLATIVE ACTION: N/A	
FISCAL IMPACT: N/A	
SUPPORTING DOCUMENTS: Storm Water Study, Noise Letter, Plan Set, Landscape Plan, Soils Report, Traffic Study, Lighting Calcs	
RECOMMENDATION: To consider the Amsource preliminary plans for recommendation to the City Council	
MOTION: To recommend/not recommend the preliminary plans for the Amsource property located at 4800 W Cedar Hills Dr. to the City Council.	

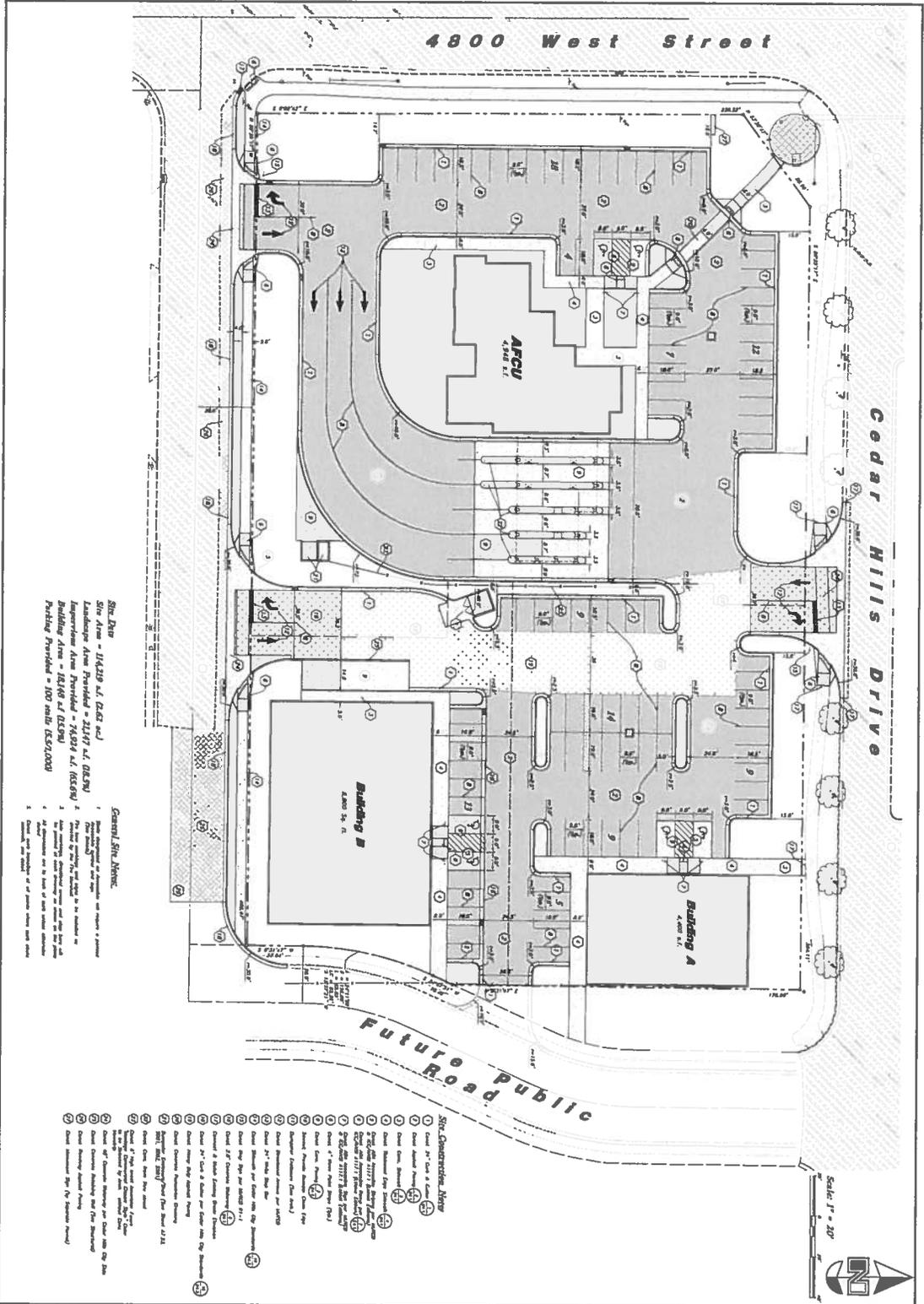


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- General Description:**
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	Demolition Plan Cedar Hills Retail Center 4800 West Cedar Hills Drive Cedar Hills, Utah	ANDERSON WAHLEN & ASSOCIATES Great Salt Engineering South 2910 North Redwood Road, Salt Lake City, Utah 84111 801.521.8531 • andersonwahlen.com	Project No. 12345 Date: 1/15/2014 Scale: 1" = 20' Drawing No. 001
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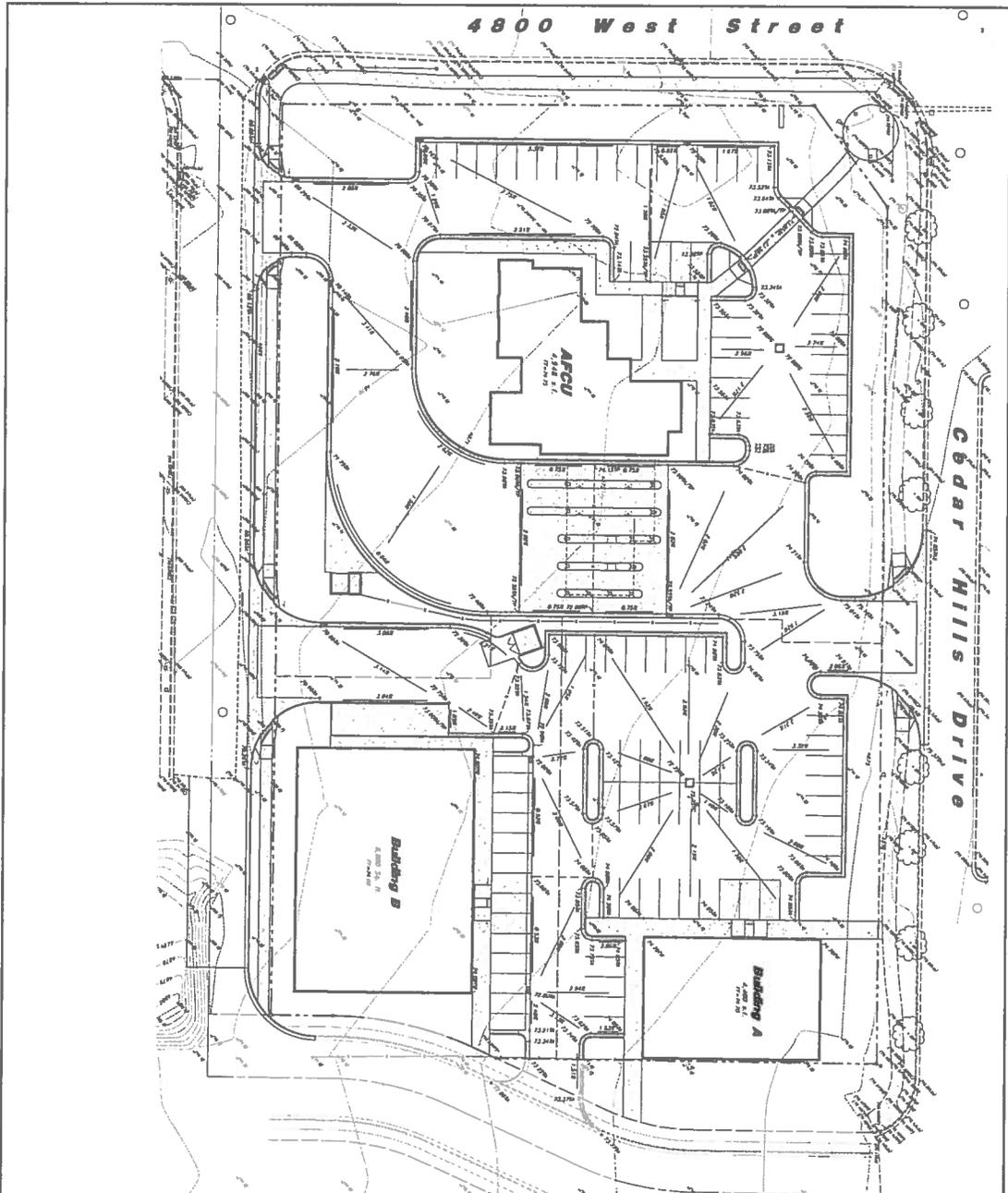


Site Data
 Site Area = 14,419 sq. ft. (2.62 ac)
 Landscape Area Provided = 21,147 sq. ft. (0.48 ac)
 Impervious Area Provided = 74,024 sq. ft. (1.69 ac)
 Building Area = 12,200 sq. ft. (0.28 ac)
 Parking Provided = 100 stalls (0.50 ac)

General Site Notes
 1. All dimensions are approximate and subject to change.
 2. All dimensions are in feet unless otherwise noted.
 3. All dimensions are to the centerline of the road.
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 5. All dimensions are to the centerline of the road.

- Site Construction Notes**
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	Site Plan Cedar Hills Retail Center 4800 West Cedar Hills Drive Cedar Hills, Utah	 ANDERSON WAHLEN & ASSOCIATES Great South Engineering South 2018 North Redwood Road, Salt Lake City, Utah 84115 801.521.8222 • andersonwhalen.com	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>1</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>2</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>3</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>4</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>5</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>6</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>7</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>8</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>9</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> <tr> <td>10</td> <td>11/10/17</td> <td>ISSUED FOR PERMITS</td> </tr> </table>	NO.	DATE	DESCRIPTION	1	11/10/17	ISSUED FOR PERMITS	2	11/10/17	ISSUED FOR PERMITS	3	11/10/17	ISSUED FOR PERMITS	4	11/10/17	ISSUED FOR PERMITS	5	11/10/17	ISSUED FOR PERMITS	6	11/10/17	ISSUED FOR PERMITS	7	11/10/17	ISSUED FOR PERMITS	8	11/10/17	ISSUED FOR PERMITS	9	11/10/17	ISSUED FOR PERMITS	10	11/10/17	ISSUED FOR PERMITS
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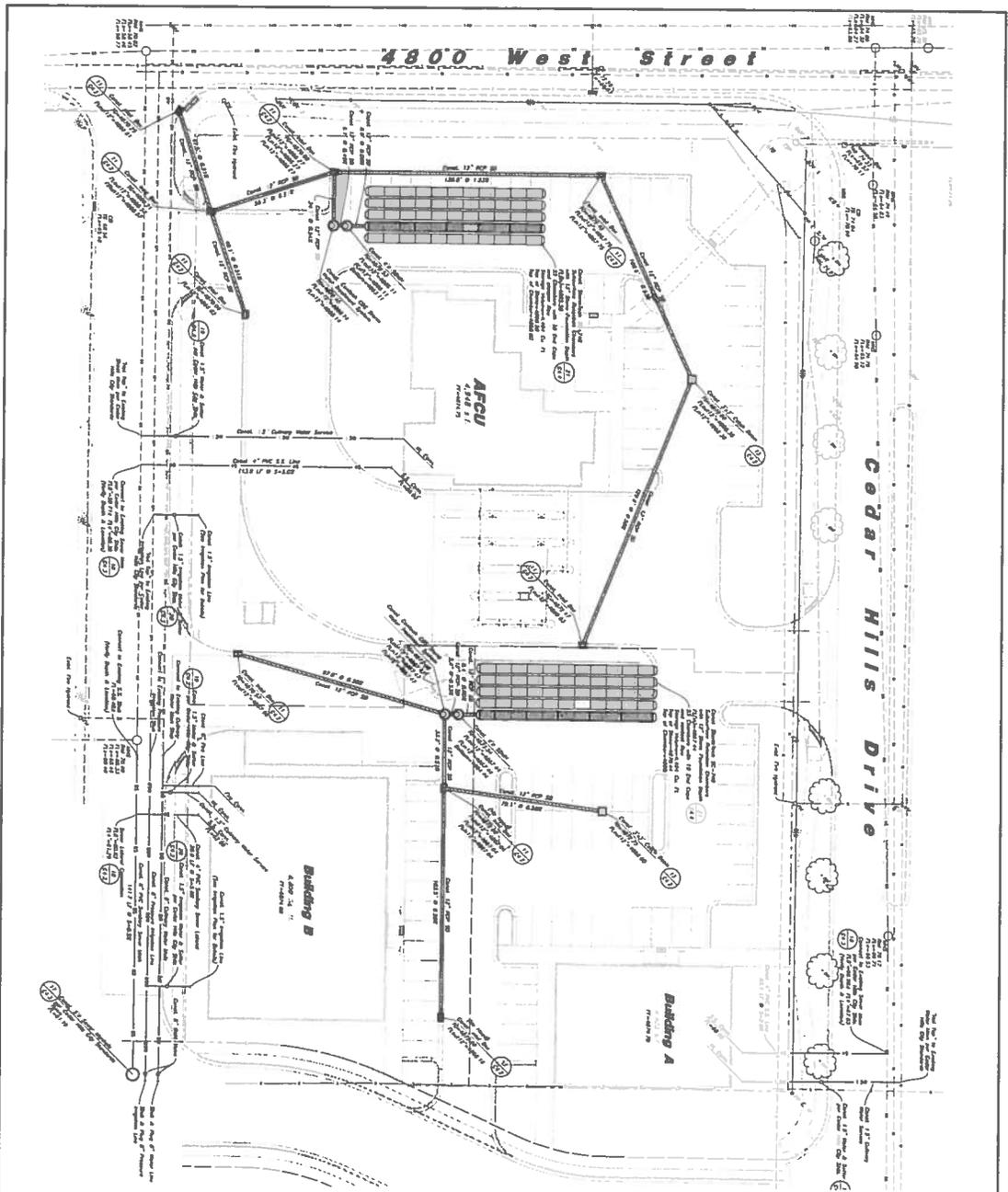


General Grading Notes:

1. All elevations are in feet above mean sea level.
2. The proposed grading is based on the existing ground conditions shown on the site plan.
3. The proposed grading is subject to the approval of the local health department.
4. The proposed grading is subject to the approval of the local fire department.
5. The proposed grading is subject to the approval of the local police department.
6. The proposed grading is subject to the approval of the local utility companies.
7. The proposed grading is subject to the approval of the local planning commission.
8. The proposed grading is subject to the approval of the local zoning board.
9. The proposed grading is subject to the approval of the local building department.
10. The proposed grading is subject to the approval of the local engineering department.
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Site and Grading Consultant, Inc.
 11710 Cedar Hills Drive
 Cedar Hills, Utah 84202
 Phone: (801) 225-1111
 Fax: (801) 225-1112
 Website: www.siteandgrading.com

	<p>Grading Plan</p> <p>Cedar Hills Retail Center 4800 West Cedar Hills Drive Cedar Hills, Utah</p>	<p>ANNA ANDERSON WAHLEN & ASSOCIATES Great South Engineering South 200 South Redwood Road, Salt Lake City, Utah 84115 801-325-2523</p>	<p>DATE: 11/27/07 DRAWN BY: [Name] CHECKED BY: [Name] APPROVED BY: [Name]</p>	<p>PROJECT NO: 11710 SHEET NO: 2 OF 20</p>
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General Utility Notes:

1. All utility lines shown are for informational purposes only. The contractor shall verify the location and depth of all utility lines prior to construction.
2. All utility lines shall be installed in accordance with the applicable codes and standards.
3. All utility lines shall be installed in a trench with a minimum depth of 18 inches.
4. All utility lines shall be installed in a trench with a minimum width of 18 inches.
5. All utility lines shall be installed in a trench with a minimum slope of 1%.
6. All utility lines shall be installed in a trench with a minimum cover of 18 inches.
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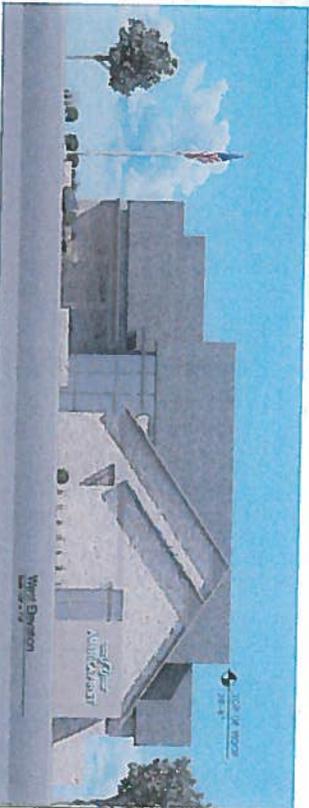
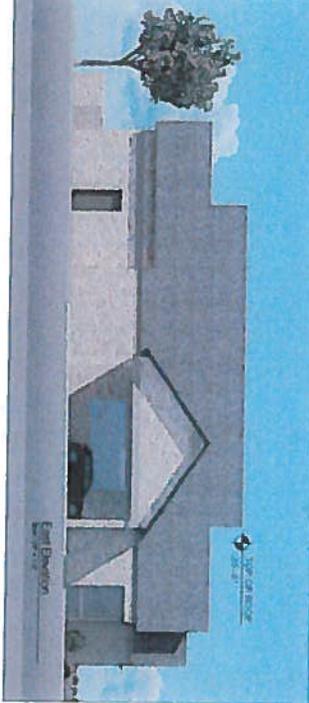
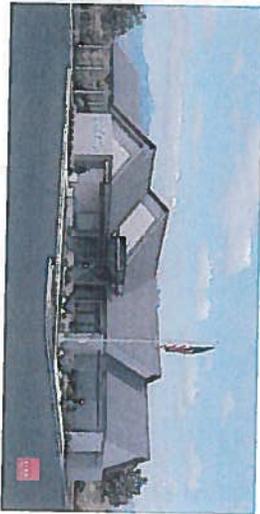
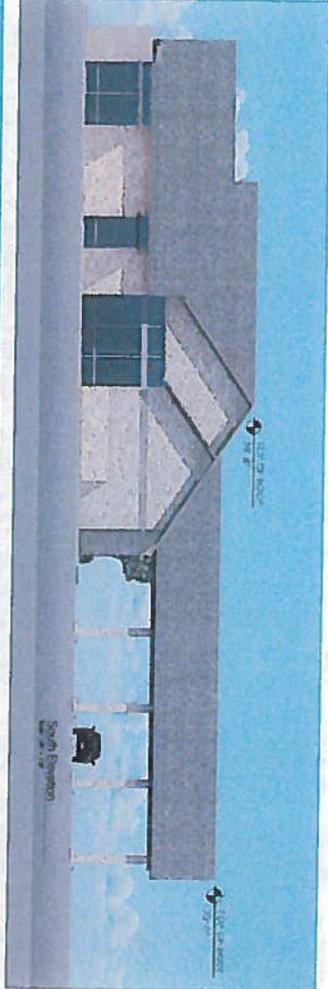


Owner Details:
 Cedar Hills Retail Center
 4800 West Cedar Hills Drive
 Cedar Hills, Utah

Utility Plan
 Cedar Hills Retail Center
 4800 West Cedar Hills Drive
 Cedar Hills, Utah

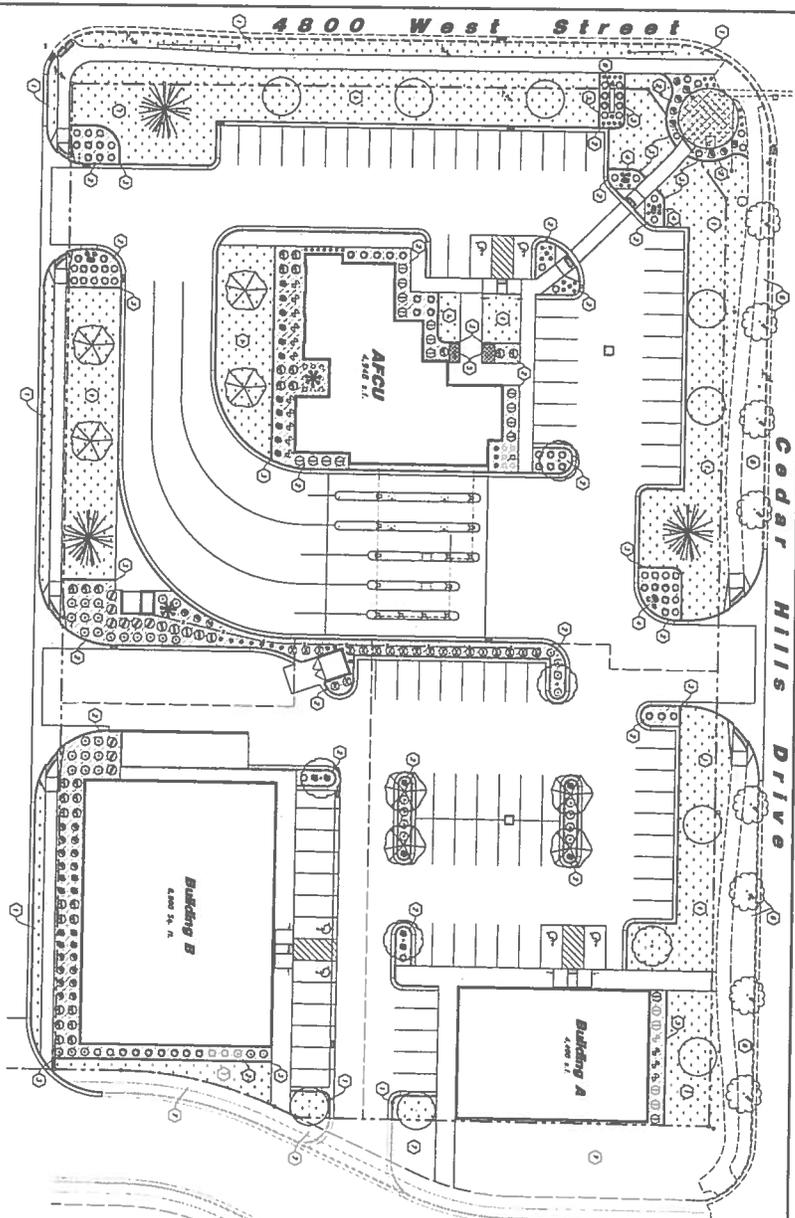
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 ANDERSON WAHLEN & ASSOCIATES
 Great Basin Engineering South
 2915 South 2600 West, Salt Lake City, Utah 84119
 3131 1231-4232

PROJECT NO. **CS.1**
 DATE: 11/16/2014



NO.	DATE	DESCRIPTION

A-1
Exterior Elevations



Symbol	Description	Quantity	Notes
1	Plant	1	See Schedule
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3	Plant	1	See Schedule
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Plant Legend

1. 1" Cal. Oak, 12' H. at 10/11
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 48. 1" Cal. Oak, 12' H. at 10/11
 49. 1" Cal. Oak, 12' H. at 10/11
 50. 1" Cal. Oak, 12' H. at 10/11

Architect's Notes

1. See Schedule for quantities of plants to be installed.
 2. All plants to be installed in accordance with the schedule.
 3. Plants to be installed in the areas indicated on the plan.
 4. Plants to be installed in the areas indicated on the plan.
 5. Plants to be installed in the areas indicated on the plan.
 6. Plants to be installed in the areas indicated on the plan.
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 48. Plants to be installed in the areas indicated on the plan.
 49. Plants to be installed in the areas indicated on the plan.
 50. Plants to be installed in the areas indicated on the plan.

Landscape Plan

Cedar Hills Retail Center
 4800 West Cedar Hills Drive
 Cedar Hills, Utah

ANA
 ANDERSON WAHLEN & ASSOCIATES
 Great South Engineering South
 204 North Rowland Road, Salt Lake City, Utah 84116
 801-531-9328 - info@anderson.com

Scale: 1" = 20'
 11 May 2004
 111

<p>1</p> <p>SMALL PLANTING</p> <p>NOTE: 1. All plants to be installed during favorable seasons. 2. All plants to be installed in 1' x 1' holes. 3. All plants to be installed in 1' x 1' holes.</p>	<p>2</p> <p>DECIDUOUS TREE PLANTING</p> <p>NOTE: 1. All plants to be installed during favorable seasons. 2. All plants to be installed in 1' x 1' holes. 3. All plants to be installed in 1' x 1' holes.</p>	<p>3</p> <p>EVERGREEN TREE PLANTING</p> <p>NOTE: 1. All plants to be installed during favorable seasons. 2. All plants to be installed in 1' x 1' holes. 3. All plants to be installed in 1' x 1' holes.</p>	<p>4</p> <p>CONCRETE RETAINING</p> <p>NOTE: 1. All retaining walls to be installed during favorable seasons. 2. All retaining walls to be installed in 1' x 1' holes. 3. All retaining walls to be installed in 1' x 1' holes.</p>	<p>5</p> <p>LANDSCAPE BOLLARD</p> <p>NOTE: 1. All bollards to be installed during favorable seasons. 2. All bollards to be installed in 1' x 1' holes. 3. All bollards to be installed in 1' x 1' holes.</p>				
<p>6</p> <p>PLANT SPACING</p> <p>NOTE: 1. All plants to be installed during favorable seasons. 2. All plants to be installed in 1' x 1' holes. 3. All plants to be installed in 1' x 1' holes.</p>								
<p>13.1</p> <p>13.1.0000</p>					<p>LANDSCAPE DETAILS</p> <p>Cedar Hills Retail Center</p> <p>4800 West Cedar Hills Drive Cedar Hills, Utah</p>	<p>ANNA</p> <p>ANDERSON WAHLEN & ASSOCIATES</p> <p>Great Basin Engineering South</p> <p>2948 North Redwood Street, Salt Lake City, Utah 84114 801.521.1232 • FAX 801.521.1233 • info@andersonwahlen.com</p>	<p>DATE: 11/11/2014</p> <p>TIME: 10:00 AM</p> <p>PROJECT: 13.1.0000</p> <p>SCALE: AS SHOWN</p>	<p>DATE: 11/11/2014</p> <p>TIME: 10:00 AM</p> <p>PROJECT: 13.1.0000</p> <p>SCALE: AS SHOWN</p>

**America First Credit Union
Cedar Hills
Traffic Impact Analysis**

4800 West and Cedar Hills Drive

Cedar Hills, Utah

March 2014

Prepared by:

Falcon Traffic
9221 South Falcon Way
Sandy, Utah 84093
801-395-4054

**America First Credit Union
Cedar Hills
Traffic Study**

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**America First Credit Union
Cedar Hills
Traffic Study**

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**America First Credit Union
Cedar Hills
Traffic Study**

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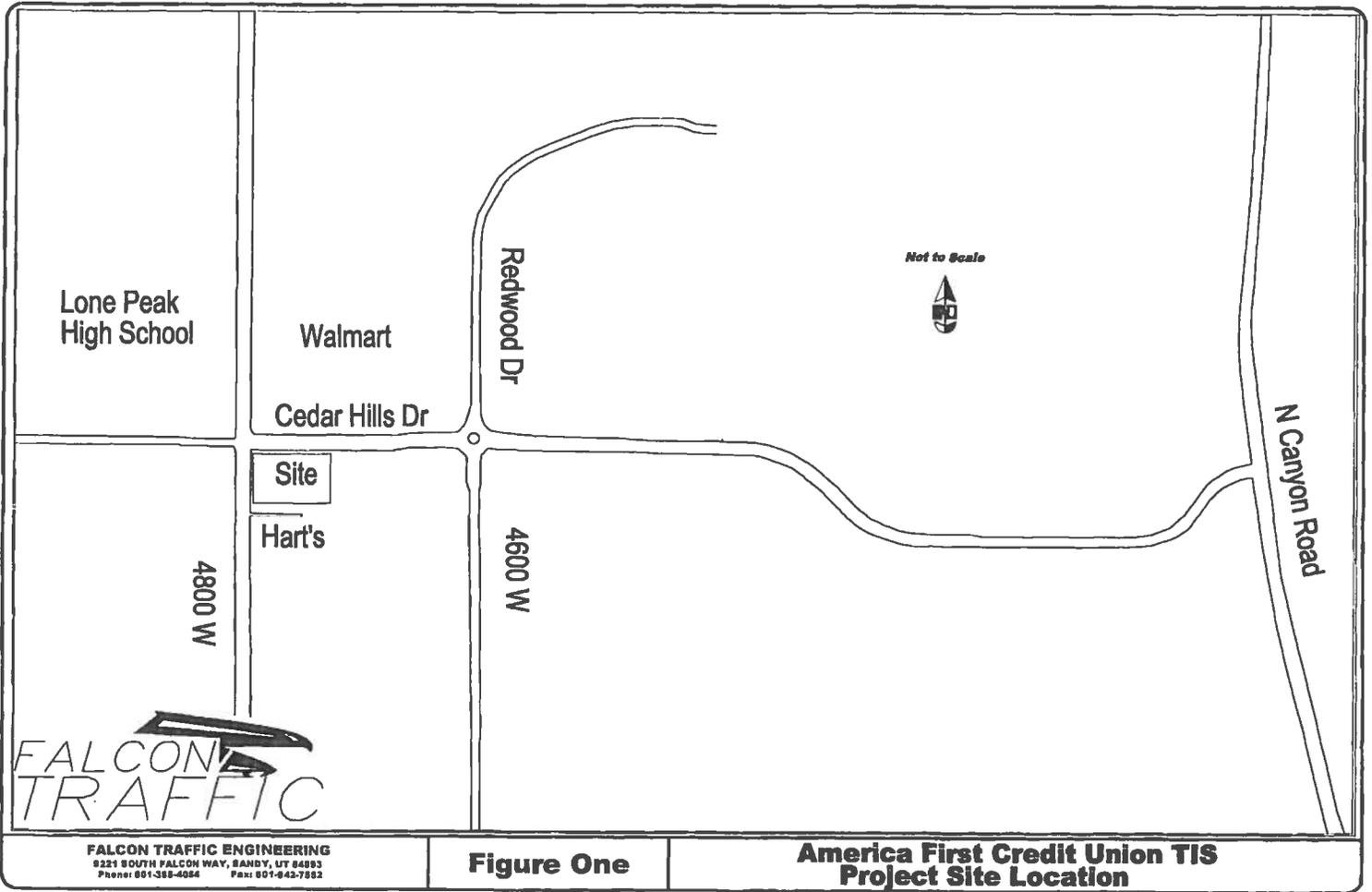
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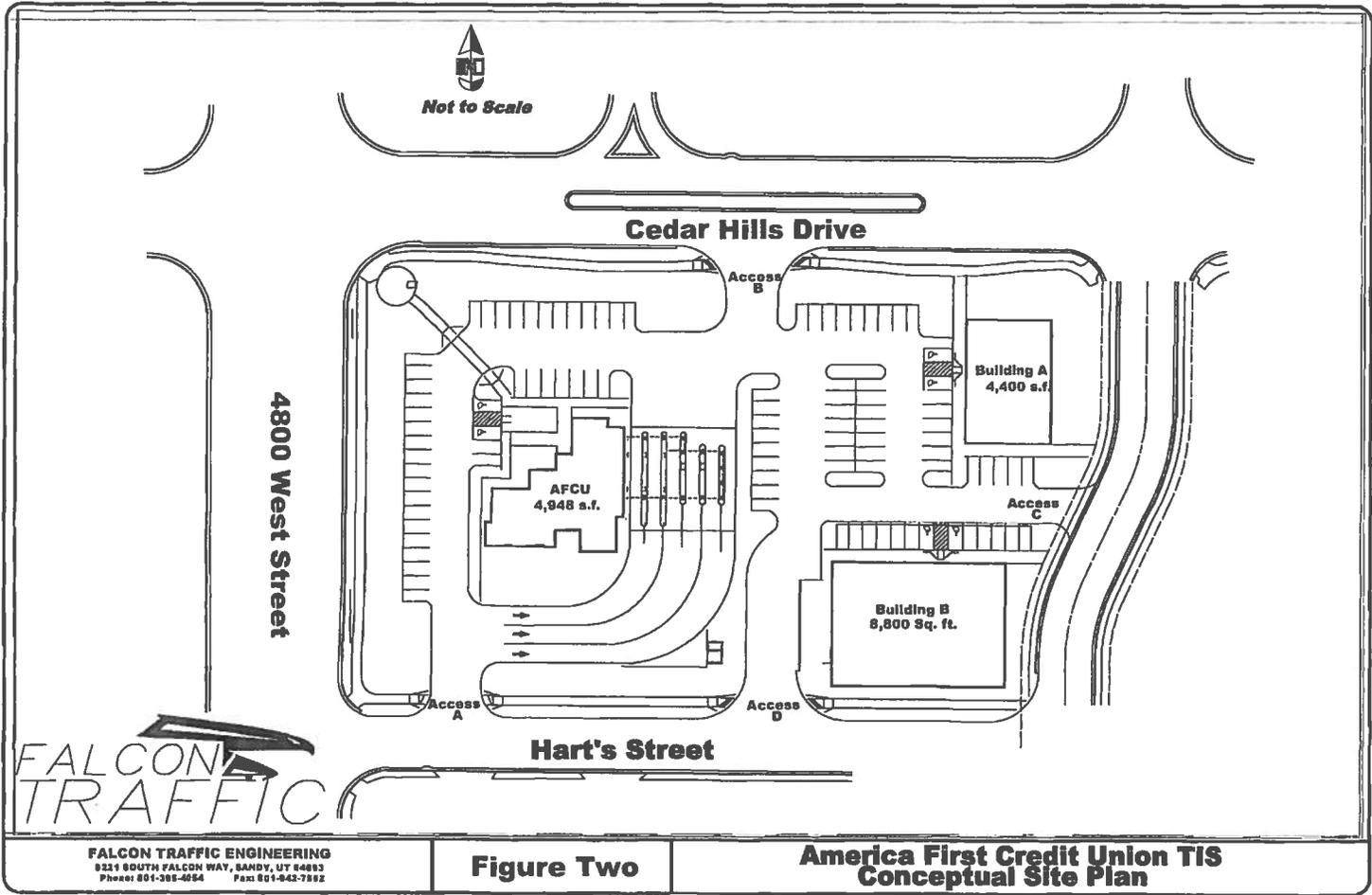
I. Introduction

The proposed site is planned to develop as a 4,948 square foot America First Credit Union with six drive-through bays. In addition to this, two retail buildings are planned for the east portion of the site: 4,400 square feet and 8,800 square feet. The site is located on the southeast corner of 4800 West and Cedar Hills Drive in Cedar Hills, Utah. The proposed site is currently vacant. The site has approximately 300 feet of frontage along 4800 West and 470 feet along Cedar Hills Drive. 4800 West is a five-lane facility (two lanes in each direction with a center turn lane) and Cedar Hills Drive being a three-lane facility (one lane in each direction with a center turn lane). A local street exists immediately south of the site. This street, hereafter known as Hart's street, is between the America First Credit Union and the existing Hart's Gas Station and Convenience Store. Another road will be constructed to the east of the site to line up with the main Walmart Access (approximately 4700 West). The peak hour of traffic was analyzed for the PM Peak Hour (one hour between 4:00 and 6:00 p.m.). The AM Peak Hour was not analyzed as it occurs before the America First Credit Union opens.

A full movement access is proposed for Hart's Street (Access A), a right-in/right-out access is proposed for Cedar Hills Drive (Access B) and a full access is proposed for 4700 West (Access C). A second access to Hart's Street is proposed for the rear retail (Access D). Figure One shows the location of the proposed development and Figure Two shows the conceptual site plan of the proposed development.

Traffic Counts were made for all movements at the 4800 West and Cedar Hills Drive during the PM Peak Hour on Tuesday, March 4th. Turning movement counts for the Hart's Street intersection with 4800 West and for the Walmart Access with Cedar Hills Drive were made for the PM Peak Hour on Wednesday, March 5th. Through movements for these intersections were based on balancing traffic from the 4800 West and Cedar Hills Drive intersection. The PM Peak Hour was 5:00 p.m. to 6:00 p.m. Figure Three shows the existing 2014 traffic counts for the study intersections and accesses in the area. Full traffic counts are provided in Appendix A.

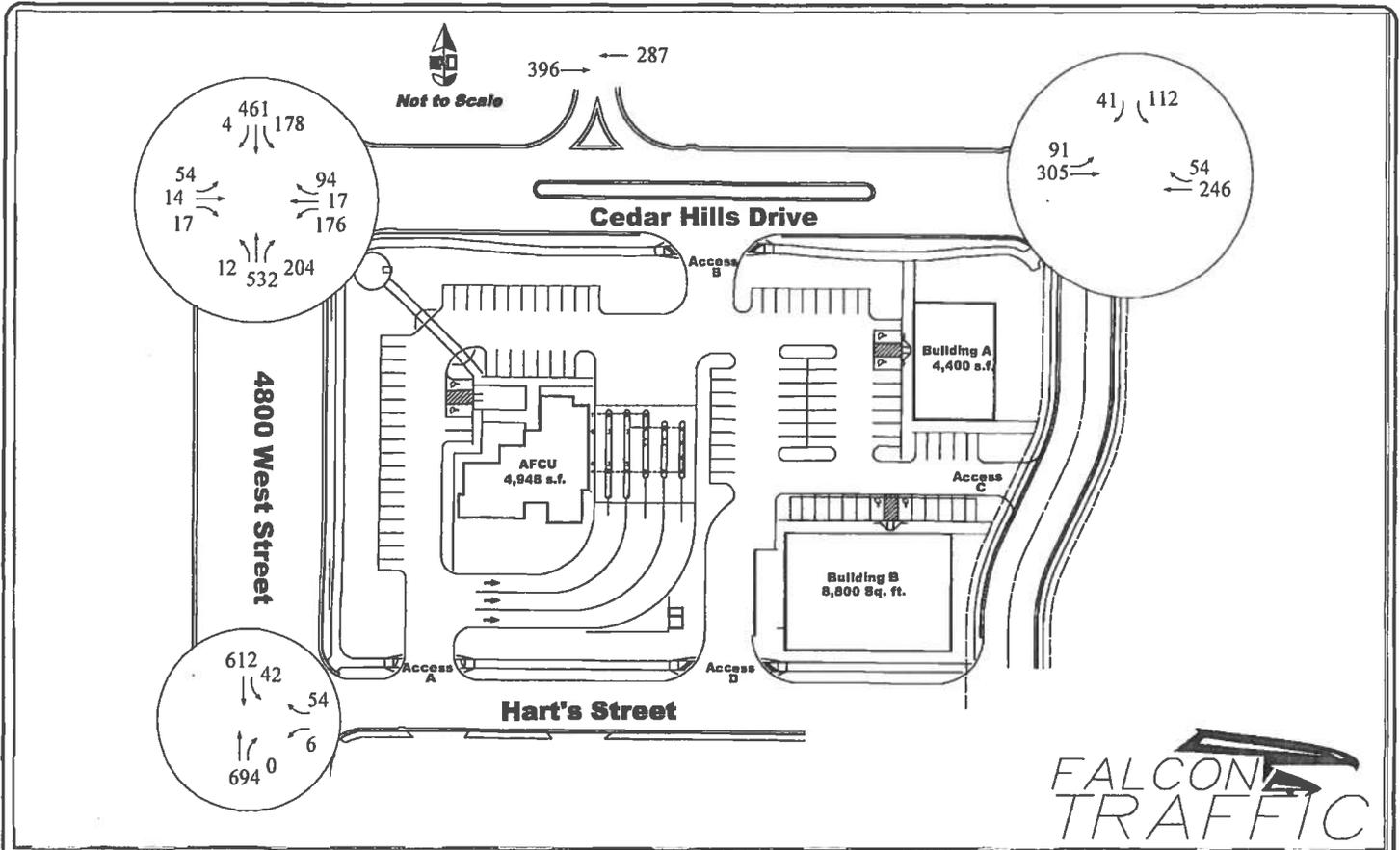




FALCON TRAFFIC ENGINEERING
 9231 SOUTH FALCON WAY, SANDY, UT 84083
 Phone: 801-305-4054 Fax: 801-643-7852

Figure Two

**America First Credit Union TIS
Conceptual Site Plan**



FALCON TRAFFIC ENGINEERING
 8221 SOUTH FALCON WAY, SANDY, UT 84083
 Phone: 801-395-4054 Fax: 801-642-7582

Figure Three

**America First Credit Union TIS
 Existing Traffic PM Peak Hour**

II. Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation (9th Edition) handbook was used to estimate trips. Table One shows the PM Peak Hour Trips and Daily Trips as taken from ITE.

<i>Cedar Hills America First Credit Union Traffic Study</i>				
Table One				
PM Peak Hour Trip Generation				
Facility	Size (1,000 sf)	ITE Land Use	Peak Hour Trip Rate	Total Trips
America First Credit Union	4.5	912	25.82	116
Retail Building A	4.4	820	3.73	16
Retail Building B	8.8	820	3.73	33

<i>Cedar Hills America First Credit Union Traffic Study</i>					
Table Two					
PM Peak Hour Trip Distribution					
Facility	Total Trips	% In	% Out	Inbound	Outbound
America First Credit Union	116	50%	50%	58	58
Retail Building A	16	49%	51%	8	8
Retail Building B	33	49%	51%	16	17

Pass-by traffic reductions could be taken along 4800 West and along Cedar Hills Drive, but these reductions would not affect the turning movements. The pass-by traffic has not been considered separately and therefore, this analysis is conservative.

III. Origin/Destination and Trip Distribution

The origin/destination assumptions were made with an understanding of roadways in the area and patterns from the existing counts. The counts showed more traffic coming from the west. Of the traffic that travels from the east, the majority was from the south. Based on these assumptions, it was assumed that the Origin/Destination Assumptions would be as follows:

- 10% West
- 30% East
- 30% North
- 30% South

It was estimated from previous Credit Union studies that 70 percent of the trips were drive-in related trips. For the purposes of this study, it was simply assumed that the drive-in related trips were the main pattern of credit union traffic.

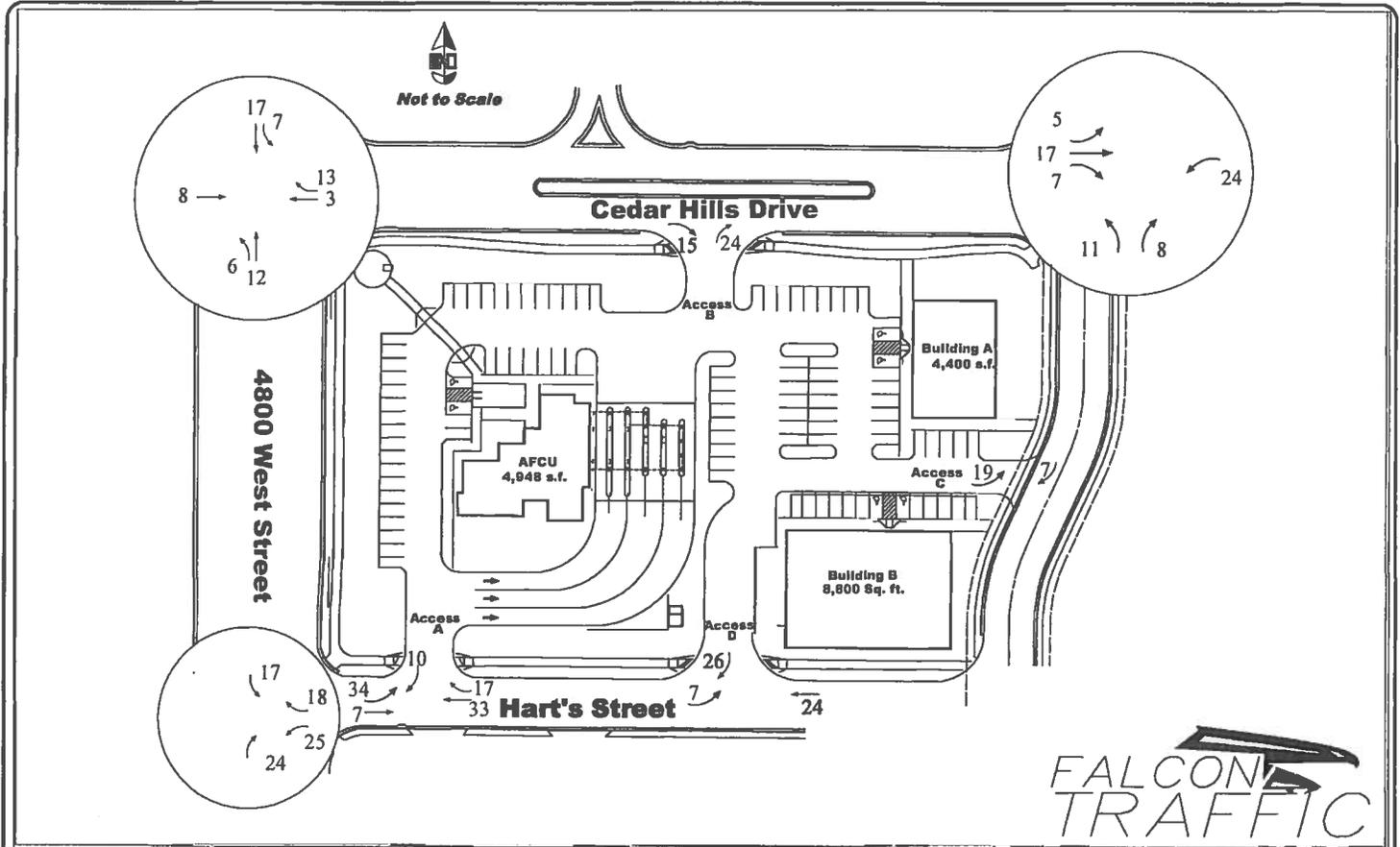
Table Three shows the detailed trip distribution assumptions for traffic to the site.

<i>Cedar Hills America First Credit Union Traffic Study</i>											
Table Three											
Origin Destination and Trip Distribution Access Assumptions											
	Access A (Hart's Street West)			Access D (Hart' Street East)		Access B (Cedar Hills Drive)		Access C (4700 West)			
	In		Out	In	Out	In	Out	In		Out	
	EB Left	WB Right	SB Right	EB Left	SB Right	EB Right	NB Right	NB Left	SB Right	EB Left	EB Right
America First											
10% West					10%	10%					
30% East		30%					30%				
30% North	30%				8%		22%				
30% South	30%		17%		13%						
Retail Pads											
10% West						10%				10%	
30% East									30%	30%	
30% North						30%				30%	
30% South				30%	30%						

<i>Cedar Hills America First Credit Union Traffic Study</i>											
Table Four											
Origin Destination and Trip Distribution Access Projections (PM Peak)											
	Access A (Hart's Street West)			Access D (Hart' Street East)		Access B (Cedar Hills Drive)		Access C (4700 West)			
	In		Out	In	Out	In	Out	In		Out	
	EB Left	WB Right	SB Right	EB Left	SB Right	EB Right	NB Right	NB Left	SB Right	EB Left	EB Right
America First (58 in, 58 Out)											
10% West					6	6					
30% East		17					17				
30% North	17				5		12				
30% South	17		10		7						
America First Total	34	17	10		18	6	29				
Retail Pads (24 in, 24 Out)											
10% West						2				3	
30% East									7	8	
30% North						7				8	
30% South				7	8						
Retail Pads Total				7	8	9			7	19	
Total For Site	34	17	10	7	26	15	29		7	19	

The above tables show the projections for the accesses to the site. The figures also show the site generated movements for the nearby intersections.

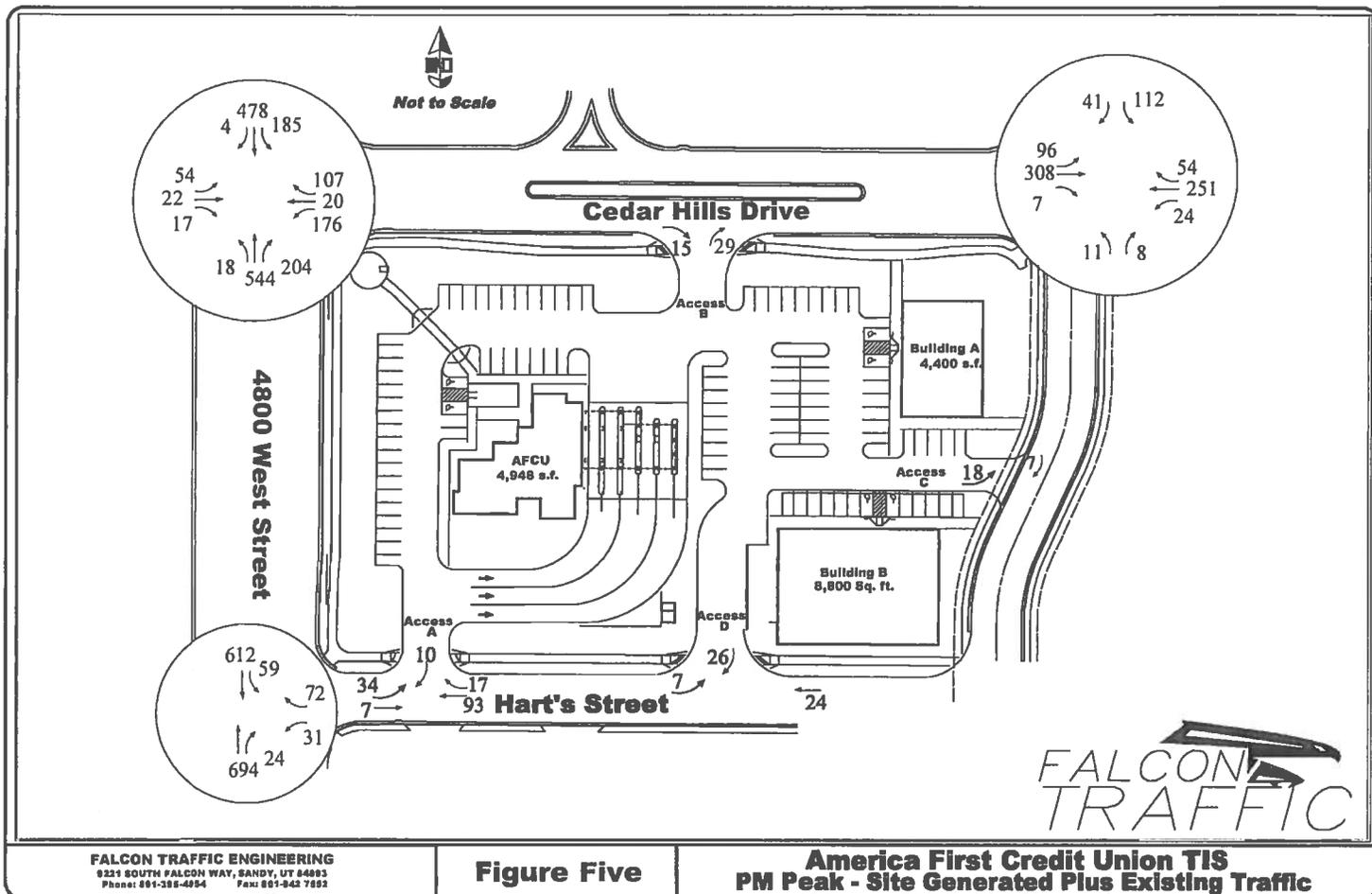
Figure Four shows the site projected traffic. Figure Five shows the existing plus site generated traffic.



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Figure Four

**America First Credit Union TIS
 PM Peak - Site Generated Traffic**



IV. Traffic Analysis

The unsignalized accesses and intersections are analyzed using HCS software to evaluate the impacts of the project on the surrounding traffic network. Table Five shows the Level of Service delay ranges for intersections as defined by the 2000 Highway Capacity Manual.

A. Unsignalized Accesses and Intersections

<i>Cedar Hills America First Credit Union Traffic Study</i> Table Five Intersection LOS-Delay Relationship		
Level of Service	Unsignalized	Signalized
	Total Delay per Vehicle (sec)	Total Delay per Vehicle (sec)
A	≤ 10.0	≤ 10.0
B	> 10.0 and ≤ 15.0	> 10.0 and ≤ 20.0
C	> 15.0 and ≤ 25.0	> 20.0 and ≤ 35.0
D	> 25.0 and ≤ 35.0	> 35.0 and ≤ 55.0
E	> 35.0 and ≤ 50.0	> 55.0 and ≤ 80.0
F	> 50.0	> 80.0

Table Six shows the HCM Delay / LOS Evaluation for the PM Peak Period for the Hart's Street and 4800 West intersection. The center median along 4800 West was modeled as a two-way left turn.

<i>Cedar Hills America First Credit Union Traffic Study</i> Table Six HCM PM Peak Period Intersection Analysis - Delay/LOS Evaluation Hart's and 4800 West		
Delay / LOS (in sec)	2014 Existing	2014 with Site
Southbound Left	9.5/A	9.7/A
Westbound Left	17.3/C	17.9/C
Westbound Right	11.5/B	11.6/B

The results indicate that this intersection will have LOS levels of C or better. The unsignalized intersection HCM analyses are included in Appendix B.

Table Seven shows the analysis for the Walmart and Cedar Hills Drive intersection, with and without the proposed development.

<i>Cedar Hills America First Credit Union Traffic Study</i> <i>Table Seven</i> HCM PM Peak Period Intersection Analysis - Delay/LOS Evaluation Walmart and Cedar Hills Drive		
Delay / LOS (in sec)	2014 Existing	2014 with Site
Eastbound Left	8.2/A	8.2/A
Westbound Left	N/A	8.1/A
Northbound Left	N/A	23.5/C
Northbound Thru/Right	N/A	10.3/B
Southbound Left	24.1/C	39.3/E
Southbound Thru/Right	10.2/B	10.2/B

The table shows that the addition of the fourth leg of the intersection impacts the southbound left turn (this is because it introduces opposing traffic with impacts the level of service). While the southbound left turn has a fairly high volume that is generated from the Walmart Store, the new development will not have high volumes. Detailed HCM analyses are included in Appendix B.

<i>Cedar Hills America First Credit Union Traffic Study</i> <i>Table Eight</i> HCM PM Peak Period Intersection Analysis - Delay/LOS Evaluation Access A (America First Access on Hart Street)	
Delay / LOS (in sec)	2014 with Site
Eastbound Left	7.5/A
Westbound Left	7.3/A
Northbound Approach	9.2/A
Southbound Approach	8.8/A

The Hart's accesses were not counted, but it was assumed that traffic would use the east access. This shows that this access is LOS A or better and there is little to no queuing.

The other minor accesses to the site were not analyzed as they were either right-in/right-out or such low volumes that the analysis was not necessary.

B. Signalized Analysis

A similar HCM analysis was performed for the 4800 West and Cedar Hills Drive signalized intersection. The signal timing was based on a 60 second cycle length. Signal phases were estimated assuming efficient flow with a one minute cycle length. This was based on permitted phasing only, although the intersection also includes protected/permitted phasing if necessary. Therefore, the analysis is conservative.

Table Nine shows the results of the analysis.

<i>Cedar Hills America First Credit Union Traffic Study</i>		
<i>Table Nine</i>		
PM Peak Hour HCM Delay / LOS Analysis for Signalized Intersection		
Delay / LOS (in sec)	4800 West and Cedar Hills Street	
Period	2014 Existing	2014 with Site
Eastbound Left	13.7/B	13.7/B
Eastbound Thru	12.8/B	12.9/B
Eastbound Right	0.0/A	0.0/A
Eastbound Approach	11.6/B	11.7/B
Westbound Left	17.0/B	17.1/B
Westbound Thru	12.9/B	12.9/B
Westbound Right	0.1/A	0.1/A
Westbound Approach	12.5/B	12.0/B
Northbound Left	7.2/A	7.4/A
Northbound Thru	8.8/A	8.9/A
Northbound Right	0.1/A	0.1/A
Northbound Approach	6.9/A	7.0/A
Southbound Left	14.0/B	14.9/B
Southbound Thru	8.5/A	8.6/A
Southbound Right	0.0/A	0.0/A
Southbound Approach	10.0/B	10.3/B
Intersection	9.2/A	9.3/A

The results of the analysis indicate that the development will have no significant impact on the 4800 West and Cedar Hills Drive signal.

C. Queue Analysis

For this portion of the report, only critical queuing was reviewed.

For unsignalized intersections a two minute storage requirement (the projected movement divided by 60 minutes x 2 minutes has been assumed x 25 feet per car) has been assumed. The queue lengths are rounded to the next nearest 25-foot interval and represent a minimum that should be provided.

For the Hart's Street and 4800 West intersection, the southbound left turn queue is of interest because of the short distance between this intersection and the traffic signal to the north (approximately 280 feet of left turn storage space between the two intersections). Based on the southbound left turn, 50 feet of storage would be required (59 left turns per hour/60 minutes x 2 minutes x 25 feet).

For the northbound left turn at 4800 West and Cedar Hills Drive, the signalized HCS software was used to calculate the queuing. The software showed that the 95 percentile queue was .5 cars or 15 feet. This was based on permitted phasing only, although the intersection also includes protected/permitted phasing if necessary. Therefore, the analysis is conservative.

Therefore, the available distance between these two intersections is sufficient for back to back left turn storage. This analysis only considers the PM Peak hour. The AM Peak hour should not be at issue as the America First Credit Union is not open. There may be hours of the day, future growth, changes in traffic patterns or trip distributions that are different that have been assumed in this report. Therefore, it is recommended that these turns/intersections be monitored for conflicts between the left turn movements, by the City. Due to the short distance available between intersections, future mitigation should be considered if necessary.

V. Conclusions/Recommendations

The results of the highway capacity analysis show that the existing intersections and proposed accesses will continue to operate at acceptable levels of service with the addition of the America First Credit Union. As per the queue analysis, there is sufficient storage to accommodate the back to back left turns on 4800 West (northbound left at Cedar Hills Drive and Southbound left at Hart Street).

The accesses, streets, signing and striping should be constructed to Cedar Hills standards and MUTCD standards.

APPENDICES

Appendix A
Appendix B

Traffic Counts
Access and Intersection Analyses

Appendix A

Traffic Counts

WEEKDAY PEAK HOUR VOLUMES

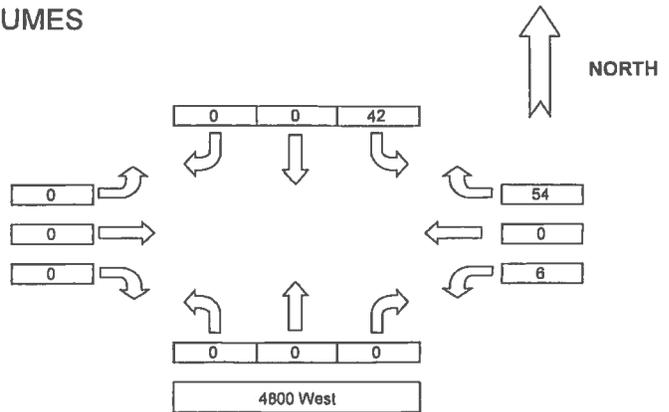
INTERSECTION: 4800 West
 N-S STREET: Convenience Store
 E-W STREET:

PK HR VOLUME:	113
PHF:	0.81
PEAK HOUR:	
FROM: 5:00 PM	TO: 6:00 PM

COUNT DATE: 1/20/2009
 NOTES:

COUNT TIME:
 FROM: 4:00 PM
 TO: 6:00 PM

Convenience Store



Weekday Traffic

COUNT DATA INPUT:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	4:15 PM	11			4		18			0				33
4:15 PM	4:30 PM	12			2		15			1				30
4:30 PM	4:45 PM	10			1		16			0				27
4:45 PM	5:00 PM	7			2		12			0				21
5:00 PM	5:15 PM	13			2		20			0				35
5:15 PM	5:30 PM	10			1		8			0				19
5:30 PM	5:45 PM	9			1		14			0				24
5:45 PM	6:00 PM	10			2		12			0				24

WEEKDAY HOURLY TOTALS:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	5:00 PM	40	0	0	9	0	61	0	0	1	0	0	0	111
4:15 PM	5:15 PM	42	0	0	7	0	63	0	0	1	0	0	0	113
4:30 PM	5:30 PM	40	0	0	6	0	56	0	0	0	0	0	0	102
4:45 PM	5:45 PM	39	0	0	6	0	54	0	0	0	0	0	0	99
5:00 PM	6:00 PM	42	0	0	6	0	54	0	0	0	0	0	0	102

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

WEEKDAY PEAK HOUR VOLUMES

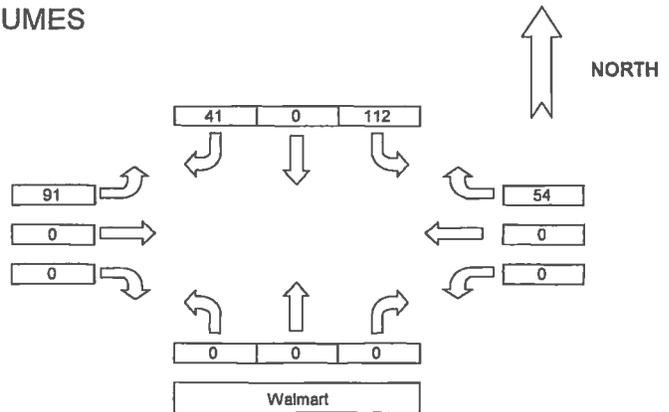
INTERSECTION: Walmart
 N-S STREET: Cedar Hills Parkway
 E-W STREET: Cedar Hills Parkway

PK HR VOLUME:	318
PHF:	1.01
PEAK HOUR:	
FROM: 5:00 PM	TO: 6:00 PM

COUNT DATE: 1/20/2009
 NOTES:

COUNT TIME:
 FROM: 4:00 PM
 TO: 6:00 PM

Cedar Hills Parkway



Weekday Traffic

COUNT DATA INPUT:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	4:15 PM	32		11			13				24			60
4:15 PM	4:30 PM	36		10			15				16			77
4:30 PM	4:45 PM	19		14			15				21			69
4:45 PM	5:00 PM	33		12			13				29			87
5:00 PM	5:15 PM	24		13			12				29			78
5:15 PM	5:30 PM	31		13			13				22			79
5:30 PM	5:45 PM	27		10			17				20			74
5:45 PM	6:00 PM	30		5			12				20			67

WEEKDAY HOURLY TOTALS:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	5:00 PM	120	0	47	0	0	56	0	0	0	90	0	0	313
4:15 PM	5:15 PM	112	0	49	0	0	55	0	0	0	95	0	0	311
4:30 PM	5:30 PM	107	0	52	0	0	53	0	0	0	101	0	0	313
4:45 PM	5:45 PM	115	0	48	0	0	55	0	0	0	100	0	0	318
5:00 PM	6:00 PM	112	0	41	0	0	54	0	0	0	91	0	0	298

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

WEEKDAY PEAK HOUR VOLUMES

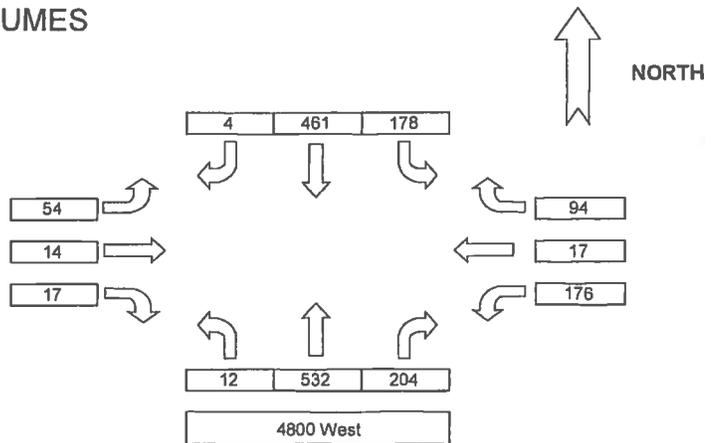
INTERSECTION:
N-S STRE 4800 West
E-W STRE Cedar Hills Parkway

PK HR VOLUME:	1,763
PHF:	0.84
PEAK HOUR:	
FROM:	TO:
4:45 PM	5:45 PM

COUNT D: 1/30/1995
NOTES:

COUNT TIME:
FROM: 4:00 PM
TO: 6:00 PM

Cedar Hills Parkway



Weekday Traffic

COUNT DATA INPUT:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	4:15 PM	26	116	0	34	0	36	3	98	36	6	2	9	366
4:15 PM	4:30 PM	45	136	2	39	5	23	2	126	54	13	4	3	452
4:30 PM	4:45 PM	26	128	0	40	1	36	1	108	55	6	3	4	408
4:45 PM	5:00 PM	40	121	2	32	2	29	0	116	38	6	4	2	392
5:00 PM	5:15 PM	42	105	0	46	2	20	3	119	43	5	1	1	387
5:15 PM	5:30 PM	46	109	1	41	9	26	3	144	56	9	1	7	452
5:30 PM	5:45 PM	54	139	3	45	1	30	4	148	66	23	6	3	522
5:45 PM	6:00 PM	36	108	0	44	5	18	2	121	39	17	6	6	402

WEEKDAY HOURLY TOTALS:

TIME PERIOD		Southbound			Westbound			Northbound			Eastbound			TOTAL VOLUMES
FROM:	TO:	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 PM	5:00 PM	137	501	4	145	8	124	6	448	183	31	13	18	1,618
4:15 PM	5:15 PM	153	490	4	157	10	108	6	469	190	30	12	10	1,639
4:30 PM	5:30 PM	154	483	3	159	14	111	7	487	192	26	9	14	1,639
4:45 PM	5:45 PM	182	474	6	164	14	105	10	527	203	43	12	13	1,753
5:00 PM	6:00 PM	178	461	4	176	17	94	12	532	204	54	14	17	1,763

NOTE PHF IS BASED ON 15 MIN. PEAK WITHIN THE PEAK HOUR.

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst	Falcon Traffic				Intersection	Hart's and 4800 W		
Agency/Co.					Jurisdiction	Cedar Hills		
Date Performed	3/10/2014				Analysis Year	2014		
Analysis Time Period	PM Peak							
Project Description America First Credit Union								
East/West Street: Hart's Street					North/South Street: 4800 West			
Intersection Orientation: North-South					Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	694	0	42	612	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	0	771	0	46	680	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Two Way Left Turn Lane							
RT Channelized			0			0		
Lanes	0	2	0	1	2	0		
Configuration		T	TR	L	T			
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	6	0	54	0	0	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	6	0	60	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (vph)		46	6		60			
C (m) (vph)		853	299		618			
v/c		0.05	0.02		0.10			
95% queue length		0.17	0.06		0.32			
Control Delay		9.5	17.3		11.5			
LOS		A	C		B			
Approach Delay	--	--	12.0					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	<i>Falcon Traffic</i>			Intersection	<i>Hart's and 4800 W</i>			
Agency/Co.				Jurisdiction	<i>Cedar Hills</i>			
Date Performed	<i>3/10/2014</i>			Analysis Year	<i>2014 with Site</i>			
Analysis Time Period	<i>PM Peak</i>							
Project Description <i>America First Credit Union</i>								
East/West Street: <i>Hart's Street</i>				North/South Street: <i>4800 West</i>				
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	694	24	59	612	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	0	771	26	65	680	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	<i>Two Way Left Turn Lane</i>							
RT Channelized			0			0		
Lanes	0	2	0	1	2	0		
Configuration		T	TR	L	T			
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	6	0	54	0	0	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	6	0	60	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (vph)		65	6		60			
C (m) (vph)		834	285		607			
v/c		0.08	0.02		0.10			
95% queue length		0.25	0.06		0.33			
Control Delay		9.7	17.9		11.6			
LOS		A	C		B			
Approach Delay	--	--	12.2					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	Falcon Traffic			Intersection	Cedar Hills and Walmart			
Agency/Co.	Cedar Hills			Jurisdiction				
Date Performed	3/10/2014			Analysis Year	2014			
Analysis Time Period	PM Peak							
Project Description								
East/West Street: Cedar Hills Drive				North/South Street: Walmart Access				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	91	305	0	0	246	54		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	101	338	0	0	273	60		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0				0	
Lanes	1	1	0	0	1	0		
Configuration	L	T					TR	
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	112	0	41		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	0	124	0	45		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0				0	
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
Volume, v (vph)	101					124		45
Capacity, c _m (vph)	1238					310		741
v/c ratio	0.08					0.40		0.06
Queue length (95%)	0.27					1.85		0.19
Control Delay (s/veh)	8.2					24.1		10.2
LOS	A					C		B
Approach delay (s/veh)	--	--				20.4		
Approach LOS	--	--				C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	Falcon Traffic			Intersection	Cedar Hills and Walmart			
Agency/Co.	Cedar Hills			Jurisdiction				
Date Performed	3/10/2014			Analysis Year	2014			
Analysis Time Period	PM Peak							
Project Description								
East/West Street: Cedar Hills Drive				North/South Street: Walmart Access				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	96	322	7	24	251	54		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	106	357	7	26	278	60		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	11	0	8	112	0	41		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	12	0	8	124	0	45		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	L		TR	L		TR
Volume, v (vph)	106	26	12		8	124		45
Capacity, c _m (vph)	1232	1206	207		689	224		737
v/c ratio	0.09	0.02	0.06		0.01	0.55		0.06
Queue length (95%)	0.28	0.07	0.18		0.04	3.00		0.19
Control Delay (s/veh)	8.2	8.1	23.5		10.3	39.3		10.2
LOS	A	A	C		B	E		B
Approach delay (s/veh)	--	--	18.2			31.6		
Approach LOS	--	--	C			D		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	Falcon Traffic			Intersection	Hart's / America First			
Agency/Co.				Jurisdiction				
Date Performed	3/10/2014			Analysis Year	2014 With			
Analysis Time Period	PM Peak							
Project Description <i>America First Cedar Hills</i>								
East/West Street: <i>Hart's Street</i>				North/South Street: <i>America First</i>				
Intersection Orientation: <i>East-West</i>				Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments								
Major Street		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	34	7	42	0	93	17		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	37	7	46	0	103	18		
Proportion of heavy vehicles, P _{HV}	0	--	--	0	--	--		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	1	1	0	1	1	0		
Configuration	L		TR	L		TR		
Upstream Signal		0			0			
Minor Street		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	1	0	1	0	0	10		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	1	0	1	0	0	11		
Proportion of heavy vehicles, P _{HV}	0	0	0	0	0	0		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
Volume, v (vph)	37	0	2			11		
Capacity, c _m (vph)	1479	1566	851			947		
v/c ratio	0.03	0.00	0.00			0.01		
Queue length (95%)	0.08	0.00	0.01			0.04		
Control Delay (s/veh)	7.5	7.3	9.2			8.8		
LOS	A	A	A			A		
Approach delay (s/veh)	--	--	9.2			8.8		
Approach LOS	--	--	A			A		

HCS2000™ DETAILED REPORT												
General Information						Site Information						
Analyst <i>Falcon Traffic</i>						Intersection <i>4800 West and Cedar Hills</i>						
Agency or Co.						Area Type <i>All other areas</i>						
Date Performed <i>3/10/2014</i>						Jurisdiction <i>Cedar Hills</i>						
Time Period <i>PM Peak</i>						Analysis Year <i>2014</i>						
						Project ID <i>America First</i>						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	2	1	1	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	54	14	17	176	17	94	12	532	204	178	461	4
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		5	0		30	0		50	0		1
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 21.0	G =	G =	G =	G = 31.0	G =	G =	G =				
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	60	16	13	196	19	71	13	591	171	198	512	3
Lane group capacity, c	496	665	1615	497	665	1615	439	1865	1615	393	1865	1615
v/c ratio, X	0.12	0.02	0.01	0.39	0.03	0.04	0.03	0.32	0.11	0.50	0.27	0.00

Total green ratio, g/C	0.35	0.35	1.00	0.35	0.35	1.00	0.52	0.52	1.00	0.52	0.52	1.00
Uniform delay, d ₁	13.2	12.8	0.0	14.7	12.8	0.0	7.1	8.4	0.0	9.5	8.2	0.0
Progression factor, PF	1.000	1.000	0.950	1.000	1.000	0.950	1.000	1.000	0.950	1.000	1.000	0.950
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d ₂	0.5	0.1	0.0	2.3	0.1	0.1	0.1	0.4	0.1	4.6	0.4	0.0
Initial queue delay, d ₃												
Control delay	13.7	12.8	0.0	17.0	12.9	0.1	7.2	8.8	0.1	14.0	8.5	0.0
Lane group LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach delay	11.6			12.5			6.9			10.0		
Approach LOS	B			B			A			B		
Intersection delay	9.2			X _c = 0.46			Intersection LOS			A		

HCS2000™ DETAILED REPORT												
General Information						Site Information						
Analyst	Falcon Traffic					Intersection	4800 West and Cedar Hills					
Agency or Co.						Area Type	All other areas					
Date Performed	3/10/2014					Jurisdiction	Cedar Hills					
Time Period	PM Peak					Analysis Year	2014					
						Project ID	America First					
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	1	1	2	1	1	2	1
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Volume, V (vph)	54	22	17	176	20	107	18	544	204	185	478	4
% Heavy vehicles, %HV	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3	3	3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	0		5	0		30	0		50	0		1
Lane width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0	0	0	0	0	0	0	0
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 21.0	G =	G =	G =	G = 31.0	G =	G =	G =				
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	60	24	13	196	22	86	20	604	171	206	531	3
Lane group capacity, c	494	665	1615	493	665	1615	427	1865	1615	386	1865	1615
v/c ratio, X	0.12	0.04	0.01	0.40	0.03	0.05	0.05	0.32	0.11	0.53	0.28	0.00

Total green ratio, g/C	0.35	0.35	1.00	0.35	0.35	1.00	0.52	0.52	1.00	0.52	0.52	1.00
Uniform delay, d_1	13.2	12.8	0.0	14.7	12.8	0.0	7.2	8.4	0.0	9.7	8.2	0.0
Progression factor, PF	1.000	1.000	0.950	1.000	1.000	0.950	1.000	1.000	0.950	1.000	1.000	0.950
Delay calibration, k	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental delay, d_2	0.5	0.1	0.0	2.4	0.1	0.1	0.2	0.5	0.1	5.2	0.4	0.0
Initial queue delay, d_3												
Control delay	13.7	12.9	0.0	17.1	12.9	0.1	7.4	8.9	0.1	14.9	8.6	0.0
Lane group LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach delay	11.7			12.0			7.0			10.3		
Approach LOS	B			B			A			B		
Intersection delay	9.3			$X_C = 0.48$			Intersection LOS			A		

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Storm Water Analysis



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Date: March 13, 2014

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Introduction

Amsource is proposing a new commercial development called Cedar Hills Retail Center. The construction of this development will involve improvements to approximately 2.62 acres of land that is currently undeveloped and located at the corner of 4800 West Street and Cedar Hills Drive. The purposes of this report are to: (1) Determine the flows that will be generated by the proposed development and (2) Determine the required retention volume for the storm water runoff generated based on a rainfall intensities provided by the city of Cedar Hills.

Methodology

Rainfall intensities were provided by the city of Cedar Hills; and the 100 year intensities were utilized in this analysis. The rational method was used to determine the storage volume required for the site. The site was divided into two basins. Each basin was divided into one of three categories (landscape, roof, and impervious) for use in the rational method and in determining a composite runoff coefficient. Individual runoff coefficients of 0.1, 0.85 and 0.9 were used for landscape, roof and impervious surfaces respectively.

Analysis

All storm water will be detained on site in underground storage chambers. Storm water will be treated using a hydrodynamic separator prior to entering the chambers. An onsite geotechnical field investigation was conducted to determine the percolation rate for this site. The field test resulted in a percolation rate of 1.0 minute/inch however a conservative 5 minutes/ inch was used for this evaluation. Using this value a release rate was determined based on the footprint of the chambers. Basin 1 resulted in a required storage of 4,575 cubic feet and Basin 2 resulted in a required storage of 4,459 cubic feet. It should be noted that the evaluated area is greater than the parcel area to account for public improvements.

Conclusions

Adequate storage will be provided for each basin to retain the runoff produced in a 100 year storm. Each chamber system will hold 4,494 cubic feet of runoff. Basin 1 will also utilize catch basins and storm drain pipes to meet storage needs. Basin 1 storm drain network can accommodate an additional 453 cubic feet resulting in a total storage of 4,947 cubic feet.



**Cedar Hills Retail Center: 4800 West Cedar Hills Drive
Cedar Hills, Utah 84062**

Storm Water Calculations

Job Name: AFCU
 Date: 3/10/2014
 Prepared By: Shaun Young
 Reviewed By:
 Methodology: Rational

Developed Conditions

Basin 1

Area Type	Area (ft ²)	C
Roof	4948	0.85
Hard Surfaces	44450	0.9
Landscape	21503	0.1
Subtotal=	70901	

Total= 1.627662994 acres
C average= 0.653884995

Percolation Rate = 0.000278 Feet / Second
 Rentention Area = 2052 Feet²
Release Rate = 0.570 Feet³/Second

Frequency: 100 Year

Time (min)	Intensity (in/hr)	Acc.Vol (ft ³)	Rel.Vol (ft ³)	Req. Stor. (ft ³)
10	5.02	3206	342	2863
15	4.14	3966	513	3452
30	2.79	5345	1027	4318
60	1.73	6628	2054	4575
120	0.95	7280	4107	3173
180	0.65	7471	6161	1310
360	0.36	8276	12322	-4046
720	0.22	10115	24644	-14529
1440	0.12	11035	49287	-38253

Storm Water Calculations

Job Name: AFCU
 Date: 3/10/2014
 Prepared By: Shaun Young
 Reviewed By:
 Methodology: Rational

Developed Conditions

Basin 2

Area Type	Area (ft ²)	C
Roof	13200	0.85
Hard Surfaces	37246	0.9
Landscape	8114	0.1
Subtotal=	58560	

Total= 1.344352617 acres
C average= 0.777882514

Percolation Rate = 0.000278 Feet / Second
 Retention Area = 2052 Feet²
Release Rate = 0.570 Feet³/Second

Frequency: 100 Year

Time (min)	Intensity (in/hr)	Acc.Vol (ft ³)	Rel.Vol (ft ³)	Req. Stor. (ft ³)
10	5.02	3150	342	2808
15	4.14	3896	513	3383
30	2.79	5252	1027	4225
60	1.73	6513	2054	4459
120	0.95	7153	4107	3046
180	0.65	7341	6161	1180
360	0.36	8132	12322	-4190
720	0.22	9939	24644	-14705
1440	0.12	10842	49287	-38445

**ESTIMATED RETURN PERIODS FOR SHORT DURATION PRECIPITATION
(inches)**

Station: Cedar Hills, UT
Latitude: 40.4138 N

Elevation: 4963 feet
Longitude: 111.7543 W

Intensity (IN/HR)

ARI*years	10 min.	15 min.	30 min.	1 Hr.	2 Hr.	3 Hr.	6 Hr.	12 Hr.	24 Hr.
2	1.5	1.24	0.83	0.52	0.32	0.25	0.16	0.1	0.06
5	2.06	1.7	1.15	0.71	0.42	0.31	0.2	0.13	0.08
10	2.57	2.12	1.43	0.88	0.51	0.37	0.23	0.14	0.09
25	3.39	2.8	1.89	1.17	0.66	0.47	0.28	0.17	0.1
50	4.13	3.42	2.3	1.42	0.8	0.55	0.32	0.19	0.11
100	5.02	4.14	2.79	1.73	0.95	0.65	0.36	0.22	0.12

9. Storm water quality criteria

A. Storm Water Treatment

Prior to discharging storm water; collected water must be treated in an attempt to prevent illicit discharges of sediment, oils, floatables and other pollutants.

B. Use of Best Management Practices

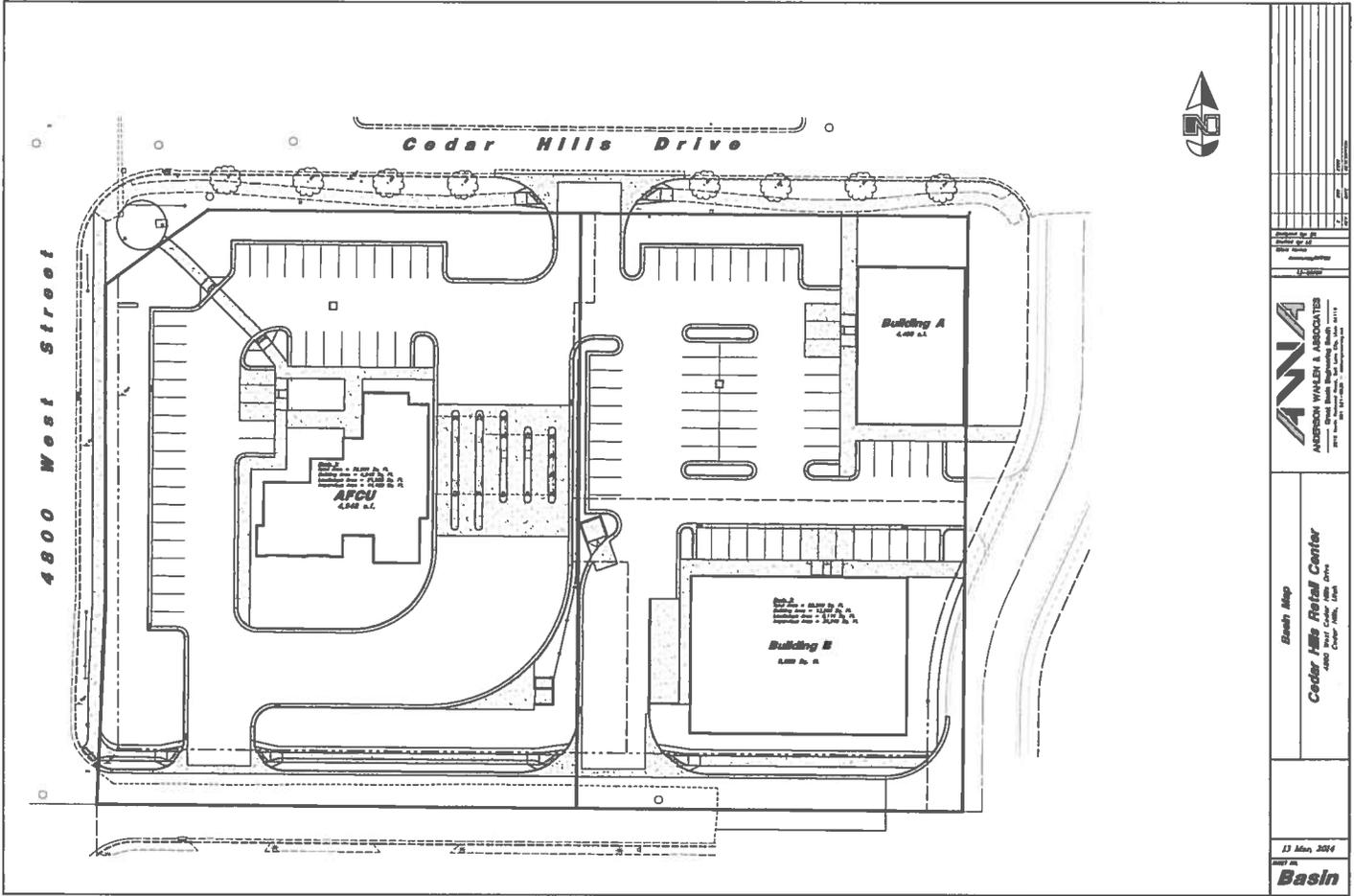
Cedar Hills City encourages the use of the BMP fact sheets included in PART 4, CONSTRUCTION AND POST CONSTRUCTION BEST MANAGEMENT PRACTICES. **The following BMPs are required to be a part of all Construction Site Storm Water Management Plans:**

* BMP Inspection & Maintenance	BMPIM
* Concrete Waste Management	CWM
* Dust Controls	DC
* Grading Practices	GP
* Portable Toilets	PT
* Vehicle and Equipment Fueling	VEF

There is no list of BMPs that is required on all Post Construction Storm Water Management Plans.

In addition to the required BMPs listed above, other BMPs from PART 4 that apply to a given development should be used. Cedar Hills City also encourages the use of practices in addition to those contained in the Cedar Hills Storm Water Management Program that may be suitable for a given development.

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AutoCAD LT 11.0 (PC), 1:1 (1:1)



Basin	
13 Mar 2014	
Basin Map Cedar Hills Retail Center 1400 West Cedar Hills Drive Cedar Hills, VA	
ANVA ANDREWS WILKIN & ASSOCIATES 1011 West 10th Street, Suite 1111 Anchorage, Alaska 99501	
Project No. 14072	Sheet No. 14072-01
Client: Basin	Scale: 1/8" = 1'-0"
Author: J. Smith	Date: 3/13/2014
Checked: J. Smith	Drawn: J. Smith
Approved: J. Smith	Plot Date: 3/13/2014



March 10, 2014
Project No.: 20143661.001A

Anderson Wahlen & Associates
2010 No. Redwood Road
Salt Lake City, Utah 84116

ATTENTION: Mr. Jeff Randall
Director of Commercial Development

**SUBJECT: Potential Noise Impacts from Operations
Proposed America First Credit Union Parcel
Southeast Corner of 4800 West and Cedar Hills Drive
Cedar Hills, Utah**

Dear Mr. Randall:

Pursuant to your request Kleinfelder, Inc., (Kleinfelder) has prepared this noise analysis for the proposed America First Credit Union parcel located on the southeast corner of 4800 West and Cedar Hills Drive in Cedar Hills, Utah (Site). We understand the parcel is proposed to be developed with an American First Credit Union and two retail pads, identified as Building A and Building B on the site plan provided by Anderson Wahlen & Associates (AWA) (attached). This noise analysis is based on our review of the proposed site plan, information provided by AWA regarding the proposed Site usage, buildings, and infrastructure, and on conversations with Cedar Hills Assistant City Manager, Mr. Chandler Goodwin.

Project Vicinity and Area Noise Sources

The Site is located in a generally commercially developed area. It is bounded on two sides by roadways, the two-lane Cedar Hills Drive directly north of the Site and the four-lane 4800 West Street directly west of the Site. Nearby properties include a Hart's Gas Station located directly south of the Site, a Walmart with commercial pads occupied by Chase Bank and McDonalds located directly north across Cedar Hills Drive, Lone Peak High School located northwest across the intersection and vacant parcels on adjacent properties directly to the east and to the west across 4800 West Street. We understand that the vacant parcel to the east is proposed for development with a parking lot and senior living center. An aerial photograph showing the Site and nearby properties is included as Figure 1, Site Vicinity Map.

The current vicinity properties do not appear to have on-site activities that would present obvious noise sources above general background noise. Traffic noise originating from the two adjacent streets is the primary noise source in the vicinity. As demonstrated by the Federal Highway Administration (FHWA) Traffic Noise Model (TNM), traffic noise increases with increasing speed of traffic as well as the number of vehicles travelling. Conversely, vehicle noise decreases as vehicles slow to leave the roadways and enter adjacent properties or parking areas.

Site Description and On-Site Noise Sources

The Site is proposed to be developed with an American First Credit Union and two retail pads, identified as Building A and Building B on the site plan (attached). The credit union will have a service drive through and the parcel will have parking and landscaped areas. The buildings will have pad-mounted or roof-top air conditioning units that are standard for the buildings proposed. No external equipment that would produce increased noise levels, (such as trash compactors) are planned for the property. Vehicle traffic noise originating from the parcel will not be appreciable due to the slow travel speed of vehicles entering the property.

Based on the proposed Site improvements and usage, as described herein, it is our professional opinion that development of the Site as proposed will not increase noise levels in the area above existing ambient noise levels.

Limitations

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than one year from the date of the report. This review was non-comprehensive by nature and may not have identified all environmental problems, and will not eliminate all risk. This report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help the Client understand and better manage risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service, which will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

Kleinfelder performed this work in general accordance with Kleinfelder's Proposal (Document No. SLC14P0159), dated March 3, 2014. No warranty, either express or implied, is made. Environmental issues not specifically addressed in this report were beyond the scope of our services and not included in our evaluation.

Respectfully submitted,

KLEINFELDER, INC.



Corinne Hillard, PG
Sr. Professional



Ryan Merkley, PG
Environmental Lead, Utah

Attachments: Figure 1- Site Vicinity Map
Site Plan (provided by AWA)

FIGURE 1
Site Vicinity Map



The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

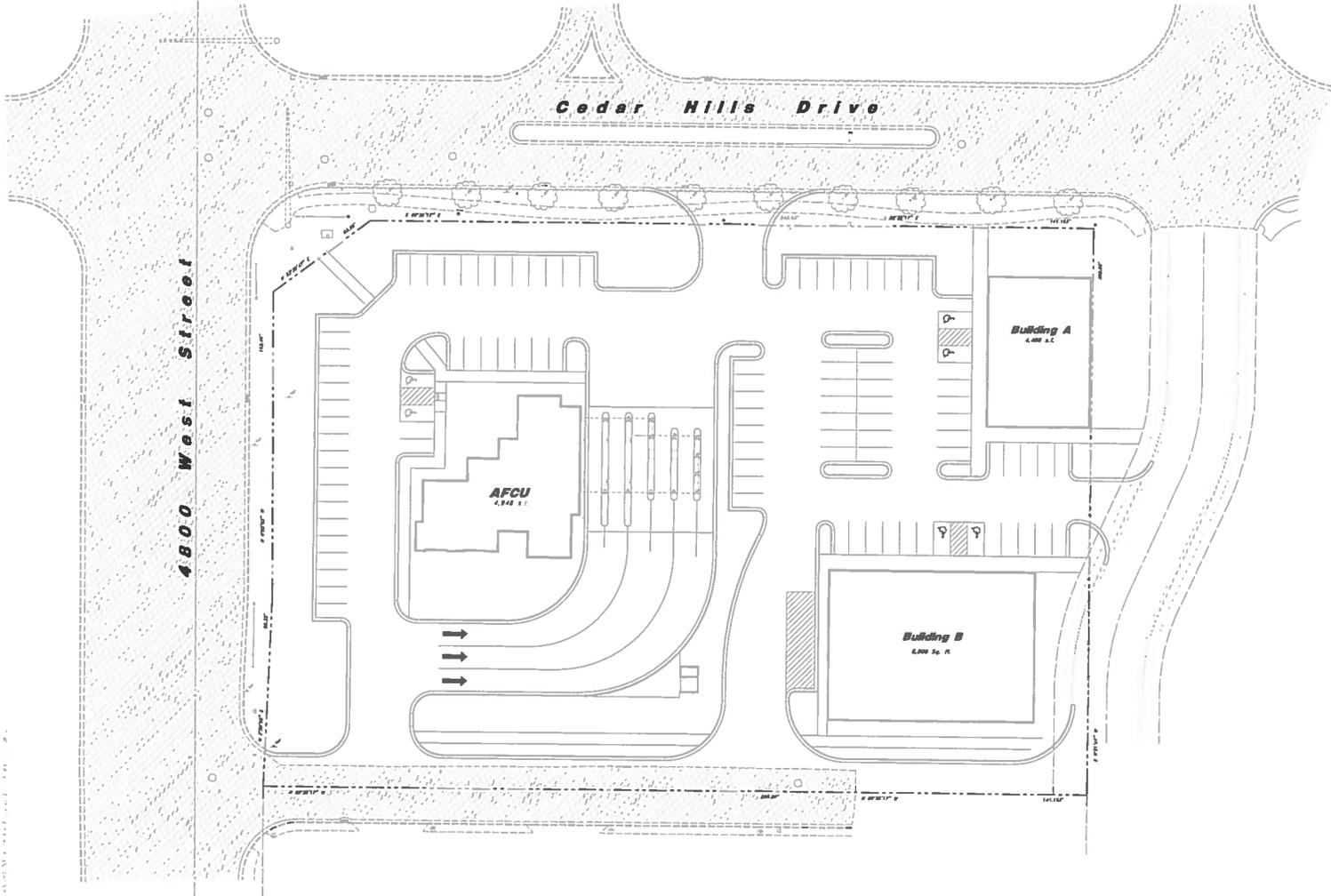
Images Service Layer Credits: Copyright © 2013 ESRI, NAVTEQ, DeLorme
 Copyright © 2013 Esri
 Aerial Image: GoogleEarth Pro, accessed 03/10/14, date of photo 06/04/13.

SITE LOCATION
(SEE ABOVE)



	PROJECT NO. 20143661	SITE VICINITY MAP	FIGURE 1
	DRAWN: 03/10/14		
	DRAWN BY: PD	PROPOSED AMERICAN FIRST CREDIT UNION 4800 WEST AND CEDAR HILL DRIVE CEDAR HILLS, UTAH	
	CHECKED BY: CH		
FILE NAME: 20143661_SP.MXD			

FIGURE 2
Site Plan (provided by AWA)





**REPORT
GEOTECHNICAL STUDY
PROPOSED AMERICA FIRST CREDIT UNION
SOUTHEAST CORNER OF CEDAR HILLS DRIVE
AND 4800 WEST STREET
CEDAR HILLS, UTAH**

Submitted To:

America First Credit Union
4646 South 1500 West, Suite 110
Riverdale, Utah 84405

Submitted By:

GSH Geotechnical, Inc.
473 West 4800 South
Salt Lake City, Utah 84123

January 24, 2014

Job No. 1242-013-14



January 24, 2014
Job No. 1242-013-14

Mr. Casey Shaw
America First Credit Union
4646 South 1500 West, Suite 110
Riverdale, Utah 84405

Mr. Shaw

Re: Report
Geotechnical Study
Proposed America First Credit Union
Southeast Corner of Cedar Hills Drive and 4800 West Street
Cedar Hills, Utah
(40.4149 N, -111.7728 W)

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the proposed America First Credit Union (AFCU) located at the southeast corner of Cedar Hills Drive and 4800 West Street in Cedar Hills, Utah. The general location of the site with respect to major topographic features and existing facilities, as of 1994 and 1998, is presented on Figure 1, Vicinity Map. A more detailed layout of the site showing existing roadways and proposed facilities is presented on Figure 2, Site Plan. The locations of the 11 borings drilled in conjunction with this study are also presented on Figure 2.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of the study were planned in discussions between Mr. Casey Shaw of America First Credit Union, Mr. Jeff Randall of Anderson Wahlen and Associates, and Mr. Mike Huber of GSH Geotechnical, Inc. (GSH).

In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions at the site.

GSH Geotechnical, Inc.
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Ogden, Utah 84401
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www.gshgeo.com



2. Provide appropriate foundation, earthwork, pavement and geoseismic recommendations to be utilized in the design and construction of the proposed development

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the excavating, logging, and sampling of 8 exploration borings extending to depths of 5 to 16 feet below existing grade.
2. A laboratory testing program.
3. An office program consisting of correlation of available data, engineering analyses, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of our Proposal No. 14-0130rev1 dated January 17, 2014.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration borings, projected groundwater conditions, and the layout and design data discussed in Section 2, Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. PROPOSED CONSTRUCTION

Three 1-level structures are planned for the approximately 2-acre parcel. The AFCU structure will have a footprint of 5,165 square feet with adjoining canopy-covered "drive-thru" lanes and will cover the western half of the parcel. Two commercial structures with footprints of 4,400 and 8,800 square feet will be constructed on the eastern half of the lot. All 3 structures are anticipated to be of light steel-frame and masonry construction. The at-grade floor slabs are projected to be established an estimated 1 to 2 feet above the existing ground surface to facilitate drainage.

Structural loads will be transmitted down through columns and bearing walls to the supporting foundations. Maximum column and wall loads are anticipated to be on the order of 20 to 40 kips and 2 to 4 kips per lineal foot, respectively. We project that the floor slab loads will be light (less than an average uniform load of 200 pounds per square foot). Traffic in the parking areas will consist of a light volume of automobiles and light trucks and occasional medium-weight trucks. In primary roadway areas, we project that the traffic will consist of a moderate volume of automobiles and light trucks and occasional medium- to heavy-weight trucks.

Maximum site grading cuts and fills are anticipated to be less than 2 to 3 feet.

3. SITE INVESTIGATIONS

3.1 FIELD PROGRAM

In order to define and evaluate the subsurface soil and groundwater conditions at the site, 11 borings were drilled to depths of 5 to 16 feet below existing grade. The borings were drilled using a truck-mounted drill rig and hollow-stem augers. Locations of the borings are presented on Figure 2.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the drilling operations, a log of the subsurface conditions encountered was maintained. In addition, samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representations of the subsurface conditions encountered are presented on Figures 3A through 3K, Boring Logs. Soils were classified in accordance with the nomenclature described on Figure 4, Key to Boring Log (USCS).

Following completion of excavation and logging, each boring was backfilled with auger cuttings.

Following completion of excavating operations, 1.25-inch diameter slotted PVC pipe was installed in some of the borings in order to provide a means of monitoring potential groundwater fluctuations.

3.2 LABORATORY TESTING

3.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was completed. The program included partial gradation, pH and soluble sulfates, and percolation tests. The following paragraphs describe the tests and summarize the test data.



3.2.2 Partial Gradation Tests

To aid in classifying the granular soils, partial gradation tests were performed. Results of the tests are tabulated below:

Boring No.	Depth (feet)	Percent Passing No. 200 Sieve	Moisture Content (%)	Soil Classification
B-1	2.5	12.8	1.3	GM
B-3	5.0	9.5	7.9	GP/GM
B-5	2.5	10.6	2.5	GP/GM
B-6	5.0	12.8	1.7	GM

3.2.3 pH and Soluble Sulfates Tests

To determine if the site soils will react detrimentally with concrete, pH and soluble sulfates tests were performed on a representative sample of the natural near-surface soils. The results of those tests are tabulated below:

Boring No.	Depth (feet)	Soil Classification	pH	Water Soluble Sulfate (mg/kg-dry)
B-7	2.0	GPGM	9.1	<5.5

3.3 PERCOLATION TESTS

Two infiltration tests were performed at a depth of 5 feet within Borings B-4 and B-9. The measured infiltration rates were less than 1 minute per inch and reflect current natural site conditions at the test location. The infiltration rate measured during this test program is considered typical for the soil type. It is our experience that infiltration rate will decrease over the lifetime of the system due to siltation and the introduction of other materials. Accordingly, we recommend a design infiltration rate of 5 minutes per inch may be used for design purposes.

4. SITE CONDITIONS

4.1 SURFACE

The site is located at the southeast corner of the intersection of Cedar Hills Drive and 4800 West Street in Cedar Hills, Utah. The lot is rectangular in shape and consists of vacant undeveloped land. The site is covered by a light growth of various weeds and grasses. The site slopes gently



downhill to the southwest with an overall relief on the order of 2 to 3 feet across the site. The site is bordered to the east and the west (beyond 4800 West Street) by similar undeveloped land, on the north by Cedar Hills Drive followed by Chase Bank and Walmart, and on the south by a gas station.

4.2 SUBSURFACE SOIL AND GROUNDWATER

The soil conditions encountered in the borings were relatively consistent. Topsoil with a major root zone was encountered to a depth of 3 to 4 inches in each of the borings. Underlying the topsoil and extending to the maximum explored depths of 5 to 16 feet is fine to coarse sandy gravel and fine to coarse gravelly sand with varying amounts of silt. The sand/gravel is medium dense to very dense, slightly moist to moist, gray to brown, and is anticipated to exhibit high strength and low compressibility characteristics under the anticipated loading range. Auger refusal due to cobbles was encountered at a depth of 7 feet in Boring B-1.

The lines designating the interface between soil types on the boring logs generally represent approximate boundaries. In-situ, the transition between soil types may be gradual.

During drilling operations, groundwater was not encountered at the maximum explored depth, 16 feet.

5. DISCUSSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The results of our analyses indicate that the proposed structures may be supported upon conventional spread and/or continuous wall foundations established upon suitable natural soils or structural fill extending to suitable natural soils.

The most significant geotechnical issues at the site are the near-surface loose/disturbed soils that extend approximately 3 to 4 inches below the existing surface. These loose/disturbed soils are not suitable for the support of footings, floor slabs, or pavements.

GSH will need to observe foundation excavations to verify that all topsoil and loose/disturbed soils have been completely removed and to provide additional recommendations as required.

The on-site natural soils can be re-used as structural site grading fill, if they meet the requirements of such.

Detailed discussions pertaining to earthwork, foundations, floor slabs, lateral resistance, pavements, and the geoseismic setting of the site are discussed in the following sections.



5.2 EARTHWORK

5.2.1 Site Preparation

Initial site preparation will consist of the removal of surface vegetation, topsoil, loose/disturbed soils, non-engineered fills, and other deleterious materials from beneath an area extending out at least 5 feet from the perimeter of the proposed building, pavement, and exterior flatwork areas.

Subsequent to the above operations and prior to the placement of footings, structural site grading fill, or floor slabs, the exposed natural subgrade must be proofrolled by passing moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If any loose, soft, or disturbed zones are encountered, they must be completely removed in footing and floor slab areas and replaced with granular structural fill. In pavement areas, unsuitable soils encountered during recompaction and proofrolling must be removed to a maximum depth of 2 feet and replaced with compacted granular structural fill.

5.2.2 Temporary Excavations

Temporary construction excavations in the site soils, not exceeding 4 feet in depth, may be constructed with sideslopes no steeper than one-quarter horizontal to one vertical (0.25H:1V). Temporary excavations up to 8 feet deep in the site soils shall be constructed with sideslopes no steeper than one horizontal to one vertical (1H:1V). Excavations deeper than 8 feet are not anticipated at the site. If excessive sloughing occurs or where extensive layers of clean granular soils are encountered, the sideslopes should be appropriately flattened and/or shoring/bracing utilized.

All excavations must be inspected periodically by qualified personnel. If any signs of instability are noted, immediate remedial action must be initiated.

5.2.3 Structural Fill

Structural fill will be required as site grading fill, as backfill over foundations and utilities, and potentially as replacement fill below footings. All structural fill must be free of sod, rubbish, construction debris, frozen soil, and other deleterious materials. Structural site grading fill is defined as fill placed over fairly large open areas to raise the overall site grade.

The maximum particle size within structural site grading fill should generally not exceed 4 inches; although, occasional particles up to 6 to 8 inches may be incorporated provided that they do not result in "honeycombing" or preclude the obtainment of the desired degree of compaction. In confined areas, the maximum particle size should generally be restricted to 2.5 inches.

The on-site soils may be re-utilized as structural site grading fill if they meet the requirements of such.



All imported granular structural fill should consist of a fairly well-graded mixture of sand and gravel with the maximum fines content (material passing the No. 200 sieve) not exceeding 18 percent. Only granular soils are recommended as structural fill below foundations and in confined areas, such as backfill around foundations or within utility trenches.

Non-structural site grading fill is defined as all fill material not designated as structural fill and may consist of any cohesive or granular soils not containing excessive amounts of degradable material.

5.2.4 Fill Placement and Compaction

All structural fill shall be placed in lifts not exceeding 8 inches in loose thickness. Structural fills shall be compacted in accordance with the percent of the maximum dry density as determined by the AASHTO¹ T-180 (ASTM² D-1557) compaction criteria in accordance with the table below:

Location	Total Fill Thickness (feet)	Minimum Percentage of Maximum Dry Density
Beneath an area extending at least 3 feet beyond the perimeter of the structure	0 to 8	95
Outside area defined above	0 to 5	90
Outside area defined above	5 to 8	95

Structural fills greater than 8 feet thick are not anticipated at the site.

Subsequent to stripping and prior to the placement of structural site grading fill, the subgrade shall be prepared as discussed in Section 5.2.1, Site Preparation, of this report. In confined areas, subgrade preparation should consist of the removal of all loose or disturbed soils.

Non-structural fill may be placed in lifts not exceeding 12 inches in loose thickness and compacted by passing construction, spreading, or hauling equipment over the surface at least twice.

5.2.5 Utility Trenches

All utility trench backfill material below structurally loaded facilities (flatwork, floor slabs, roads, etc.) shall be placed at the same density requirements established for structural fill. If the surface of the backfill becomes disturbed during the course of construction, the backfill shall be

¹ American Association of State Highway and Transportation Officials
² American Society for Testing and Materials



proofrolled and/or properly compacted prior to the construction of any exterior flatwork over a backfilled trench. Proofrolling may be performed by passing moderately loaded rubber tire-mounted construction equipment uniformly over the surface at least twice. If excessively loose or soft areas are encountered during proofrolling, they shall be removed to a maximum depth of 2 feet below design finish grade and replaced with structural fill.

Most utility companies and City-County governments are now requiring that Type A-1 or A-1-a (AASHTO Designation – basically granular soils with limited fines) soils be used as backfill over utilities. These organizations are also requiring that in public roadways the backfill over major utilities be compacted over the full-depth of fill to at least 96 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) method of compaction. We recommend that as the major utilities continue onto the site that these compaction specifications are followed.

5.3 SPREAD AND CONTINUOUS WALL FOUNDATIONS

5.3.1 Design Data

The results of our analyses indicate that the proposed structure may be supported upon conventional spread and continuous wall foundations established upon natural suitable soils and/or granular structural fill extending to natural, suitable soils. For design, the following parameters are recommended:

Minimum Recommended Depth of Embedment for Frost Protection	- 30 inches
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches
Recommended Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Recommended Net Bearing Pressure for Real Load Conditions	- 3,000 pounds per square foot
Bearing Pressure Increase for Seismic Loading	- 50 percent

The term “net bearing pressure” refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to



lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

5.3.2 Installation

Under no circumstances shall the footings be established upon non-engineered fill, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water. If unsuitable soils are encountered, they must be removed and replaced with compacted structural fill. If granular structural fills become loose or disturbed, they must be recompacted to the requirements for structural fill.

The width of structural fill, where placed below footings, should extend laterally at least 6 inches beyond the edges of the footings in all directions for each foot of fill thickness beneath the footings. For example, if the width of the footing is 2.0 feet and the thickness of the structural fill beneath the footing is 1.5 feet, the width of the structural fill at the base of the footing excavation would be a total of 3.5 feet, centered below the footing.

5.3.3 Settlements

Maximum settlements of foundations designed and installed in accordance with recommendations presented herein and supporting maximum anticipated loads as discussed in Section 2, Proposed Construction, are anticipated to be less than one inch. Approximately 50 percent of the quoted settlement should occur during construction.

5.4 LATERAL RESISTANCE

Lateral loads imposed upon foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining frictional resistance, a coefficient of 0.40 should be utilized. Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 300 pounds per cubic foot. Below the water table, this granular soil should be considered equivalent to a fluid with a density of 150 pounds per cubic foot.

A combination of passive earth resistance and friction may be utilized provided that the friction component of the total is divided by 1.5.

5.5 FLOOR SLABS

Floor slabs may be established upon suitable natural soils and/or upon structural fill extending to suitable natural soils. Under no circumstances shall floor slabs be established over non-engineered fills, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water.



In order to facilitate curing of the concrete, it is recommended that floor slabs be directly underlain by at least 4 inches of “free-draining” fill, such as “pea” gravel or 0.75-inch to 1.0-inch minus clean gap-graded gravel.

Settlement of lightly loaded floor slabs (average uniform pressure of 200 pounds per square foot or less) is anticipated to be less than 0.25 inch.

5.6 PAVEMENTS

The existing natural soils will exhibit moderate to poor pavement support characteristics when saturated or near saturated. All pavement areas must be prepared as previously discussed (see Section 5.2.1, Site Preparation). With the subgrade soils and the projected traffic as discussed in Section 2, Proposed Construction, the following pavement sections are recommended:

Parking Areas

(Light Volume of Automobiles and Light Trucks,
Occasional Medium-Weight Trucks,
and No Heavy-Weight Trucks)
[1 equivalent 18-kip axle load per day]

Flexible:

2.5 inches	Asphalt concrete
7.0 inches	Aggregate base
Over	Properly prepared natural subgrade soils, and/or structural site grading fill extending to suitable natural subgrade soils

Rigid:

5.0 inches	Portland cement concrete (non-reinforced)
4.0 inches	Aggregate base
Over	Properly prepared natural subgrade soils, and/or structural site grading fill extending to natural subgrade soils

Roadway Areas

(Moderate Volume of Automobiles and Light Trucks,
Light Volume of Medium-Weight Trucks
and Occasional Heavy-Weight Trucks)
[3 equivalent 18-kip axle loads per day]

Flexible:

3.0 inches	Asphalt concrete
8.0 inches	Aggregate base
Over	Properly prepared natural subgrade soils, and/or structural site grading fill extending to suitable natural subgrade soils

Rigid:

5.5 inches	Portland cement concrete (non-reinforced)
4.0 inches	Aggregate base
Over	Properly prepared natural subgrade soils, and/or structural site grading fill extending to natural subgrade soils

For dumpster pads, we recommend a pavement section consisting of 6.5 inches of Portland cement concrete, 4.0 inches of aggregate base, over properly prepared natural subgrade or site grading structural fills.

The above rigid pavement sections are for non-reinforced Portland cement concrete. Concrete should be designed in accordance with the American Concrete Institute (ACI) and joint details should conform to the Portland Cement Association (PCA) guidelines. The concrete should have a minimum 28-day unconfined compressive strength of 4,000 pounds per square inch, contain 6 percent \pm 1 percent air-entrainment, and meet the requirements given below in Section 5.7., Cement Types, of this report.

5.7 CEMENT TYPES

The laboratory tests indicate that the natural soils tested contain a negligible amount of water soluble sulfates. Based on our test results, concrete in contact with the on-site soil will have a

low potential for sulfate reaction (ACI 318, Table 4.3.1). Therefore, all concrete which will be in contact with the site soils may be prepared using Type I or IA cement.

5.8 GEOSEISMIC SETTING

5.8.1 General

Utah municipalities have adopted the International Building Code (IBC) 2012. The IBC 2012 code determines the seismic hazard for a site based upon 2008 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

The structure must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2012 edition.

5.8.2 Faulting

Based upon our review of available literature, no active faults are known to pass through or immediately adjacent to the site. The site is located outside fault investigation zones identified by Utah County. The nearest active fault is the Wasatch Fault, located approximately 0.6 miles northwest of the site.

5.8.3 Soil Class

For dynamic structural analysis, given the relatively small amount of liquefaction-induced settlements projected for this site, the Site Class D - Stiff Soil Profile as defined in Chapter 20 of ASCE 7 (per Section 1613.3.2, Site Class Definitions, of IBC 2012) can be utilized.

5.8.4 Ground Motions

The IBC 2012 code is based on 2008 USGS mapping, which provides values of short and long period accelerations for the Site Class B/C boundary for the Maximum Considered Earthquake (MCE). This Site Class B/C boundary represents average bedrock values for the Western United States and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for the MCE event and incorporates the appropriate soil amplification factor for a Site Class D soil profile. Based on the site latitude and longitude (40.4149 degrees north and 111.7728 degrees west, respectively), the values for this site are tabulated on the following page.



Spectral Acceleration Value, T Seconds	Site Class B-C Boundary [mapped values] (% g)	Site Class D [adjusted for site class effects] (% g)
Peak Ground Acceleration	48.2	49.1
0.2 Seconds, (Short Period Acceleration)	$S_S = 120.5$	$S_{MS} = 122.7$
1.0 Seconds (Long Period Acceleration)	$S_1 = 43.8$	$S_{M1} = 68.5$

The IBC 2012 code site accelerations are based on taking the above short and long period accelerations for the Maximum Considered Earthquake Event and multiplying by two-thirds.

5.8.5 Liquefaction

The site is located in a boundary area that has been identified by Utah County as having a “very low” liquefaction potential. Liquefaction is defined as the condition when saturated, loose, finer-grained sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Due to the lack of a shallow groundwater table and the dense nature of the granular soils encountered, liquefaction is not anticipated to occur during the design seismic event.

5.9 SITE OBSERVATIONS

As stated previously, a geotechnical engineer from GSH must observe the foundation excavations prior to placing footings or structural fill to verify that any topsoil and/or disturbed soils have been removed and that suitable soils have been encountered.

America First Credit Union
Job No. 1242-013-14
Geotechnical Study
January 24, 2014



If you have any questions or would like to discuss these items further, please feel free to contact us at (801) 685-9190.

Respectfully submitted,

GSH Geotechnical, Inc.

A handwritten signature in black ink, appearing to read 'Patrick R. Emery', written over a horizontal line.

Patrick R. Emery, P.E.
State of Utah No. 7941710
Project Geotechnical Engineer

Reviewed by:

A handwritten signature in black ink, appearing to read 'Michael S. Huber', written over a horizontal line.

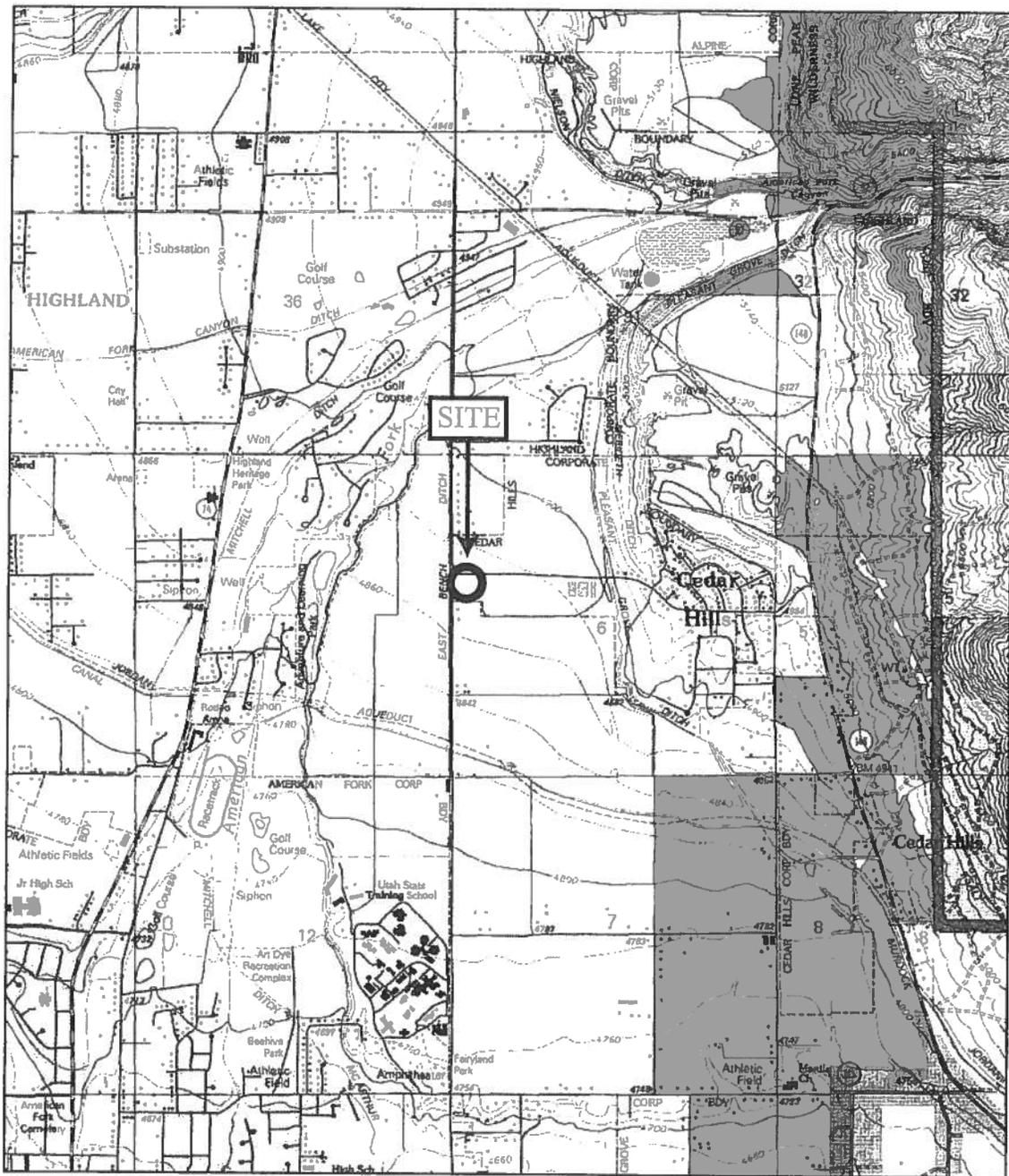
Michael S. Huber, P.E.
State of Utah No. 343650
Vice President/Senior Geotechnical Engineer

PRE/MSH:jlb

Encl. Figure 1, Vicinity Map
Figure 2, Site Plan
Figures 3A through 3K, Log of Borings
Figure 4, Key to Boring Log

Addressee (email)

cc: Mr. Jeff Randall (email)
Anderson Wahlen and Associates



REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP(S)
ENTITLED "LEHI, UTAH" DATED 1994 AND
"TIMPANOGOS CAVE, UTAH" DATED 1998

FIGURE 1
VICINITY MAP
GSH

AMERICA FIRST CREDIT UNION
JOB NO. 1242-013-14

CEDAR HILLS DRIVE

4800 WEST STREET

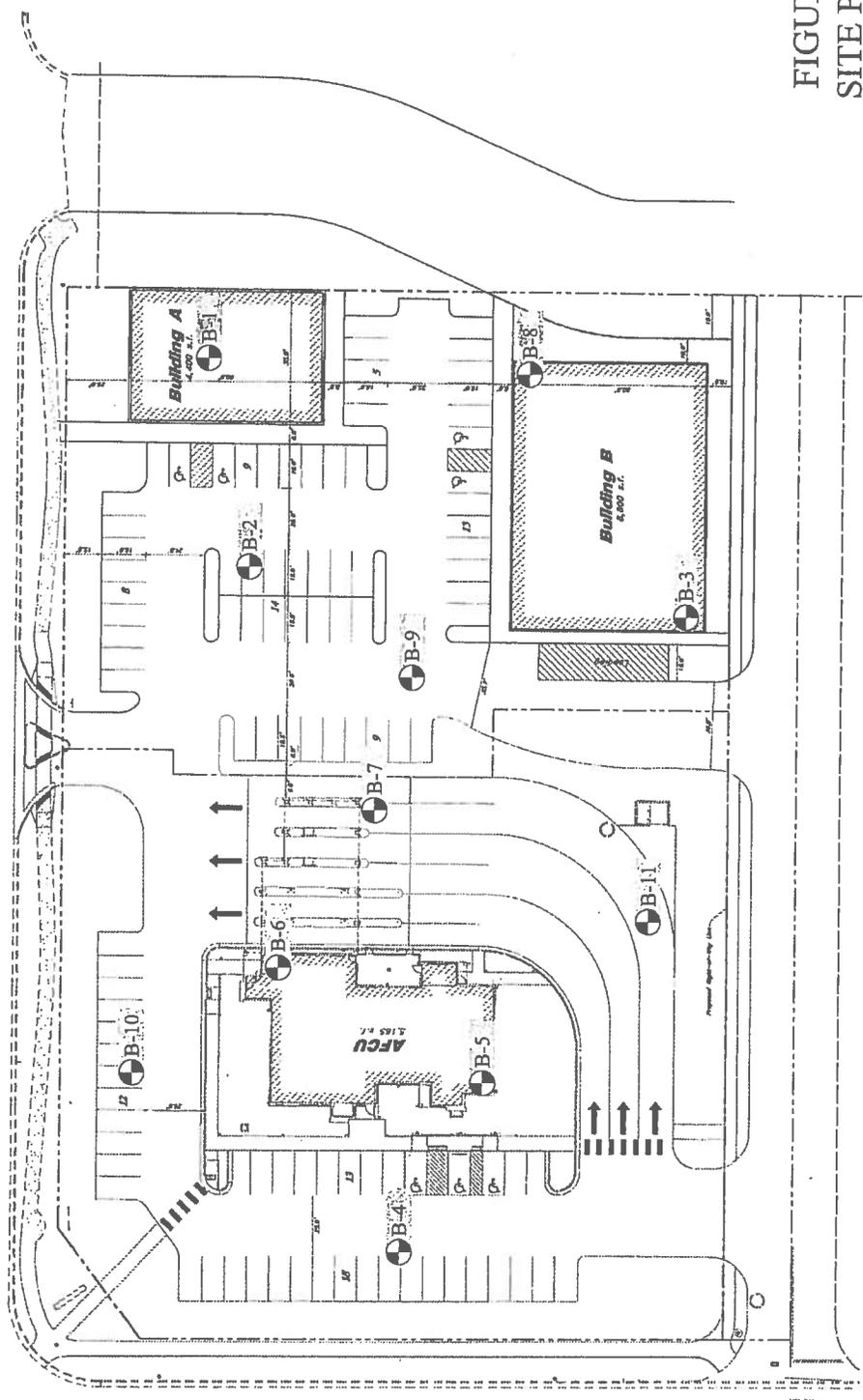


FIGURE 2
SITE PLAN
GSH

REFERENCE:
ADAPTED FROM DRAWING ENTITLED
"CONCEPTUAL SITE PLAN" BY GREAT BASIN ENGINEERING - SOUTH
DATED JANUARY 14, 2014

APPROXIMATE SCALE: 1" = 45'



BORING LOG

Page: 1 of 1

BORING: B-1

CLIENT: America First Credit Union PROJECT NUMBER: 1242-013-14
 PROJECT: Proposed America First Credit Union DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14
 LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah GSH Field Rep.: HRW
 DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger HAMMER: Automatic WEIGHT: 140 lbs DROP: 30"
 GROUNDWATER DEPTH: No groundwater encountered (01/17/14) ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GM	SILTY FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some cobbles; major roots (topsoil) to 3"; gray/brown		100+		1.3		12.8			slightly moist very dense
			5	90							
		Auger refusal due to cobbles at 7.0'. No groundwater encountered at time of drilling.									
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3A



GSH

BORING LOG

Page: 1 of 1

BORING: B-2

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and occasional cobbles; major roots (topsoil) to 4"; gray/brown									slightly moist very dense
		End of exploration at 5.0'. No groundwater encountered at time of drilling. Installed 1-1/4" diameter slotted PVC pipe to 5.0'.	5								
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3B



GSH

BORING LOG

Page: 1 of 1

BORING: B-3

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and some cobbles; major roots (topsoil) to 4"; gray/brown									slightly moist very dense
			5	49		7.9	9.5				dense
			10	66							
	SP/ SM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt and some cobbles; gray/brown									slightly moist medium dense
			15	29							
		End of exploration at 16.0'. No groundwater encountered at time of drilling. Installed 1-1/4" diameter slotted PVC pipe to 16.0'.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3C



GSH

BORING LOG

Page: 1 of 1

BORING: B-4

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and occasional cobbles; major roots (topsoil) to 3"; gray/brown									slightly moist dense
		End of exploration at 5.0'. No groundwater encountered at time of drilling.	5								
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3D



GSH

BORING LOG

Page: 1 of 1

BORING: B-5

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and occasional cobbles; major roots (topsoil) to 3"; gray/brown		50+		2.5		10.6			slightly moist very dense
			5	77							
			10	84							
			15	50+							
		End of exploration at 16.0'. No groundwater encountered at time of drilling.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3E



GSH

BORING LOG

Page: 1 of 1

BORING: B-6

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 **DATE FINISHED:** 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs **DROP:** 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GM	SILTY FINE TO COARSE SANDY FINE AND COARSE GRAVEL with occasional cobbles; major roots (topsoil) to 3"; gray/brown									
			85								slightly moist very dense
			5	46		1.7	12.8				dense
			10								very dense
			15	90							
		End of exploration at 16.0'. No groundwater encountered at time of drilling.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3F



GSH

BORING LOG

Page: 1 of 1

BORING: B-7

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								hard drilling
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and occasional cobbles; major roots (topsoil) to 3"; gray/brown									slightly moist very dense
			5	58							
		End of exploration at 6.0'. No groundwater encountered at time of drilling.									
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3G



GSH

BORING LOG

Page: 1 of 1

BORING: B-8

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								hard drilling
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and some cobbles; major roots (topsoil) to 3"; gray/brown		50+							very dense
			5	92							
			10	73							
			15								
		End of exploration at 16.0'. No groundwater encountered at time of drilling.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3H



GSH

BORING LOG

Page: 1 of 1

BORING: B-9

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and occasional cobbles; major roots (topsoil) to 3"; gray/brown		50+							slightly moist
			5	92							
		End of exploration at 6.0'. No groundwater encountered at time of drilling.									
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 31



GSH

BORING LOG

Page: 1 of 1

BORING: B-10

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and some cobbles; major roots (topsoil) to 3"; gray/brown									
				50+							slightly moist
			5	92							
		End of exploration at 6.0'. No groundwater encountered at time of drilling.									
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3J



GSH

BORING LOG

Page: 1 of 1

BORING: B-11

CLIENT: America First Credit Union

PROJECT NUMBER: 1242-013-14

PROJECT: Proposed America First Credit Union

DATE STARTED: 01/17/14 DATE FINISHED: 01/17/14

LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah

GSH Field Rep.: HRW

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (01/17/14)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and some cobbles; major roots (topsoil) to 3"; gray/brown									
		End of exploration at 6.0'. No groundwater encountered at time of drilling.	5								
			10								
			15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 3K

PROJECT: Proposed America First Credit Union
 PROJECT LOCATION: SEC of Cedar Hills Drive and 4800 West Street, Cedar Hills, Utah
 PROJECT NUMBER: 1242-013-14

KEY TO BORING LOG

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
-------------	------------------	-------------	-------------	------------	---------------	--------------	-------------------	---------------	------------------	------------------	---------

1
2
3
4
5
6
7
8
9
10
11
12

COLUMN DESCRIPTIONS

- | | |
|---|--|
| <p>1 Water Level: Depth to measure groundwater table. See symbol below.</p> <p>2 USCS: Graphic depiction of subsurface material encountered; typical symbols are explained below.</p> <p>3 Description: Description of material encountered; may include color, moisture, grain size, and density/consistency.</p> <p>4 Depth (ft.): Depth in feet below the ground surface.</p> <p>5 Blow Count: Number of blows required to advance sampler (12 inches) beyond first, using a 140-lb hammer with a 30 inch drop.</p> <p>6 Sample Symbol: Type of soil sample collected at depth interval shown; sampler symbols are explained below.</p> <p>7 Moisture (%): Water content of soil sample measured in laboratory; expressed as percentage of dry weight of specimen.</p> <p>8 Dry Density (pcf): The density of a soil measured in laboratory; expressed as pounds per cubic foot.</p> | <p>9 % Passing 200: Fines content of soil sample passing a No. 200 sieve measured in laboratory, expressed as a percentage.</p> <p>10 Liquid Limit (%): Water content at which a soil changes from plastic to liquid behavior.</p> <p>11 Plasticity Index (%): Range of water content at which a soil exhibits plastic properties.</p> <p>12 Remarks: Comments and observations regarding drilling or sampling made by driller or field personnel. Other field and laboratory test results; using the following abbreviations:</p> |
|---|--|

CEMENTATION	MODIFIERS	MOISTURE CONTENT (FIELD TEST)
Weakly: Crumbles or breaks with handling of slight finger pressure.	Trace <5%	Dry: Absence of moisture, dusty, dry to the touch.
Moderately: Crumbles or breaks with considerable finger pressure.	Some 5 - 12%	Moist: Damp but no visible water.
Strongly: Will not crumble or break with finger pressure.	With >12%	Saturated: Visible water, usually soil below water table.

Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on the logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.

UNIFIED SOIL CLASSIFICATION SYSTEM	MAJOR DIVISIONS		SYMBOLS		TYPICAL DESCRIPTIONS	
			Graph	Letter		
COARSE-GRAINED SOILS More than 50% of No. 200 sieve size.	GRAVELS More than 50% of coarse fraction retained in No. 4 sieve.	CLEAN GRAVELS (little or no fines)		GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines	
		GRAVELS WITH FINES (appreciable amount of fines)		GP	Poorly Graded Gravel, Gravel-Sand Mixtures, Little or No Fines	
	SANDS More than 50% of coarse fraction passing through No. 4 sieve.	CLEAN SANDS (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines	
		SANDS WITH FINES (appreciable amount of fines)		SP	Poorly Graded Sands, Gravelly Sands, Little or No Fines	
		SANDS WITH FINES (appreciable amount of fines)		SM	Silty Sands, Sand-Silt Mixtures	
		SANDS WITH FINES (appreciable amount of fines)		SC	Clayey Sands, Sand-Clay Mixtures	
FINE-GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS Liquid limit less than 50%	SILTS AND CLAYS		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity	
		SILTS AND CLAYS		CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	
		SILTS AND CLAYS		OL	Organic Silts and Organic Silty Clays of Low Plasticity	
	SILTS AND CLAYS Liquid limit greater than 50%	SILTS AND CLAYS		MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils	
		SILTS AND CLAYS		CH	Inorganic Clays of High Plasticity, Fat Clays	
		SILTS AND CLAYS		OH	Organic Clays of Medium to High Plasticity, Organic Silts	
HIGHLY ORGANIC SOILS			PT	Peat, Humus, Swamp Soils with High Organic Contents		

STRATIFICATION	
DESCRIPTION	THICKNESS
Seam	up to 1/8"
Layer	1/8" - 12"

STRATIFICATION
 Occasional: One or less per 6" of thickness
 Numerous: More than one per 6" of thickness.

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Bulk/Bag Sample
- Standard Penetration Split Spoon Sampler
- Rock Core
- No Recovery
- 3.25" OD
2.42" ID
D&M Sampler
- 3.0" OD
2.42" ID
D&M Sampler
- California Sampler
- Thin Wall

LOG KEY SYMBOLS

- Water Level

Note: Dual Symbols are used to indicate borderline soil classifications

AMERICA FIRST CREDIT UNION
JOB NO. 1242-013-14

CEDAR HILLS DRIVE

4800 WEST STREET

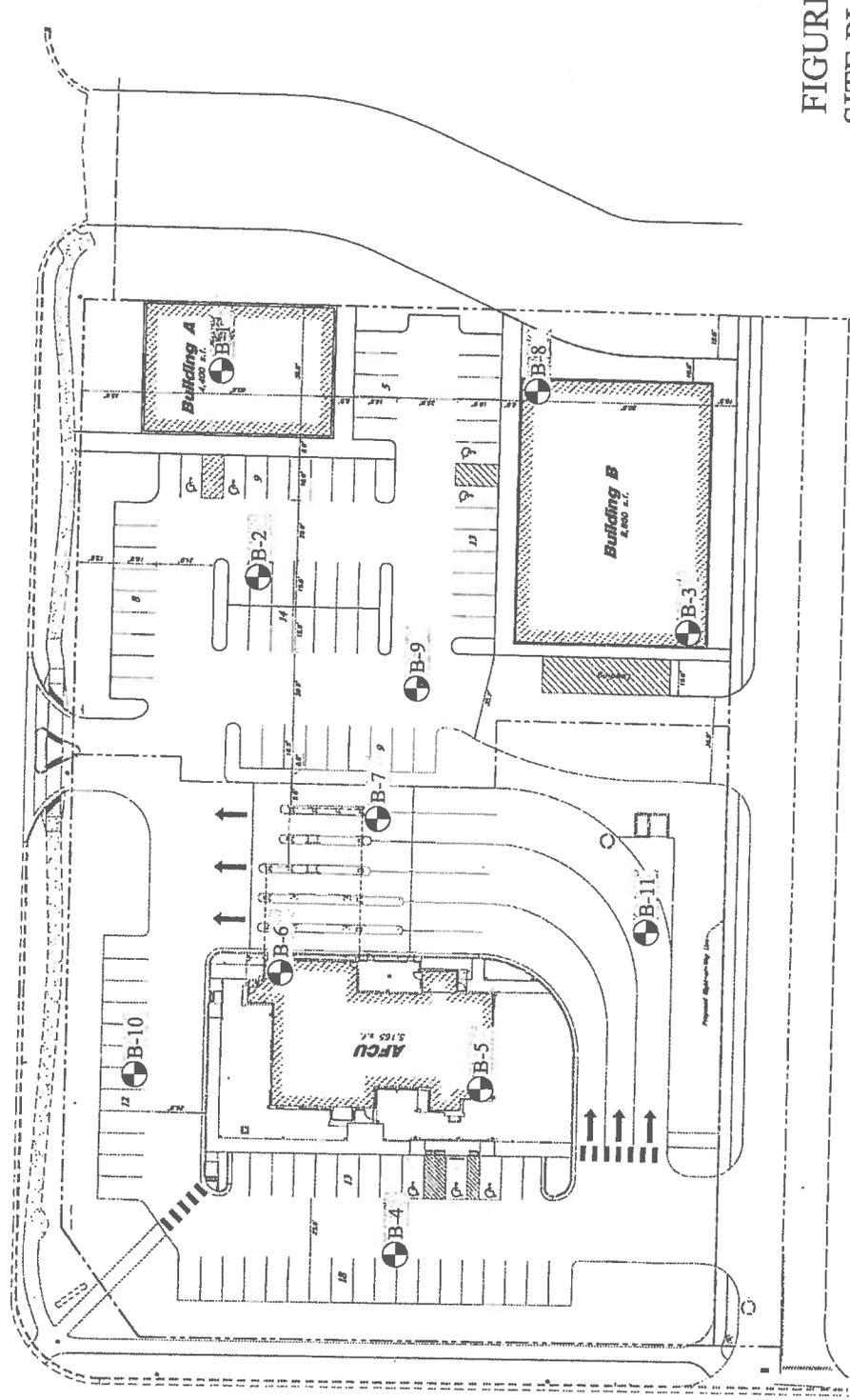


FIGURE 2
SITE PLAN
GSH

REFERENCE:
ADAPTED FROM DRAWING ENTITLED
"CONCEPTUAL SITE PLAN" BY GREAT BASIN ENGINEERING - SOUTH
DATED JANUARY 14, 2014

APPROXIMATE SCALE: 1"=45'

Job:
Type:
Notes:



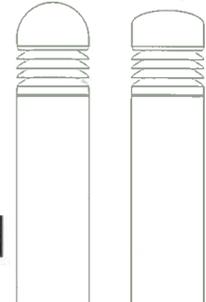
LED BOLLARD

Page 1 of 3

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring
Motion Response

Gardco's dome top and bevel top LED Louver Bollards provide uniform illumination, superior spacings and solid vandal resistance. Rugged extruded and cast construction with silicone seals and gasketing assure years of trouble free service. The BRM830 and BRM834 are complete assemblies with an aluminum base. BRM831 and BRM835 head only units affix to custom architectural elements. BRM833 and BRM837 luminaires include a concrete base assembly. Gardco's advanced stack-louver LED technology and Motion Response provide maximized light output and maximum energy savings.



Dome Top Bevel Top

PREFIX	HEIGHT	LED CONTROL	LED SELECTION	LIGHTED COVERAGE	VOLTAGE	FINISH	OPTIONS
BRM830	36	MR	NW	360	UNIV	WP	

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX

Dome Top	Bevel Top		HEIGHT
BRM830	BRM834	with Cast Aluminum Base	42" 36"
BRM831¹	BRM835¹	Head Only	11"
BRM833	BRM837	with Natural Concrete Base	42"
BRM833B	BRM837B	with Beige Concrete Base	42"
BRM833G	BRM837G	with Grey Concrete Base	42"

1. Not Available in 347V

HEIGHT

LED CONTROL

MR Motion Response
LEDs stay on Low Level (8 watts) when no motion is present. LEDs increase to full light output (41 watts) when motion detected.

CWL Constant Wattage Full Light Output
Full light output only (41 watts). No motion sensor included.

(Note: A variation of LED wattage (+/- 8%) may occur due to LED manufacturer's forward volt specification and ambient temperature.)

LED SELECTION

CW	6,500°K , 75CRI
NW	4,300°K , 75CRI
WW	3,000°K , 75CRI

Solid Colors

LA	Amber
LR	Red
LG	Green
LB	Blue

Consult factory for lead times on LEDs other than CW, NW, and WW.

LIGHTED COVERAGE

360	360° lighted louvers
180	180° lighted louvers (Provides reduced backside light.)

VOLTAGE

UNIV	120V through 277V, 50hz to 60hz input.
347²	347V

Voltage Note:

2. 347V bollards require and include a step-down transformer in bollard. Not available in BRM831 or BRM835.

FINISH

BRP	Bronze Paint	OC	Optional Color Paint
BLP	Black Paint		Specify RAL designation as ex: OC-RAL7024.
WP	White Paint		
NP	Natural Aluminum Paint		
BGP	Beige Paint	SC	Special Color Paint
VP	Verde Green Paint		Specify. Must supply color chip.
LGP	Light Granite Paint		
DGP	Dark Granite Paint		
LSP	Light Sandstone Paint		
DSP	Dark Sandstone Paint		
RBP	Red Brick Paint		

OPTIONS

SPR	Surge Protection for 120V through 277V Input meeting ANSI C62.41.2
SPRH	Surge Protection for 347V through 480V Input meeting ANSI C62.41.2

1611 Clovis Barker Road, San Marcos, TX 78666
(800) 227-0758 (512) 753-1000 FAX: (512) 753-7855 sitelighting.com

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Philips Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.

G200-009/1012

PHILIPS





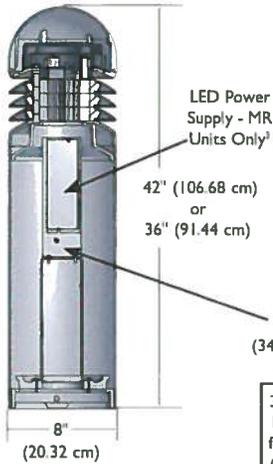
LED BOLLARD

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

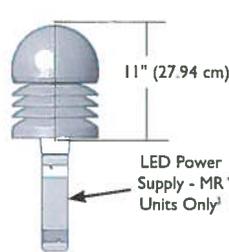
Featuring
Motion Response

DIMENSIONS

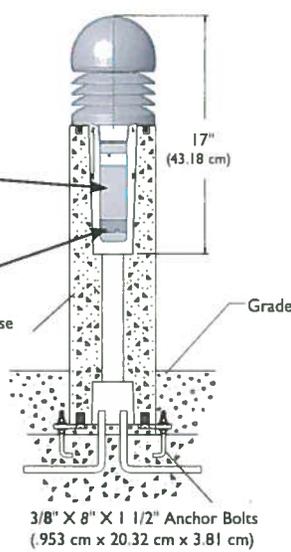
BRM830 / BRM834



BRM831 / BRM835

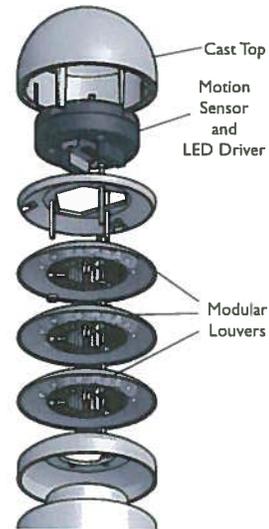


BRM833 / BRM837

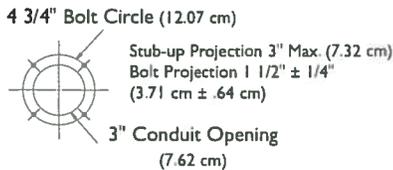


3. LED Power Supply locations shown are for Motion Response (MR) luminaires only. CWL luminaires feature the LED Power Supply in the bollard head.

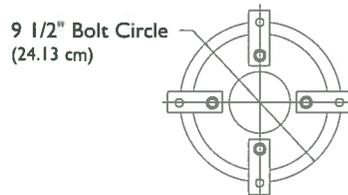
LED Bollard



BRM830 / BRM834



BRM833 / BRM837



NOTE: Factory supplied template must be used when setting anchor bolts. Philips Gardco will not honor any claim for incorrect anchorage placement from failure to use factory supplied templates.

PHILIPS





LED BOLLARD

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring
Motion Response

SPECIFICATIONS

UPPER HOUSING: Diecast aluminum dome top secures to one-piece louvered casting with three (3) concealed tamper resistant screws.

LOWER HOUSING:

BRM830 / BRM834 : Luminaire features a cylindrical .125" (.318 cm) wall 6063-T5 extruded aluminum base housing. Bottom section has a welded-in cast ring for attachment to base assembly with four (4) hex head set screws.

BRM831 / BRM835 : Louver head assembly is affixed to ballast mounting bracket which is suitable for insertion into architectural elements (by others).

BRM 833 / BRM837: Luminaire includes a pre-cast concrete base constructed with steel molds and wire reinforcing. Base is acid-etched to provide a smooth textured aggregate finish.

LED PERFORMANCE:

PREDICTED LUMEN DEPRECIATION DATA ⁴		
Ambient Temperature °C	Driver mA	L ₇₀ Hours ⁵
15 °C	350	112,000
25 °C	350	90,000
40 °C	350	65,000

4. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
5. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output.

OPTICAL SYSTEM: Gardco LED Bollards feature the advanced Gardco stacked louver LED technology, assuring maximized light output. Each individual louver is replaceable if needed or desired.

ANCHORAGE:

BRM830 / BRM834: Base assembly consists of a cast aluminum platform and ballast mounting bracket. Assembly is secured and leveled to the mounting foundation with four (4) 3/8" X 8" x 1 1/2" (.953 cm x 20.32 cm x 3.81 cm) anchor bolts on a 4 3/4" (12.07 cm) bolt circle.

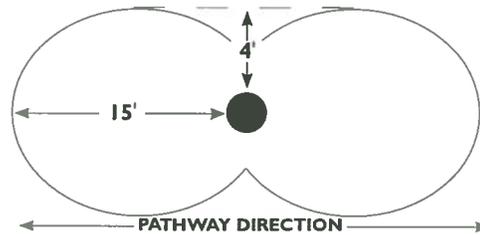
BRM 831 / BRM835: Mounting plate is cast aluminum with slots to accept anchor bolts (by others) at 90° on a 6 1/4" (15.88 cm) diameter bolt circle. A 4 1/2" (11.43 cm) diameter opening is required to house LED Power Supply for Motion Response (MR) units.

BRM833 / BRM837: Base assembly consists of four (4) galvanized steel base tabs fastened to pre-cast concrete base. Assembly is secured and leveled to the mounting foundation with four (4) 3/8" X 8" X 1 1/2" (.953 cm x 20.32 cm x 3.81 cm) anchor bolts on a 9 1/2" (24.13 cm) bolt circle. Base is designed for 5" (12.7 cm) direct burial.

ELECTRICAL: For CWL bollards, the LED power supply is located within the bollard head. For Motion Response (MR) bollards the LED power supply is located within the bollard shaft. Bollards accept from 120 Volts through 277 Volts, 50hz to 60 hz, input. Bollards with 347V input require and include a step-down transformer (placed within the bollard shaft) to provide proper input voltage to the LED power supply. The LED driver is located in the upper dome. LED power supplies and LED drivers are replaceable. LEDs provided as specified.

Luminaires ordered with Motion Response include a microwave motion sensor. The motion sensor is completely and safely concealed within the LED Bollard head to avoid potential vandalism to the sensor. LEDs operate on Low Level (8 watts) when no motion is present. LEDs increase to full light output (41 watts) when motion is detected. Motion Response system permits adjustments for time on high level and motion sensitivity.

Approximate Motion Sensor Detection Pattern:



Bollard orientation is adjustable in 120° increments. Consult LED Bollard Motion Response installation instruction sheets for more detailed information concerning bollard placement and sensor performance.

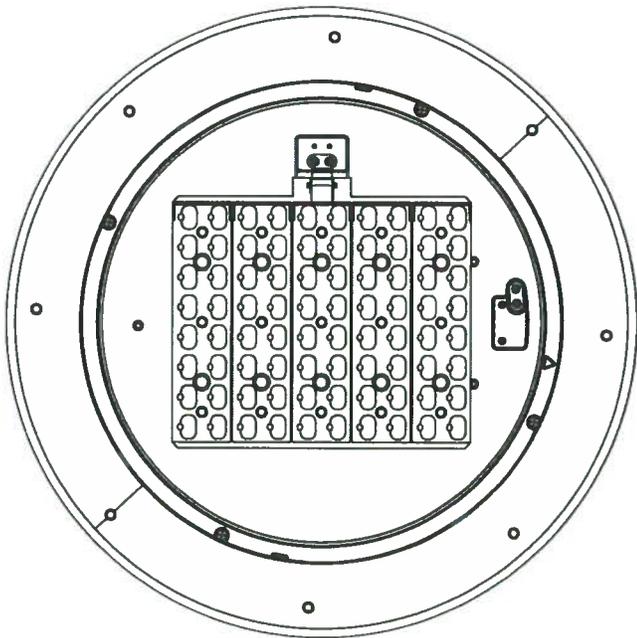
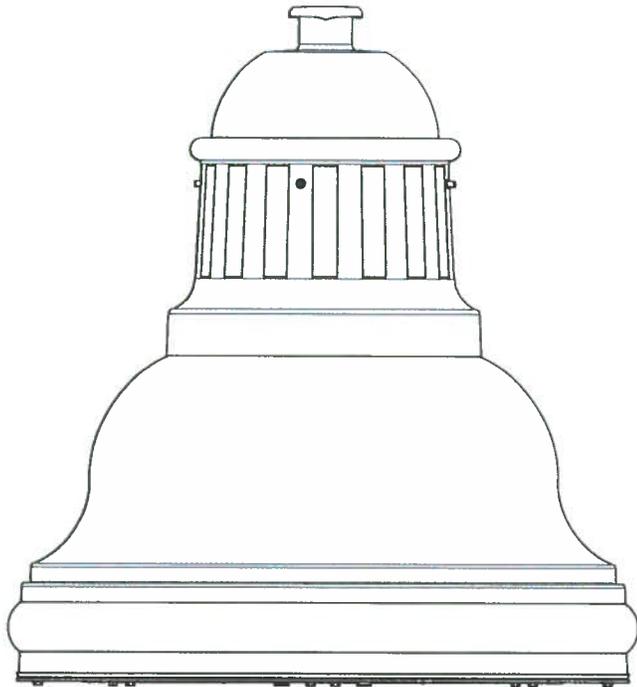
LUMINAIRE FINISH: Each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured textured powdercoat finish

LABELS: All luminaires bear UL or CUL (where applicable) Wet Location labels.

WARRANTY: Gardco luminaires feature a 5 year limited warranty. Gardco LED luminaires with LED arrays or modules feature a 5 year limited warranty covering the LED arrays or modules. See Warranty Information on www.sitelighting.com for complete details and exclusions.

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: CXF14 32 A 2 N A 3 N S F

Product Code	CXF14	Westbrooke LEDGINE
LED BOARDS	32 48 64 80	32 LED'S 48 LED'S 64 LED'S 80 LED'S
Finish	A B G H I J	Black White Verde Bronze Gray Green
Optics	2 3 4 5	Type II Type III Type IV Type V
Color Temperature	N	4000K
Voltage	A B	120-277 VAC 347-480 VAC
Drive Current	3	350 mA
Dimming Control	N DA DB DC DD DE DF DG DH DJ DZ	None 4 Hrs 25% Reduction 4 Hrs 50% Reduction 4 Hrs 75% Reduction 6 Hrs 25% Reduction 6 Hrs 50% Reduction 6 Hrs 75% Reduction 8 Hrs 25% Reduction 8 Hrs 50% Reduction 8 Hrs 75% Reduction Custom Dimming Schedule
Surge Suppression	S A	Standard Built In <3kV Additional 10kV/10kA
Options	F N	Fluted Spinning None

*1 Can not use B Voltage (347-480VAC) and can not use Dimming (DA-DZ) options with the 32LED board option.

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:

Specifications

APPLICATIONS:

The CXF14 is the perfect LED solution for decorative street lighting and is the ideal luminaire for both new and retrofit installations. Other application locations include: residential streets, city streets, campuses and parking lots. The performance, energy savings, and uniformity of this luminaire make it an ideal pendant LED solution.

CONSTRUCTION:

Containing no mercury or other hazardous chemicals, the CXF14 is fully recyclable. The housing is constructed of low copper die-cast aluminum and 0.090" thick spun aluminum. The hinged lens frame is cast aluminum with a stainless steel spring latch for tool-less lamp access. All non-ferrous fasteners prevent corrosion and ensure longer life. Mounting options include side arm, top arm and wall mount.

LED SPECIFICATIONS:

Refer to IES files for energy consumption and delivered lumens for each option. Based on in-situ thermal testing and data from Philips Lumileds and Philips Advance, fixture can be expected to reach 65,000 hours (at >L70 lumen maintenance @ 25°C). The Philips LEDGINE uses Philips Lumileds LEDs. Color temperatures available are ANSI Bin 4000KCCT. Four distributions are available including Type 2, 3, 4 and 5.

ELECTRONIC DRIVER:

The driver included in the LEDGINE Pendants is the Philips Advance XITANIUM LED driver. Standard driver offers 0-10V dimming capability and universal voltage input from 120-277VAC or 347-480VAC. 40 LED options are not available with 0-10V dimming or 347-480V. Input frequency is 50-60Hz and all XITANIUM drivers are RoHS compliant. The driver has <3kV surge suppression built in, 10kV is an additional option.

FINISH:

Thermoset polyester powdercoat is electrostatically applied after a five-stage conversion cleaning process and bonded by heat fusion thermosetting. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B117 specifications. Powdercoat is 3.0 - 6.0 mil thickness. Interior Coating: approximately 2 ft. at base end of shaft is mechanically cleaned and coated with a zinc rich epoxy powder.

CONTROLS:

The Philips Dynadimmer is an option with this fixture. There are 9 standard factory set dimming schedules available. See specification sheet for details. A custom dimming schedule is available by contacting the factory. Wireless dimming options are also available, contact the factory for details.

IP RATING:

IP66: Dust-tight and sealed against direct jets of water. No Ingress of dust. Will withstand 26.4 gallons of water per minute. Water projected in powerful jets shall not enter the enclosure in harmful quantities. The LED optics chamber is IP66 rated.

CERTIFICATIONS:

ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. UL8750 and UL1598 compliant. Vibration tested to ANSI C136.31 for Normal Applications. Manufactured to ISO 9001:2008 Standards.

WARRANTY:

5 year extended warranty

OPTIONS:

Optional integral surge suppression device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground. Enclosure for surge suppression device is constructed of high temperature, flameproof material with an 85°C maximum surface temperature rating. The device consists of a thermally protected transient overvoltage circuit and is designed for use with universal voltage ballasts and drivers.

Width:

21" (diameter)

Height :

22 5/16"

EPA:

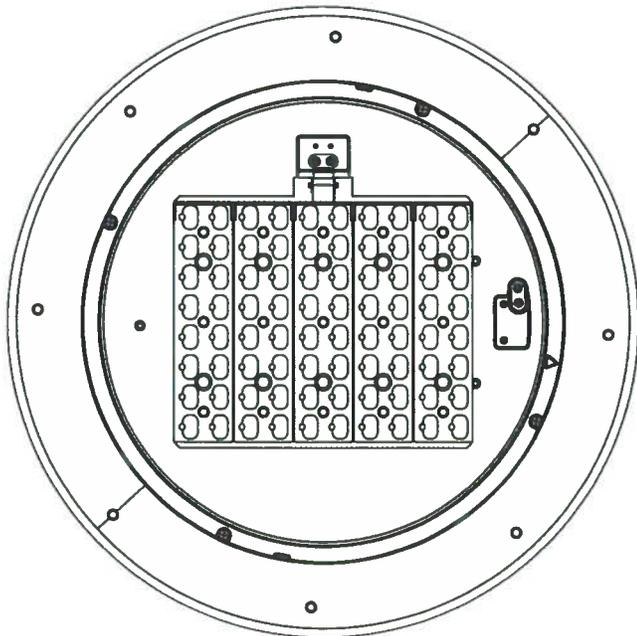
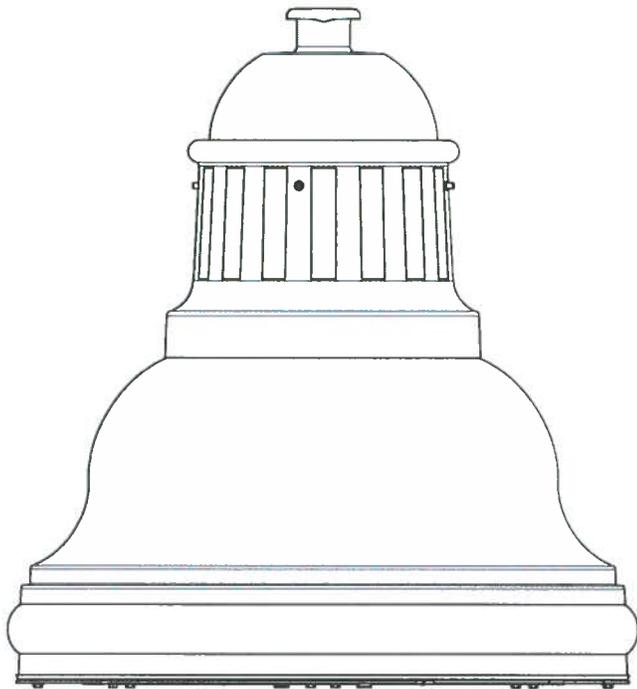
1.6 sq ft

Max. Weight:

38 lbs

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: CXF14 32 A 2 N A 3 N S F

Product Code	CXF14	Westbrooke LEDGINE
LED BOARDS	32	32 LED'S
	48	48 LED'S
	64	64 LED'S
	80	80 LED'S
Finish	A	Black
	B	White
	G	Verde
	H	Bronze
	I	Gray
	J	Green
Optics	2	Type II
	3	Type III
	4	Type IV
	5	Type V
Color Temperature	N	4000K
Voltage	A	120-277 VAC
	B	347-480 VAC
Drive Current	3	350 mA
Dimming Control	N	None
	DA	4 Hrs 25% Reduction
	DB	4 Hrs 50% Reduction
	DC	4 Hrs 75% Reduction
	DD	6 Hrs 25% Reduction
	DE	6 Hrs 50% Reduction
	DF	6 Hrs 75% Reduction
	DG	8 Hrs 25% Reduction
	DH	8 Hrs 50% Reduction
	DJ	8 Hrs 75% Reduction
	DZ	Custom Dimming Schedule
Surge Suppression	S	Standard Built In <3kV
	A	Additional 10kV/10kA
Options	F	Fluted Spinning
	N	None

*1 Can not use B Voltage (347-480VAC) and can not use Dimming (DA-DZ) options with the 32LED board option.

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:

Specifications

APPLICATIONS:

The CXF14 is the perfect LED solution for decorative street lighting and is the ideal luminaire for both new and retrofit installations. Other application locations include: residential streets, city streets, campuses and parking lots. The performance, energy savings, and uniformity of this luminaire make it an ideal pendant LED solution.

CONSTRUCTION:

Containing no mercury or other hazardous chemicals, the CXF14 is fully recyclable. The housing is constructed of low copper die-cast aluminum and 0.090" thick spun aluminum. The hinged lens frame is cast aluminum with a stainless steel spring latch for tool-less lamp access. All non-ferrous fasteners prevent corrosion and ensure longer life. Mounting options include side arm, top arm and wall mount.

LED SPECIFICATIONS:

Refer to IES files for energy consumption and delivered lumens for each option. Based on in-situ thermal testing and data from Philips Lumileds and Philips Advance, fixture can be expected to reach 65,000 hours (at >L70 lumen maintenance @ 25°C). The Philips LEDGINE uses Philips Lumileds LEDs. Color temperatures available are ANSI Bin 4000KCCT. Four distributions are available including Type 2, 3, 4 and 5.

ELECTRONIC DRIVER:

The driver included in the LEDGINE Pendants is the Philips Advance XITANIUM LED driver. Standard driver offers 0-10V dimming capability and universal voltage input from 120-277VAC or 347-480VAC. 40 LED options are not available with 0-10V dimming or 347-480V. Input frequency is 50-60Hz and all XITANIUM drivers are RoHS compliant. The driver has <3kV surge suppression built in, 10kV is an additional option.

FINISH:

Thermoset polyester powdercoat is electrostatically applied after a five-stage conversion cleaning process and bonded by heat fusion thermosetting. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B117 specifications. Powdercoat is 3.0 - 6.0 mil thickness. Interior Coating: approximately 2 ft. at base end of shaft is mechanically cleaned and coated with a zinc rich epoxy powder.

CONTROLS:

The Philips Dynadimmer is an option with this fixture. There are 9 standard factory set dimming schedules available. See specification sheet for details. A custom dimming schedule is available by contacting the factory. Wireless dimming options are also available, contact the factory for details.

IP RATING:

IP66: Dust-tight and sealed against direct jets of water. No ingress of dust. Will withstand 26.4 gallons of water per minute. Water projected in powerful jets shall not enter the enclosure in harmful quantities. The LED optics chamber is IP66 rated.

CERTIFICATIONS:

ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. UL8750 and UL159B compliant. Vibration tested to ANSI C136.31 for Normal Applications. Manufactured to ISO 9001:2008 Standards.

WARRANTY:

5 year extended warranty

OPTIONS:

Optional integral surge suppression device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground. Enclosure for surge suppression device is constructed of high temperature, flameproof material with an 85°C maximum surface temperature rating. The device consists of a thermally protected transient overvoltage circuit and is designed for use with universal voltage ballasts and drivers.

Width:

21" (diameter)

Height :

22 5/16"

EPA:

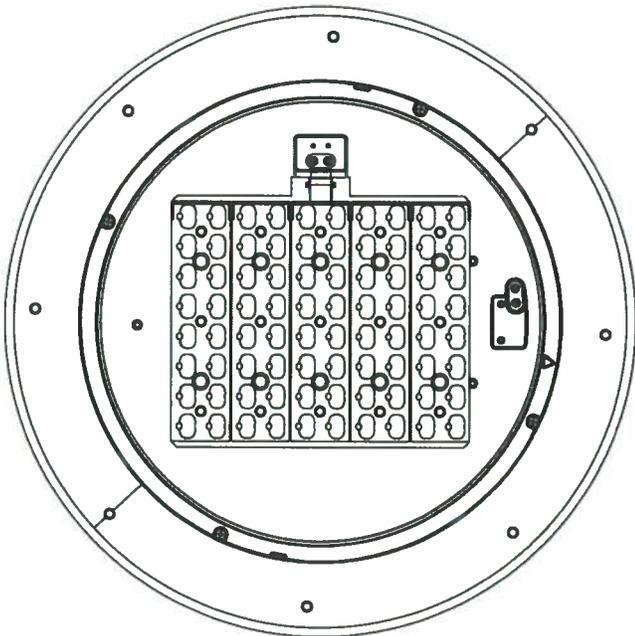
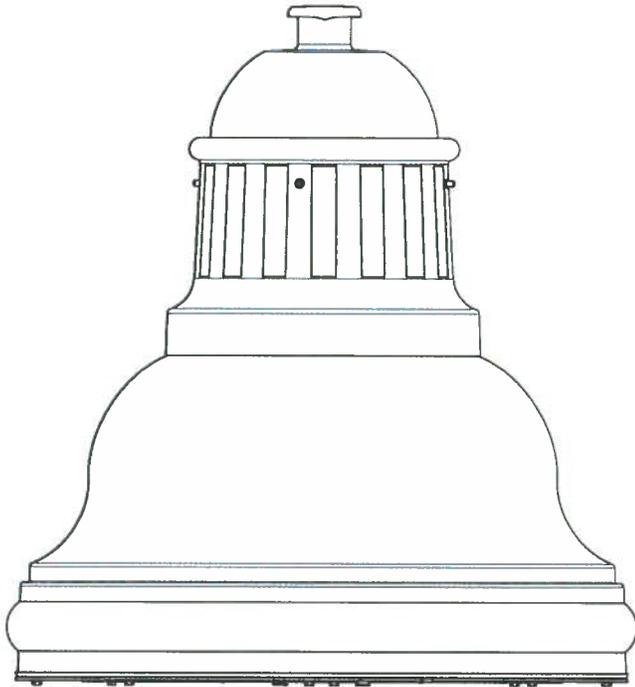
1.6 sq ft

Max. Weight:

38 lbs

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: CXF14 32 A 2 N A 3 N S F

Product Code	CXF14	Westbrooke LEDGINE
LED BOARDS	32	32 LED'S
	48	48 LED'S
	64	64 LED'S
	80	80 LED'S
Finish	A	Black
	B	White
	G	Verde
	H	Bronze
	I	Gray
	J	Green
Optics	2	Type II
	3	Type III
	4	Type IV
	5	Type V
	Color Temperature	N
Voltage	A	120-277 VAC
	B	347-480 VAC
Drive Current	3	350 mA
Dimming Control	N	None
	DA	4 Hrs 25% Reduction
	DB	4 Hrs 50% Reduction
	DC	4 Hrs 75% Reduction
	DD	6 Hrs 25% Reduction
	DE	6 Hrs 50% Reduction
	DF	6 Hrs 75% Reduction
	DG	8 Hrs 25% Reduction
	DH	8 Hrs 50% Reduction
	DJ	8 Hrs 75% Reduction
	DZ	Custom Dimming Schedule
Surge Suppression	S	Standard Built In <3kV
	A	Additional 10kV/10kA
Options	F	Fluted Spinning
	N	None

*1 Can not use B Voltage (347-480VAC) and can not use Dimming (DA-DZ)options with the 32LED board option.

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:

Specifications

APPLICATIONS:

The CXF14 is the perfect LED solution for decorative street lighting and is the ideal luminaire for both new and retrofit installations. Other application locations include: residential streets, city streets, campuses and parking lots. The performance, energy savings, and uniformity of this luminaire make it an ideal pendant LED solution.

CONSTRUCTION:

Containing no mercury or other hazardous chemicals, the CXF14 is fully recyclable. The housing is constructed of low copper die-cast aluminum and 0.090" thick spun aluminum. The hinged lens frame is cast aluminum with a stainless steel spring latch for tool-less lamp access. All non-ferrous fasteners prevent corrosion and ensure longer life. Mounting options include side arm, top arm and wall mount.

LED SPECIFICATIONS:

Refer to IES files for energy consumption and delivered lumens for each option. Based on in-situ thermal testing and data from Philips Lumileds and Philips Advance, fixture can be expected to reach 65,000 hours (at >L70 lumen maintenance @ 25°C). The Philips LEDGINE uses Philips Lumileds LEDs. Color temperatures available are ANSI Bin 4000KCCT. Four distributions are available including Type 2, 3, 4 and 5.

ELECTRONIC DRIVER:

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FINISH:

Thermoset polyester powdercoat is electrostatically applied after a five-stage conversion cleaning process and bonded by heat fusion thermosetting. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B117 specifications. Powdercoat is 3.0 - 6.0 mil thickness. Interior Coating: approximately 2 ft. at base end of shaft is mechanically cleaned and coated with a zinc rich epoxy powder.

CONTROLS:

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IP RATING:

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CERTIFICATIONS:

ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. UL8750 and UL1598 compliant. Vibration tested to ANSI C136.31 for Normal Applications. Manufactured to ISO 9001:2008 Standards.

WARRANTY:

5 year extended warranty

OPTIONS:

Optional Integral surge suppression device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground. Enclosure for surge suppression device is constructed of high temperature, flameproof material with an 85°C maximum surface temperature rating. The device consists of a thermally protected transient overvoltage circuit and is designed for use with universal voltage ballasts and drivers.

Width:

21" (diameter)

Height :

22 5/16"

EPA:

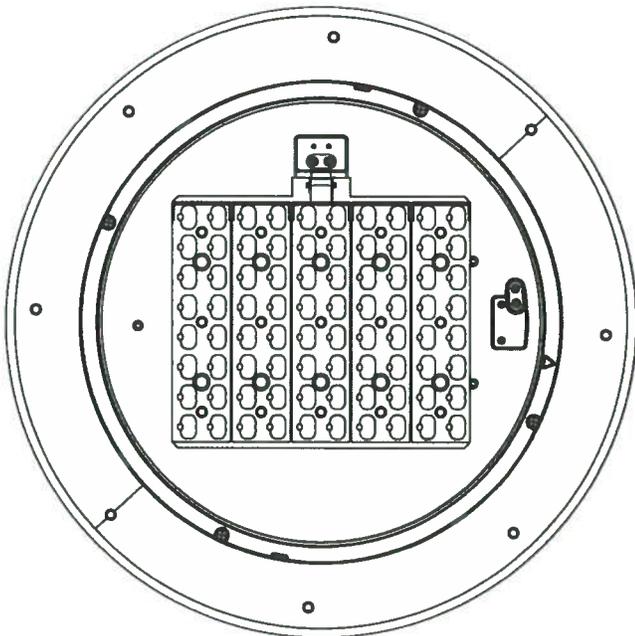
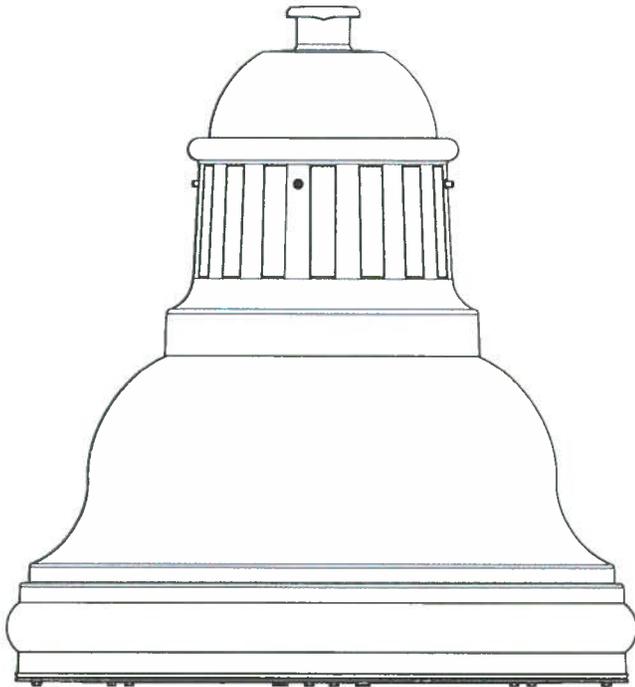
1.6 sq ft

Max. Weight:

36 lbs

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: CXF14 32 A 2 N A 3 N S F

Product Code	CXF14	Westbrooke LEDGINE
LED BOARDS	32	32 LED'S
	48	48 LED'S
	64	64 LED'S
	80	80 LED'S
Finish	A	Black
	B	White
	G	Verde
	H	Bronze
	I	Gray
	J	Green
Optics	2	Type II
	3	Type III
	4	Type IV
	5	Type V
Color Temperature	N	4000K
Voltage	A	120-277 VAC
	B	347-480 VAC
Drive Current	3	350 mA
Dimming Control	N	None
	DA	4 Hrs 25% Reduction
	DB	4 Hrs 50% Reduction
	DC	4 Hrs 75% Reduction
	DD	6 Hrs 25% Reduction
	DE	6 Hrs 50% Reduction
	DF	6 Hrs 75% Reduction
	DG	8 Hrs 25% Reduction
	DH	8 Hrs 50% Reduction
	DJ	8 Hrs 75% Reduction
	DZ	Custom Dimming Schedule
Surge Suppression	S	Standard Built In <3kV
	A	Additional 10kV/10kA
Options	F	Fluted Spinning
	N	None

*1 Can not use B Voltage (347-480VAC) and can not use Dimming (DA-DZ) options with the 32LED board option.

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:

Specifications

APPLICATIONS:

The CXF14 is the perfect LED solution for decorative street lighting and is the ideal luminaire for both new and retrofit installations. Other application locations include: residential streets, city streets, campuses and parking lots. The performance, energy savings, and uniformity of this luminaire make it an ideal pendant LED solution.

CONSTRUCTION:

Containing no mercury or other hazardous chemicals, the CXF14 is fully recyclable. The housing is constructed of low copper die-cast aluminum and 0.090" thick spun aluminum. The hinged lens frame is cast aluminum with a stainless steel spring latch for tool-less lamp access. All non-ferrous fasteners prevent corrosion and ensure longer life. Mounting options include side arm, top arm and wall mount.

LED SPECIFICATIONS:

Refer to IES files for energy consumption and delivered lumens for each option. Based on in-situ thermal testing and data from Philips Lumileds and Philips Advance, fixture can be expected to reach 65,000 hours (at >L70 lumen maintenance @ 25°C). The Philips LEDGINE uses Philips Lumileds LEDs. Color temperatures available are ANSI Bin 4000KCCT. Four distributions are available including Type 2, 3, 4 and 5.

ELECTRONIC DRIVER:

The driver included in the LEDGINE Pendants is the Philips Advance XITANIUM LED driver. Standard driver offers 0-10V dimming capability and universal voltage input from 120-277VAC or 347-480VAC. 40 LED options are not available with 0-10V dimming or 347-480V. Input frequency is 50-60Hz and all XITANIUM drivers are RoHS compliant. The driver has <3kV surge suppression built in, 10kV is an additional option.

FINISH:

Thermoset polyester powdercoat is electrostatically applied after a five-stage conversion cleaning process and bonded by heat fusion thermosetting. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B117 specifications. Powdercoat is 3.0 - 6.0 mil thickness. Interior Coating: approximately 2 ft. at base end of shaft is mechanically cleaned and coated with a zinc rich epoxy powder.

CONTROLS:

The Philips Dynadimmer is an option with this fixture. There are 9 standard factory set dimming schedules available. See specification sheet for details. A custom dimming schedule is available by contacting the factory. Wireless dimming options are also available, contact the factory for details.

IP RATING:

IP66: Dust-tight and sealed against direct jets of water. No ingress of dust. Will withstand 26.4 gallons of water per minute. Water projected in powerful jets shall not enter the enclosure in harmful quantities. The LED optics chamber is IP66 rated.

CERTIFICATIONS:

ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. UL8750 and UL1598 compliant. Vibration tested to ANSI C136.31 for Normal Applications. Manufactured to ISO 9001:2008 Standards.

WARRANTY:

5 year extended warranty

OPTIONS:

Optional integral surge suppression device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground. Enclosure for surge suppression device is constructed of high temperature, flameproof material with an 85°C maximum surface temperature rating. The device consists of a thermally protected transient overvoltage circuit and is designed for use with universal voltage ballasts and drivers.

Width:

21" (diameter)

Height :

22 5/16"

EPA:

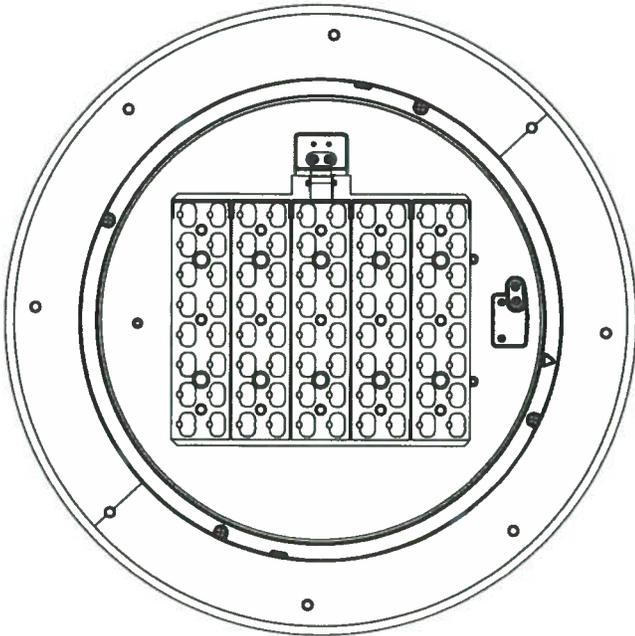
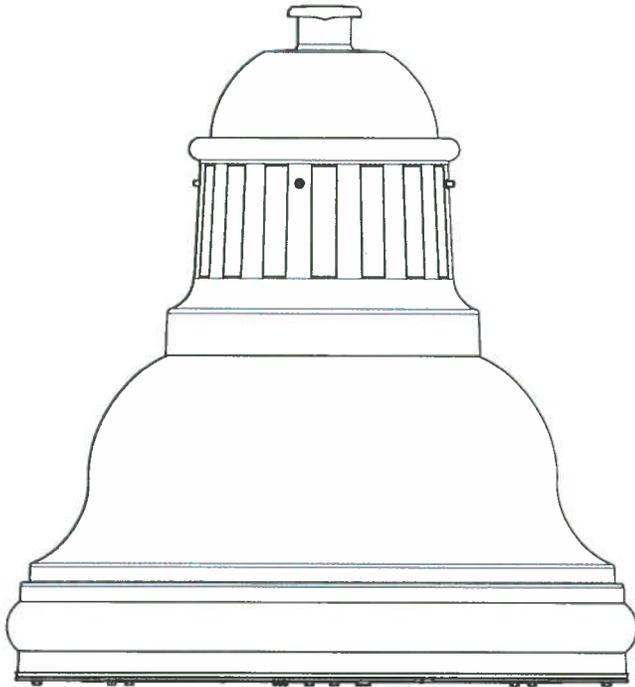
1.6 sq ft

Max. Weight:

38 lbs

Westbrooke LEDGINE (CXF14) Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: CXF14 32 A 2 N A 3 N S F

Product Code	CXF14	Westbrooke LEDGINE
LED BOARDS	32 48 64 80	32 LED'S 48 LED'S 64 LED'S 80 LED'S
Finish	A B G H I J	Black White Verde Bronze Gray Green
Optics	2 3 4 5	Type II Type III Type IV Type V
Color Temperature	N	4000K
Voltage	A B	120-277 VAC 347-480 VAC
Drive Current	3	350 mA
Dimming Control	N DA DB DC DD DE DF DG DH DJ DZ	None 4 Hrs 25% Reduction 4 Hrs 50% Reduction 4 Hrs 75% Reduction 6 Hrs 25% Reduction 6 Hrs 50% Reduction 6 Hrs 75% Reduction 8 Hrs 25% Reduction 8 Hrs 50% Reduction 8 Hrs 75% Reduction Custom Dimming Schedule
Surge Suppression	S A	Standard Built In <3kV Additional 10kV/10kA
Options	F N	Fluted Spinning None

*1 Can not use B Voltage (347-480VAC) and can not use Dimming (DA-DZ) options with the 32LED board option.

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21" (diameter)

Height :

22 5/16"

EPA:

1.6 sq ft

Max. Weight:

38 lbs



An Acuity Brands Company

AFCU
Saratoga

TYPE: UPI

IP68 1.5M

M9810

MODULAR IN-GRADE LUMINAIRE

MONOCHROMATIC LED SINGLE LENS

DESCRIPTION

The M9810 Modular In-grade lights are multi-purpose units designed for flush mounting in soil or concrete. The M9800's are used to uplight large architectural and landscape features. The units consist of a factory sealed lamp module placed in a secured Rough-In Section (RIS) which includes channeled convective cooling, an integral junction box, and door assembly.

FEATURES & SPECIFICATIONS

DOOR MATERIAL: Cast aluminum, cast bronze, round. Two stainless steel captive fasteners lock the Lamp Module into the Rough-In Section.

ROUGH-IN SECTION: Injection molded polymer cylinder with integral junction box for branch wiring (410 ccm - 25 in³), U.V. stabilized, impact and corrosion resistant for use in many environments. Houses Power Module, Lamp Modules and finishing components.

LAMP MODULE: Stainless steel, sealed and purged of all moisture with silicone rubber gasket, stainless steel clamp band and single fastener. Electrical connection to Lamp Module is done through submersible connector with gold-plated contacts. **(LED Array Included)**

LAMP TYPE: LED: Monochromatic LEDs, 84 Input Watts. Lumen maintenance of individual light sources has been independently tested using IESNA LM80 standards.

VOLTAGE: MVOLT (120-277)

DISTRIBUTION: See Ordering Guide

FINISHING SECTION: Single lens design includes door assembly with 360° Roto-Lock™ lamp module support ring. Module indexing provides easy maintenance and relamping without re-aiming. Active optical lenses are also available. Door trim locks into position with two stainless steel captive, tamper-resistant fasteners.

POWER MODULE: LED driver is encapsulated in a custom-heat dissipating epoxy resin to eliminate all moisture intrusion to the ballast. Provided with submersible rated cord/connector for connection to integral junction box and lamp module.

CONDUIT ENTRIES/JUNCTION BOX: Two 3/4" NPT bottom openings, standard. Box suitable for through branch wiring. J-Box volume 25 in³.

ACCESSORIES: Internal Glare Control, Rock Guards, Glare Shields are available.

LISTINGS: CSA, CSA_{US}

WARRANTY: Limited 5 year warranty for LED components (see Hydrel Terms & Conditions for details)

TYPE		JOB NAME				
PART NUMBER						
Model	Material	Lamp Type	Voltage	Distribution	Lens	
Conduit Entries	Accessories	Options	Lamp	Finish	Listing	
Bronze or Aluminum Round						
APPROVALS						

M9810 ORDERING INFORMATION

50/60 Hz Application

Choose the boldface catalog nomenclature that best suits your needs.

PART NO.
M9810 **B** **LED** **WHT41K** **MVOLT** **SP** **FLC10** **34B** **RG** **LP** **BZ**

EXAMPLE:

M9810	A	LED WHT53K	MVOLT	SP	FLC	34B	IHL	LP	BZ	IEC
Model	Lamp Type	Voltage	Lens	Accessories	Lamp	Listing				
<input type="checkbox"/> M9810 Round Single Lens	<input type="checkbox"/> LED	<input type="checkbox"/> MVOLT	<input type="checkbox"/> FLC ¹ Flat Lens Clear <input type="checkbox"/> FLC5 5°Axial Spread <input type="checkbox"/> FLC10 10°Tilt <input type="checkbox"/> FLC20 20°Tilt	Internal <input type="checkbox"/> IHL Internal Honeycomb Louver External² <input type="checkbox"/> GS Glare Shield <input type="checkbox"/> RG Rock guard Trims Rings <input type="checkbox"/> BTR Bronze trim ring	<input type="checkbox"/> LP Lamp Installed	<input type="checkbox"/> IEC International Electro-technical Commission. For European format only.				
Material	LED Color	Distributions	Conduit Entries	Options	Finish⁴					
<input type="checkbox"/> A Aluminum <input type="checkbox"/> B Bronze	<input type="checkbox"/> WHT30K White <input type="checkbox"/> WHT41K White <input type="checkbox"/> WHT53K White <input type="checkbox"/> RED Red <input type="checkbox"/> GRN Green <input type="checkbox"/> BLU Blue <input type="checkbox"/> AMB Amber	<input type="checkbox"/> SP Spot <input type="checkbox"/> MFL Medium Flood <input type="checkbox"/> WFL Wide Flood <input type="checkbox"/> LSD Linear Spread Distribution	<input type="checkbox"/> 20B ⁵ M20 Bottom <input type="checkbox"/> 25B ⁵ M20 Bottom <input type="checkbox"/> 34B ² 3/4"NPT bottom	<input type="checkbox"/> LDIM 0-10 Volt LED Dimming	<input type="checkbox"/> BL Black <input type="checkbox"/> BZ Bronze <input type="checkbox"/> DDB Dark Bronze <input type="checkbox"/> DNA Natural Alum. <input type="checkbox"/> GN Green <input type="checkbox"/> GR Gray <input type="checkbox"/> SND Sand <input type="checkbox"/> STG Steel Gray <input type="checkbox"/> TVG Terra Verde Green <input type="checkbox"/> WH White <input type="checkbox"/> CF Custom Finish					

Notes:

- ¹ FLC is the default lens if no option is chosen.
- ² 34B is the default conduit if no option is chosen.
- ³ Options are mutually exclusive, choose only one.
- ⁴ Finish only available on "A" door material.
- ⁵ For use with IEC only.



CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, Assistant City Manager
DATE:	3/27/2014

Planning Commission Agenda Item

SUBJECT:	Review/Recommendation on City Code Regarding Foster Care Housing
APPLICANT PRESENTATION:	N/A
STAFF PRESENTATION:	Chandler Goodwin, Assistant City Manager

BACKGROUND AND FINDINGS:

State code has been changed to allow for any single family residential unit to house up to four foster children. We have had a resident request that City Code reflect that change as well. City Code currently restricts the number of foster children to three unrelated foster care occupants. State code R501-12-6 (d) states, "No more than four foster children shall be in any one home".

PREVIOUS LEGISLATIVE ACTION:

N/A

FISCAL IMPACT:

N/A

SUPPORTING DOCUMENTS:**RECOMMENDATION:**

Staff recommends that Planning Commission consider updating this code to reflect the current State code R501-12-6 (d).

MOTION:

To recommend to the City Council that City Codes 10-4A-2, 10-4B-2, 10-4G-2, and 10-4H-2 be updated to reflect current State Code, allowing four (4) foster children to be housed, and also removing the word 'unrelated' from the City Code.



CITY OF CEDAR HILLS

TO:	Planning Commission
FROM:	Chandler Goodwin, Assistant City Manager
DATE:	3/27/2014

Planning Commission Agenda Item

SUBJECT:	Discussion on City Code 10-5-18F, Fences
APPLICANT PRESENTATION:	N/A
STAFF PRESENTATION:	Chandler Goodwin, Assistant City Manager

BACKGROUND AND FINDINGS:

City Council has recommended to the Planning Commission that they consider modifying current City Code regarding fencing along a park trail. Current code requires that fencing along trails be open fencing. (Open is defined as 40%) Residents have expressed interest in having private fencing options along the trail corridors, specifically Sugarloaf. The open fencing provision was originally passed to allow for more visibility and as a result increase safety along the trail. However there are sections of the trail that border main roads, such as Canyon Road, that a private fence would still leave the trail corridor visible. Council would like the Planning Commission to consider modifying the code to allow more private fencing in these areas of the trail corridor.

Sample code from Alpine and Highland address this issue by setting height and open restrictions along trail easements that don't meet a certain width requirement (i.e. no fence higher than 6' along a trail, open style fences are preferable).

PREVIOUS LEGISLATIVE ACTION:

N/A

FISCAL IMPACT:

N/A

SUPPORTING DOCUMENTS:

Street/Parkway Fence Overlay Map, Sample Codes from Highland and Alpine

RECOMMENDATION:

Staff recommends that the Planning Commission consider language to modify the current code to allow for private fencing along portions of the trail corridor.

MOTION:

No motion necessary, discussion item only.

Alpine :

3.21.6 FENCES, WALLS AND HEDGES (amended by Ordinance 2005-02, 2/8/05)

3.21.6.1 Front Yard Fences. Privacy fences, walls and hedges along the street frontage of a lot shall not exceed 3 feet in height when placed within 10 feet of the front property line. Open style fences shall not exceed 4 feet in height when placed within 10 feet of the front property line. Front yard fences may be 6 feet in height if they are placed at least 10 feet back from the front property line.

3.21.6.2 Interior Side Yard Fences. Fences along side yards shall not exceed 3 feet in height for privacy fences and 4 feet in height for open style fences when they are within 10 feet of the front property line. Side yard fences may be 6 feet in height when they are located at least 10 feet back from the front property line.

3.21.6.3 Rear Yard Fences. A rear yard fence may be 6 feet in height.

3.21.6.4 Corner Lot Fences within the Sight Triangle. The sight triangle on corner lots shall not be obstructed. Privacy fences, walls, or hedges shall not exceed three (3) feet in height, and open-style fences shall not exceed four (4) feet in height, when located within the sight triangle on a corner lot. The sight triangle is defined as the area formed by connecting the corner of the property to points 35 feet back along each property line abutting the street.

3.21.6.5 Corner Lot Fences outside the Sight Triangle. Side yard fences abutting the street may be 6 feet in height when they are located at least 35 feet back from the front property line, outside the sight triangle. For interior side fence see 3.21.6.2.

3.21.6.6 Fences in Excess of Six (6) Feet. Fences in excess of six (6) feet must be approved by the planning and zoning department and a building permit obtained.

3.21.6.7 Agricultural Fences. Fences on property where an identifiable commercial agricultural product is produced shall not exceed eight (8) feet in height, and shall be an open style fence.

3.21.6.8 Fences Along Public Open Space and Trails. See Articles 3.16, Section 3.16.10.1 and Article 3.17 Section 3.17.10.3.1.

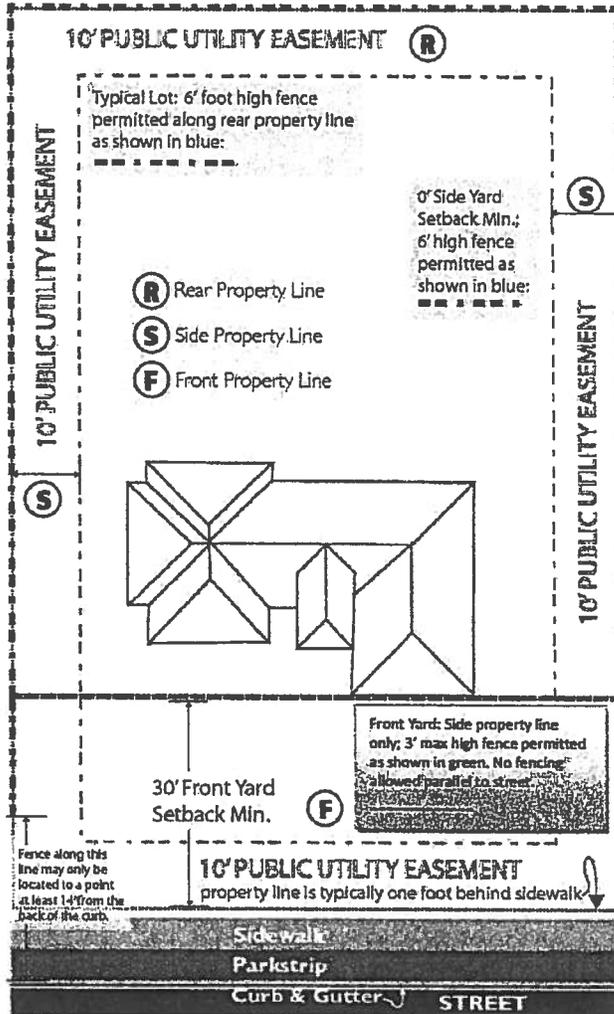
Fences or borders along property lines adjacent to a trail or open space must meet specific standards.

1. When the width of the open space or trail easement is less than 50 feet, bordering fences may not exceed 6 feet in height, and shall not obstruct visibility. (Open style fences such as rail fences, field fence, or chain link are preferable.)
2. When the width of the open space or trail easement is 50 feet or more, fence standards as specified elsewhere in this ordinance apply.
3. Fences and hedges must be completely within the boundaries of the private property.
4. Hedges or shrubs must be maintained to the same height requirements as fences.
5. The owner of the fence or hedge must maintain the side facing the open space.

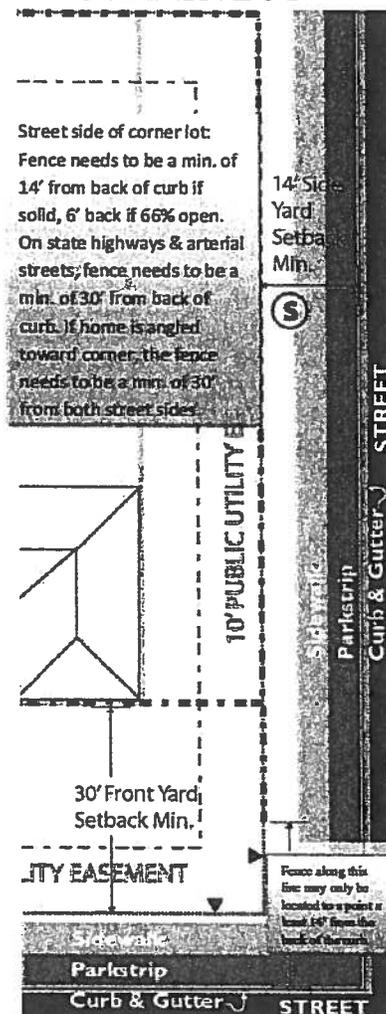


FENCES WALLS & HEDGES

TYPICAL LOT



CORNER LOT



LOTS ALONG OPEN SPACE AND /OR TRAILS HAVE ADDITIONAL RESTRICTIONS (please refer to Section 3-612 (J) of the Fence Ordinance). CONSERVATION EASEMENTS MAY HAVE ADDITIONAL RESTRICTIONS AND ARE OUTLINED ON THE RECORDED PLAT OF THE SUBDIVISION OR THE CC&R'S OF THE SUBDIVISION. NO FENCES MAY BE CONSTRUCTED WITHIN A SITE TRIANGLE (SEE REVERSE).

HIGHLAND CITY DEVELOPMENT CODE

screen trash enclosures, loading docks or out door storage areas as determined during the development review process.

- f. For the purposes of this section natural surveillance shall mean an area that maximizes natural visibility or observation where one feels they can be easily observed or monitored.

2) General

- a. The maximum height of any wall, fence, or hedge shall be measured from the highest adjacent finished surface of the ground, paving or sidewalk within five (5) feet of the base of the wall.
- b. The developer of property in a non-residential zoning district which abuts any residential district shall provide a screen wall with a minimum height of six (6) feet along the abutting property line.
- c. The developer of any nonresidential use in any residential district which abuts any residential district must provide a screen wall with a minimum height of six (6) feet along the abutting property line.
- d. The developer of any residential development with a density greater than six (6) units per acre which abut any R-1-40, R-1-20, or A-1 district must provide a screen wall with a minimum height of six (6) feet along the abutting property line.
- e. Any developer of residential subdivisions shall provide a six (6) foot theme wall adjacent to all arterial and collector streets, open space areas, and trails except as provide herein. Gates connecting to public areas may be allowed in theme walls if approved as part of the development review process.
- f. On all state highways or arterial streets, fences, walls, or hedges shall be setback a minimum of thirty (30) feet or from the back of curb or as required by the parkway detail. On all other streets the minimum setback shall be fourteen (14) feet from the back of curb. This setback may be reduced to six feet if the fence is 66% open.
- g. Walls, fences, or hedges on a side property line within the required front or corner side yard setback shall be three (3) feet maximum in height. However, in no event shall a fence be installed in a front yard parallel to a street.
- h. No wall or fence, or other obstruction shall be constructed in the road and walkway right of way.
- i. In areas behind a required front yard building setback and within the required rear and side yards, including walls for single-family dwellings, the maximum height of fences, walls, or hedges shall be six (6) feet.
- j. In areas where a fence, wall, or hedge is located adjacent to a trail or open space area less than forty (40) feet in width and excluding open space areas adjacent to a public street, or open space areas that are greater than forty (40) feet in width that cannot be seen from two public areas such as a street or park, bordering fences, walls, or hedges may not exceed six (6) feet in height of which the lower four (4) feet may be solid and the remaining two feet shall be a minimum of 55% open. The developer shall install all fencing adjacent to open space areas for new subdivisions.
 - 1. The Zoning Administrator may approve an alternative fence design for areas located adjacent to a trail or open space less than forty (40) feet in width and not installed by a developer, if the following findings can be met:
 - a. The proposed alternative meets the intent of this section; and,
 - b. There are special circumstances attached to the property that do not generally apply to other properties in the same subdivision; and,
 - c. And the natural surveillance, as defined herein, of the trail or open space is not diminished if the proposed alternative is constructed on all the lots adjacent to the trail or open space.
- k. Hedges shall be maintained to the same height requirement as fences.
- l. All fences, walls, or hedges shall not exceed a height of three (3) feet in the clear vision area and shall comply with the clear view area requirements as defined in Section 3-610 Clear View of Intersection Streets.
- m. Any loading docks within one hundred (100) feet of residential district must have a separate eight (8) foot high screen wall of similar materials compatible with the building design to screen the dock area.
- n. All outdoor storage areas shall be screened by a six (6) foot screen wall as required in this section.
- o. In those instances where a screen wall is erected as an enclosure, a gate of equal height shall be required in order to secure the enclosure. The gate shall be opaque and shall be compatible with the design of the building(s).

3) Materials and Design