



Wheels & Water LLC  
Austin, Texas 78723  
Texas Registered Engineering Firm F-19740  
<http://www.wheelsandwaterllc.com>

December 1, 2020

Mike McDougal  
Environmental Policy Program Manager  
City of Austin Watershed Protection Department  
505 Barton Springs Road  
Austin, Texas 78704

Re: Environmental variance requests for 1514 W. Koenig Lane Office Building, Austin, Texas 78756  
Case: SP-2019-0027C

To Mr. McDougal:

Per staff's determination, site plan case SP-2019-0027C must go to the Environmental Commission for a variance from Austin Land Development Code (LDC) section 25-8-261 because of the proposal to develop a three-story office building (the "proposed development") at 1514 West Koenig Lane within the Critical Water Quality Zone (CWQZ) of the Hancock Branch of Shoal Creek. LDC section 25-8-261 states the following:

*In all watersheds, development is prohibited in a critical water quality zone except as provided in this Division. Development allowed in the critical water quality zone under this Division shall be revegetated and restored within the limits of construction as prescribed by the Environmental Criteria Manual.*

The purposes of this letter are to 1) explain why staff's determination that this case needs a variance should be reconsidered, and 2) to request approval of the variance and describe findings of fact if there continues to be a determination that the variance is needed.

**Determination for Variance**

A request was made for staff to not apply the CWQZ to the property per LDC 25-8-92 (C) (2), which states:

*Notwithstanding the provisions of Subsection (C)(1), a critical water quality zone does not apply to a previously modified drainage feature serving a railroad or public roadway right-of-way that does not possess any natural and traditional character and cannot reasonably be restored to a natural condition.*

The last phrase "restored to a natural condition" indicates that the drainage feature referred to in LDC 25-8-92 (C) (2) is intended to be a feature that at one point was a natural drainage feature with natural condition. The Hancock Branch of Shoal Creek was clearly modified in the construction of the subdivision to be a drainage feature to serve the Arroyo Seco roadway within the public roadway right-of-way (Figure 1). The creek is hemmed in between the two Arroyo Seco roadways; therefore, not able to naturally meander (Figure 1 and Figure 2). Curb inlets from the street to the creek (Figure 2) indicate Hancock Branch was made to be the drainage feature for Arroyo Seco. Thus, this project should have been exempt

from the CWQZ regulations and not subject to requirement to go to the Environmental Commission for variance approval.

The intention of establishing a CWQZ is to create an area free of development to preserve the natural and traditional character of the waterway and for the treatment of water through natural means (e.g., flowing and infiltrating within the CWQZ). As can be seen in Figure 1, the CWQZ for the Hancock Branch north of Koenig Lane consists mostly of the paved Arroyo Seco roadway; therefore, for many decades, the Hancock Branch has not had a preserved CWQZ. The zone has consisted of primarily roadway pavement, with the road and surrounding development pre-dating the City's watershed protection ordinances.

For the CWQZ within the orange circle shown within Figure 1, Table 1 shows that about 50% of the CWQZ near the subject property is currently paved with impervious cover and 27% of the CWQZ at that intersection consists of roadway. Water quality controls do not exist for the roadways and the development.

Figure 2 shows photos of the creek consisting mostly of vegetation that is periodically mowed down for maintenance. There are no plans to remove Koenig Lane, Palo Duro Canyon, and Arroyo Seco roadways and the existing commercial and residential impervious cover to restore the CWQZ to a natural condition.

An open records request to identify what projects have received the LDC 25-8-92 (C) (2) exemption revealed that staff does not keep records on what properties did not have the CWQZ applied, therefore there is no way of knowing the consistency by which staff applies LDC 25-8-92 (C) (2).

*Figure 1. 1514 Koenig Lane Location within Critical Water Quality Zone  
(Source: Austin FloodPro website)*



Figure 1, continued

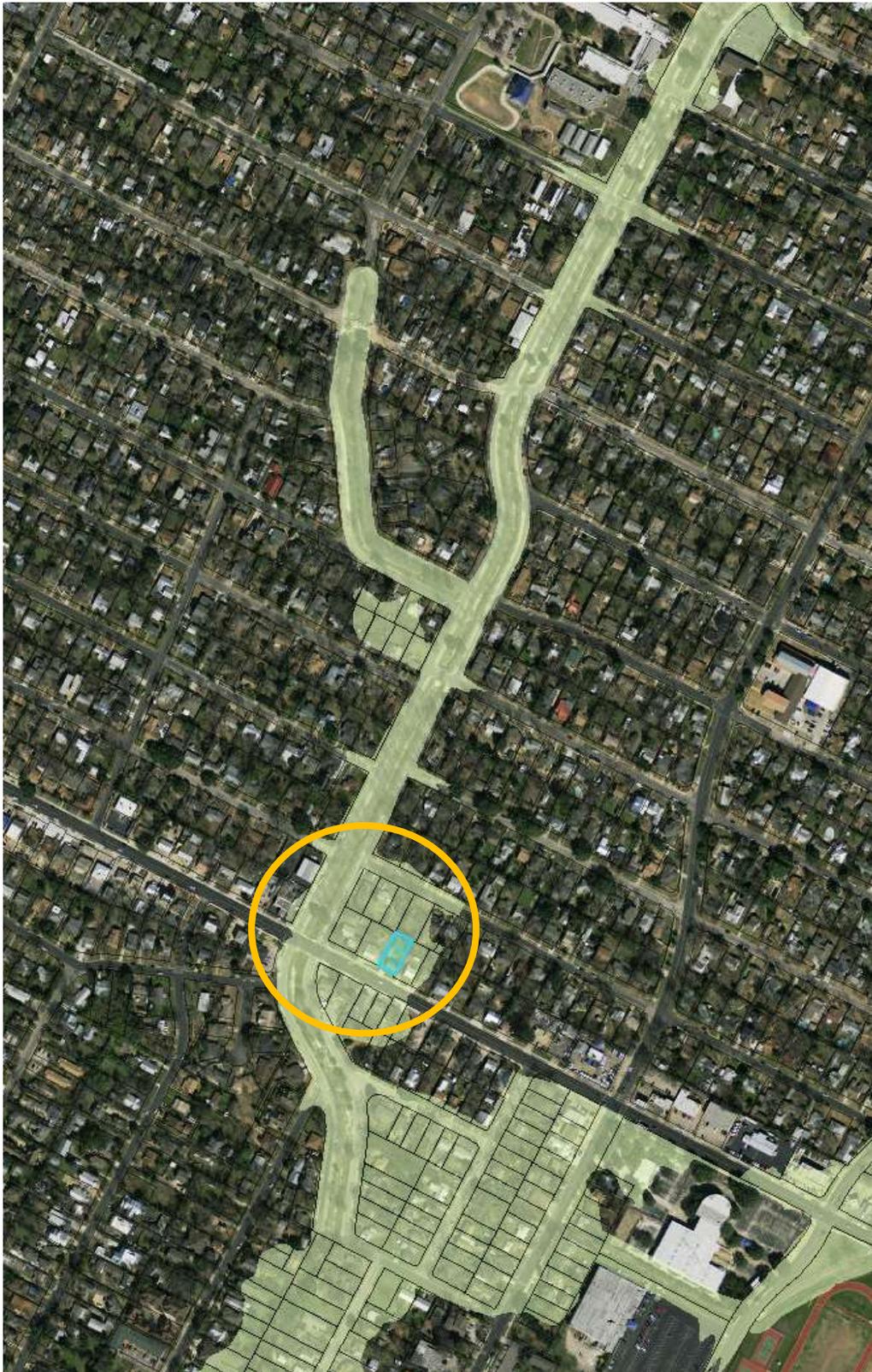


Figure 2. Photos of Hancock Branch at Arroyo Seco and Koenig Lane



**Variance Findings of Fact**

Per LDC section 25-8-41 (land use commission variances), a variance from LDC 25-8-261 requires consideration of the following items (in italics):

*(A) It is the applicant's burden to establish that the findings described in this Section have been met. Except as provided in Subsections (B) and (C), the Land Use Commission may grant a variance from a requirement of this subchapter after determining that:*

*(1) the requirement will deprive the applicant of a privilege available to owners of other similarly situated property with approximately contemporaneous development subject to similar code requirements;*

The proposed development consists of an office use and 70% impervious cover (maximum allowed by zoning). As can be seen from Table 1, the use and amount of impervious cover is similar to that of other office/commercial properties along Koenig Lane.

Table 1. Impervious Cover within Hancock Branch CWQZ

<u>Address/Feature</u>	<u>Land Use</u>	<u>Impervious Cover (sf)</u>	<u>% of Property</u>
1517 Palo Duro Canyon	Single-family residential	2,494	31%
1513 Palo Duro Canyon	Single-family residential	2,027	23%
1511 Palo Duro Canyon	Single-family residential	2,582	34%
1509 Palo Duro Canyon	Single-family residential	2,197	21%
1507 Palo Duro Canyon	Single-family residential	2,180	27%
1518 Koenig Lane	Office/Commercial	7,893	69%
1516 Koenig Lane	Office/Commercial	5,926	60%
1514 Koenig Lane	Office/Commercial	5,045	70%
1512 Koenig Lane	Office/Commercial	1,778	25%
1510 Koenig Lane	Office/Commercial	2,045	33%
1525 Koenig Lane	Office/Commercial	5,795	91%
1523 Koenig Lane	Office/Commercial	7,362	61%
1521 Koenig Lane	Office/Commercial	4,588	79%
1519 Koenig Lane	Office/Commercial	1,066	19%
1517 Koenig Lane	Office/Commercial	1,692	27%
1515 Koenig Lane	Office/Commercial	1,697	28%
1520 Ullrich Avenue	Single-family residential	2,579	
1518 Ullrich Avenue	Single-family residential	283	
Palo Duro Road east side	Roadway	16,190	
Palo Duro Road west side	Roadway	3,389	
Arroyo Seco east side	Roadway	9,706	
Arroyo Seco west side	Roadway	10,655	
Arroyo Seco south side	Roadway	9,024	
Koenig Lane	Roadway	18,686	
Total Roadway in CWQZ		67,649	27%
Total Impervious Cover in CWQZ		126,876	50%
Total CWQZ Area		254,245	

(2) *the variance:*

(a) *is not necessitated by the scale, layout, construction method, or other design decision made by the applicant, unless the design decision provides greater overall environmental protection than is achievable without the variance;*

The proposed development consists of the building and parking deck elevated above the 100-year floodplain elevation, such that there is no impervious cover directly on the ground (except for structural supports) and no volumetric impact on the floodplain; the 25-year floodwater is free to flow throughout the property on pervious ground. For the design of the site, major reductions to on-site parking were pursued (shower facilities, off-site parking, urban core reduction), resulting in a reduction of on-site parking from the 15 required to a total of 10 spaces provided.

The site already consists of 35.5% impervious cover from the existing house, garage, sidewalks, and compacted driveway. The proposed development consists of 70% impervious cover, for a net increase of impervious cover of 2,657 sf. LDC 25-8-211 states that development is required to provide water quality controls when the total of new and redeveloped impervious cover exceeds 8,000 sf. The proposed

development is not required to provide water quality controls since total impervious cover proposed (5,055 sf) is less than 8,000 sf. In addition, LDC 25-8-261 (H) (see below) states that water quality controls within the CWQZ are not permitted within the 100-year floodplain.

*(b) is the minimum deviation from the code requirement necessary to allow a reasonable use of the property; and*

The variance to LDC 25-8-261 is required because the proposed development is located within the CWQZ for Hancock Branch. Under the LDC, development is not allowed within the CWQZ. A variance is required to have any use of the property (other than continuation of the existing use, which does not comply with current floodplain regulations). The proposed development consists of an elevated office building and parking deck with reduced parking. The increase of impervious cover from 2,399 sf to 5,055 sf is minimal deviation considering the entire development is elevated above the ground and does not trigger water quality control requirements per the previously mentioned LDC 25-8-211.

*(c) does not create a significant probability of harmful environmental consequences; and*

LDC 25-8-211 states that development is required to provide water quality controls when the total of new and redeveloped impervious cover exceeds 8,000 sf. The proposed development's total impervious cover proposed (5,055 sf) is less than 8,000 sf. Presumably, the LDC uses 8,000 sf as the threshold based on assessment of the environmental consequences for impervious cover that exceeds 8,000 sf. In addition, the building and parking deck are elevated, such that the site is pervious to the 25-year floodwaters.

*(3) development with the variance will result in water quality that is at least equal to the water quality achievable without the variance.*

The proposed development results in an increase in impervious cover; however, the increase in impervious cover is still below the LDC 25-8-211 threshold for the requirement to provide on-site water quality controls.

Staff recommends that water quality controls be provided on the property as a condition for a supportive staff recommendation to construct the proposed development on the property. However, LDC 25-8-261 (H) does not permit water quality controls within the CWQZ since the property is within the 100-year floodplain:

*(H) In the urban and suburban watersheds, vegetative filter strips, rain gardens, biofiltration ponds, areas used for irrigation or infiltration of stormwater, or other controls as prescribed by rule are allowed in the critical water quality zone if:*

*(1) in an urban watershed and located not less than 50 feet from the centerline of a waterway, or in a watershed other than urban and located no less than 50 feet from the centerline of a minor waterway, no less than 100 feet from the centerline of an intermediate waterway, and no less than 150 feet from the centerline of a major waterway;*

*(2) located not less than 50 feet from the shoreline of Lady Bird Lake and Lake Walter E. Long, as defined in Section 25-8-92;*

*(3) located not less than 100 feet from the ordinary high water mark of the Colorado River downstream from Longhorn Dam;*

*(4) located outside the 100-year floodplain; and*

*(5) located outside the erosion hazard zone, unless protective works are provided as prescribed in the Drainage Criteria Manual.*

To comply with staff’s recommendation to provide on-site water quality controls requires a variance from LDC 25-8-261 (H).

If the property must comply with staff’s requests, the proposed development can include an on-site water quality control provided by a rain cistern that will collect rainwater off the roof of the proposed building (to capture the water quality volume, WQV). The WQV can then be used for irrigation of the northeast portion of the site. Because the area available on the site is up from the location of the rain cistern (at higher elevation), the option to gravity drain to the vegetated area for infiltration is not available. The water quality control will require an irrigation pump system.

Since water quality controls are currently not required or provided for the existing development, the WQV captured by the rain cistern from the proposed building roof will result in a gain in WQV treated above existing conditions (4 cf).

*Table 2. Water Quality Volume Summary Table*

	Impervious Cover	Water Quality Volume (WQV)
Existing Development WQV, Not Treated	2399 sf	260 cf
Proposed Building WQV, Treated	2576 sf	279 cf
Proposed Non-Building WQV, Not Treated	2357 sf	255 cf
Additional WQV Required (to maintain existing conditions): Proposed Required WQV (279 cf + 255 cf) – Existing Required WQV (260 cf)		274 cf
Proposed Treated WQV (279 cf) – Additional WQV Required (274 cf)		4 cf

Table 3 presents the Appendix R calculations for the rain cistern capturing building roof runoff. The area to be irrigated by the WQV is in the northeast corner of the site.

For this property, water quality controls are not permitted in the 100-year floodplain, water quality controls are not required for the amount of impervious cover proposed, and the site is pervious to the 25-year floodwaters. If the Commission chooses to require water quality controls, a rain cistern and irrigation system have been proposed.

Table 3. Appendix R Calculations for Rain Cistern Capturing Building Roof Runoff

APPENDIX R RAIN HARVESTING WATER QUALITY CONTROL			
<b>RAIN CISTERN FOR ROOF AREA</b>			
<b>DRAINAGE DATA</b>		<b>Notes</b>	
Drainage Area to Control (sf)	2573	sf	Roof area
Drainage Area to Control (DA)	0.0591	acres	The DA draining to the water quality control
Drainage Area Impervious Cover	100	%	The impervious cover within the DA
Minimum Capture Depth	0.5	inches	
Impervious Cover Above 20%	80		If project outside Barton Springs Zone
Divide by 10	8		
Additional Depth (0.1in /10% IC above 20%)	0.8	inches	
Total Capture Depth (CD)	1.3	inches	
<b>WATER QUALITY CONTROL CALCULATIONS</b>			
Required Water Quality Volume (WQV)	278.74	cf	Equals CD * DA * 3630
Provided WQV	278.74	cf	Rain Cistern Volume
Provided WQV (gallons)	2085.3	gallons	Install minimum 2100 gallon tank
Provided WQV (inches)	1.3	inches	
<b>OPTION B : Irrigate Vegetated Area</b>			
Soil Permeability	0.14	in/hour	
Drawdown Time (DDT)	48	hours	Max 120 hours
Irrigation Rate	0.1	in/hour	
Irrigation Area Required	110.6	sf	Estimate equals (2*WQV provided)/(k*(DDT-LT))
Irrigation Area Provided	716.3	sf	
<b>WATER QUALITY CREDIT</b>			
Impervious cover (total site area)	5054	sf or acres	
Impervious cover (water quality DA)	2573	sf or acres	
Impervious Area Factor (IAF)	0.51	DA imp cover/Total site area impervious cover (max 1.0)	
Water Quality Volume Proposed / Required (in inches)	1	X-axis value for Figure 1.6.7D-1 in ECM (max 1.0)	
BMP Design Factor (BMPDF)	1	Refer to Figure 1.6.7D-1 in ECM (max 1.0)	
Water Quality Credit (WQC)	0.509	WQC = IAF * BMPDF (max 1.0)	

(B) The Land Use Commission may grant a variance from a requirement of Section 25-8-422 ( *Water Quality Transition Zone* ), Section 25-8-452 ( *Water Quality Transition Zone* ), Section 25-8-482 ( *Water Quality Transition Zone* ), Section 25-8-652 ( *Restrictions on Development Impacting Lake Austin, Lady Bird Lake, and Lake Walter E. Long* ), or Article 7, Division 1 ( *Critical Water Quality Zone Restrictions* ), after determining that:

(1) the criteria for granting a variance in Subsection (A) are met;

The criteria for granting a variance, with or without water quality controls, are met.

(2) the requirement for which a variance is requested prevents a reasonable, economic use of the entire property; and

Yes. If the variance to LDC 25-8-261 is not granted, then new development would not be permitted on the property. The property was subdivided decades ago before watershed protection ordinances and ended up entirely within the CWQZ. Expanding the lot to extend beyond the CWQZ is not possible. This property was developed with a single-family home in 1952 according to Travis CAD and rezoned from SF to LO-MU-NP in 2004. Koenig Lane is a busy roadway, where many of the original single-family homes have been converted to office or commercial uses; therefore, continued single-family use on the property is unlikely. The redevelopment exception and the administrative variance option for the CWQZ are not feasible for a proposed office use.

(3) *the variance is the minimum deviation from the code requirement necessary to allow a reasonable, economic use of the entire property.*

Yes. The variance is the minimum deviation from the code requirement to allow reasonable, economic use of the property because the building and parking deck must be elevated above the 100-year floodplain elevation. To justify the cost, the site needs a minimum square footage of office space. The reduction of on-site parking from the 15 required to a total of 10 spaces provided helps minimize the deviation from the code. The site already consists of 35.5% impervious cover from the existing house, garage, sidewalks, and compacted driveway. The proposed development consists of 70% impervious cover, for a net increase of impervious cover of 2,657 sf, an additional amount obtained by reducing parking as much as possible on the site.

### **Summary**

Approval of variance from LDC 25-8-261 will allow the proposed development to occur on the property. 50% of the CWQZ is already developed with buildings and roadways that do not have water quality controls and there are no plans to restore the creek's CWQZ by removing those buildings and roadways. The majority of the structures on the property will be elevated, effectively increasing the possible infiltration area. In addition, a rain cistern will collect the WQV from the roof to improve water quality.

Approval of variance from LDC 25-8-261 (H) will allow water quality controls on the property, which is within the 100-year floodplain. That variance is needed to comply with staff's request for water quality controls on site. The amount of additional impervious cover does not trigger water quality controls. Approving variance from LDC 25-8-261 (to allow for the development) and not approving the variance from LDC 25-8-261 (H) (thus, not requiring water quality controls on the site), would result in a development that complies with LDC 25-8-261 (H) and a variance to that particular section would not be needed.



12/01/2020

Katie Kam, PhD, PE  
Wheels & Water LLC  
[katiekam@wheelsandwaterllc.com](mailto:katiekam@wheelsandwaterllc.com)  
512-820-0070