



**Agenda Item \_\_\_\_\_**

**Cedar Hill Estates  
Preliminary Plat  
Staff Report**

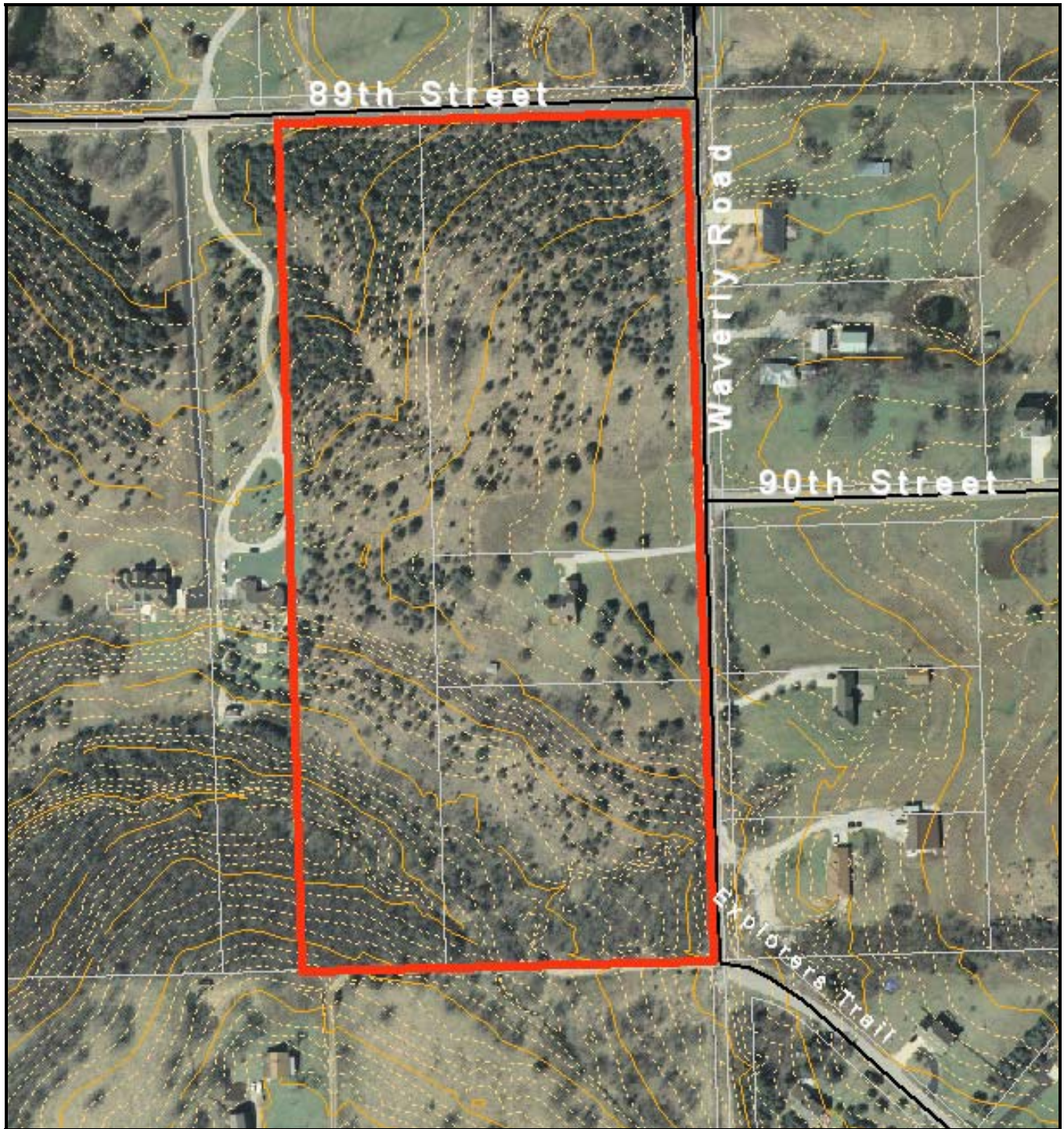
To the  
**Planning Commission  
City of De Soto, Kansas  
November 21, 2006**

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|----------------------|---|
| Agenda Item:         | Consider Preliminary Plat for Cedar Hill Estates, 19.5 acres located at the southwest corner of Waverly Road and 89 <sup>th</sup> Street.   |
| Meeting Date:        | November 28 <sup>th</sup> , 2006  |
| Owner:               | Erich R. Mahr<br>9020 Waverly Road<br>De Soto, Kansas   |
| Developer:           | QHS Construction<br>Rick Hollingsworth<br>30427 West 87 <sup>th</sup> Street<br>De Soto, Kansas   |
| Surveyor:            | Herring Surveying Company<br>315 North 5 <sup>th</sup> Street<br>Leavenworth, Kansas<br>913-651-3858  |
| Engineer:            | Level 4 Engineering<br>207 South 5 <sup>th</sup> Street<br>Leavenworth, Kansas<br>913-682-8600  |
| Report Prepared By:  | Mike Brungardt, City Engineer   |
| Submittal Materials: | Preliminary Plat entitled "Cedar Hill Estates" dated 11/17/06<br>Preliminary Landscaping Plan dated 11/17/06<br>Preliminary Grading Plan (undated)<br>Preliminary Street Profiles (undated)<br>Drainage Study |
| Attached Materials:  | Exhibit A: Report from Building Official Steve Chick regarding septic system suitability.   |

**I. GENERAL DESCRIPTION**

Herring Surveying Company has submitted a preliminary plat for a 19.5-acre, 15-lot subdivision at the southwest corner of 89<sup>th</sup> Street and Waverly Road. The plat was submitted on behalf of the developer, QHS Construction of De Soto. The proposed subdivision is a low density single-family residential development within the R-1 zoning district. Lot sizes range from 1.00 acres to 2.23 acres with an average lot size of 1.13 acres. The total property acreage reported on the preliminary plat is 19.5 acres, less areas in existing right of way (reported on the plat at 1.2 acres). Proposed site improvements include two cul-de-sacs taking access







## II. Review of General Zoning requirements

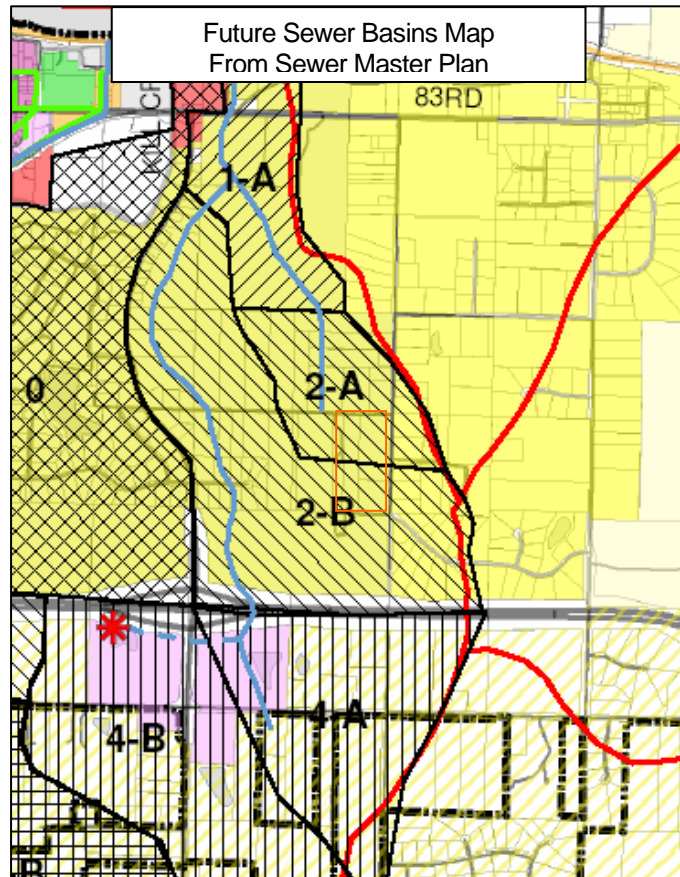
**A. Existing Zoning:** The subject property is currently zoned 'R-1' Residential Low Density. The proposed land use associated with this application is single family residential. This use is allowed within the 'R-1' zoning district, and does not require a rezoning or the issuance of a special use permit.

**B. Comprehensive Plan:** The future land use designation for this property is 'Low to Moderate Density Residential' which is defined as 1 to 3 units per acre. As proposed, the preliminary plat is 0.77 units per acre, and therefore less dense than is recommended by the Comprehensive Plan. In addition, the subject parcel is NOT within the rural subdivision overlay, which promotes lower density residential uses. The proposed development is therefore NOT in conformance with the Comprehensive Plan.

**C. Platting:** No portion of the subject parcel is platted. The approval of a Preliminary Plat is the first step in the platting process. Prior to the issuance of building permits for any lot within the proposed subdivision, a Final Plat must be submitted, approved by the Planning Commission and City Council in conformance with the Subdivision Regulations, and filed with the County Register of Deeds office. Excise tax for the lots is due upon Final Platting.

**D. Rural Development Standards:** The Rural Development standards do not apply in this case because the property is not within the Rural Subdivision Overlay area and the applicant is proposing to construct an urban standard public street with concrete curbs and gutters. As such, neither the allowances nor the further restrictions contained in the rural subdivision design standards apply.

**E. Wastewater Master Plan:** The proposed development is not served by the public sewer system at this time. The nearest existing sewer collection system is approximately ½ mile to the northwest of the property within the Arbor Ridge subdivision. The property is within an area that has been projected for future sewer service, as shown on the map to the right from the City' Sewer Master Plan. For this reason, higher densities are projected on the Future Land Use Map. The potential for this property to eventually have sewer service, and therefore higher densities should be considered. The fact that this parcel is near the upper end of the future sewer service area, and that areas upstream of this parcel are already developed into rural residential patterns (those along Explorers Trail) tend to support allowing the less dense pattern proposed in the application. Because of the potential for sewer service to this area





and areas upstream of this development, the subdivision proposal should include necessary easement corridors that will allow for the future sewer extension through the development. This can be accomplished by the dedication of utility easements across the detention tract and the southwest portions of Lot 14. The area of the utility easement should be separated from the proposed detention facility. Further, the applicant (or owner) should sign an agreement not to protest a future sewer benefit district that may fund the extension of sewers into the area.

### III. Preliminary Plat Review

#### A. Submittal Materials: Zoning Regulations, Article 8

1. Subdivisions in the 'R-1' district with lots adjacent to local access or collector streets must provide an 'S1' right-of-way buffer. The 'S1' buffer is to consist of one (1) large deciduous tree every 40-feet of roadway. The applicant has provided a Preliminary Landscaping Plan for the subdivision. The plan shows 2" caliper Autumn Purple Ash shade trees spaced at 40-foot intervals along all proposed and existing rights-of-way. In accordance with Article 8, Section 6, Paragraph E of the Zoning Regulations, the application is required to have approximately 84 trees. There are 80 trees shown. No other proposed landscaping is shown, and no indications of vegetation preservation are made. The southern 150 feet of frontage along Waverly Road is heavily vegetated, and no proposed trees are shown at that location. The Landscaping plan should indicate the preservation of the existing vegetation along the south 150 feet of Waverly Right of way.

2. The plan is lacking in variety of tree species. With 80 trees provided, there should be no less than five different species types.

#### B. Submittal Materials: Subdivision Regulations, Section 4.03

The submittal materials have been reviewed to ensure that all the necessary information is present to facilitate an adequate review of the proposal. It is concluded that the application is complete, and sufficient information is provided to facilitate a review of the proposal.

#### C. Improvements, Dedications and Design: Subdivision Regulations, Article 6

##### 1. General Improvements: Section 6.01

This section requires conformance with applicable laws rules and regulations including statutory zoning provisions, building codes, fire safety standards, the Comprehensive Plan, the City's Capital Improvement Plan, KDHE requirements, applicable overlay districts and other similar requirements. Upon review of these applicable standards, it is determined that the proposal will potentially require environmental permits beyond the purview of the City in order to construct the proposed detention facility. Because of the large tributary area upstream of the detention pond (approximately 100-acres) any construction within or adjacent to the natural channel across the southwest portion of the site will require a permit from the Kansas Division of Water Resources as well as an environmental permit from the Corps of Engineers.

##### 2. Adequate Public Facilities: Section 6.02

To ensure that property is developed only with appropriate and adequate public facilities, and in accordance with the Comprehensive Plan, no preliminary plat application should be approved unless it is determined that the existing or proposed off-site public facilities are adequate to support and serve the density of the proposed subdivision.



a) Standards Relating to Offsite Infrastructure

(1) **Water Supply:** There is public water supply available within the 89<sup>th</sup> Street and Waverly Road rights-of-way. These lines are 8-inches in diameter and have adequate capacity to serve the proposed 15-lot residential subdivision.

(2) **Sanitary Sewer:** There is no public sewer available to the site. On-site septic systems will be required. A report of the site's septic system suitability has been provided by the City's Building Official, and is attached as Exhibit A.

(3) **Storm Sewer:** The proposed subdivision does not directly connect to any existing enclosed or improved stormwater system. However, substantial natural drainage channels exist on the site and should be preserved, as outlined later in this report.

(4) **Stormwater Management:** Stormwater detention is required for this project. The plans indicate a detention facility to be constructed within the drainage channel that runs across the southwestern portions of the property. Although no known flooding problems exist immediately downstream of this property, the potential for development in the downstream areas make stormwater management here an important point. It can therefore be generally stated that the proposal must address the stormwater management aspects of the development due to the potential for future developments downstream.

(5) **Roads:** Access to the subdivision taken from Waverly Road and 89<sup>th</sup> Street. Both of the streets have seen recent surface improvements, however both remain rural in nature with little or no shoulder and narrow lanes. Narrow lane widths, steep horizontal curves, and poor sight lines characterize Waverly Road from 83<sup>rd</sup> Street to Explorers Trail. The configuration of 89<sup>th</sup> Street is slightly better than that of Waverly Road because the sight lines are better, and there are shoulders on some portions. The potential need to improve the existing road network in the area and the justification for requiring off-site road improvements must be weighed against the impact to the roads caused by the proposed development. The proposed subdivision consists of 15 single-family residential lots, which can be expected to generate approximately 150 vehicle trips per day. While the increased traffic loads from the proposed subdivision do not initially trigger the need for substantial improvements to the surrounding roadway geometry, the development will contribute to the need for increased maintenance for the road system. For this reason, it is recommended that the developer sign an agreement not to protest a benefit district for future road maintenance, safety and capacity upgrades to 89<sup>th</sup> Street and Waverly Road adjacent to the subject property.

**3. Lots: Section 6.03**

According to the 'R-1' District Regulations contained in Zoning Regulations, the minimum lot area is 10,350 square feet and the minimum lot width is 90 feet measured at the front setback line. The district requirements stipulate a minimum front yard setback of 35 feet. All of the proposed lots meet the district requirements, with the exception of Lot 13, which does not meet the minimum width requirement measured at the front setback line. Lot 13 should be revised to have a 90-foot width at the front setback line.

**4. Blocks: Section 6.04**



The proposed preliminary plat layout is consistent with the requirements for block length, width, easements, and pedestrian access.

**5. Streets: Section 6.05**

All of the interior roadways are required to be constructed to urban local access standards.

- a) The plat indicates 40 feet of total existing right-of-way for 89<sup>th</sup> Street. The Comprehensive Plan designates 89<sup>th</sup> as a collector road. As such, 60 feet of right-of-way is recommended. The plat should therefore indicate an additional 10 feet of right-of-way dedication along the north lines of Lots 1 through 4. Doing this will cause Lots 1 through 4 to fall below the 1.00 acres required for on-site septic systems.
- b) The preliminary plat application indicates the road width of 24 feet, and right-of-way widths of 50 feet. The width roadway width is required to be 28 feet, measured from the back of curb to the back of curb. The plat should be revised to show 28-foot roadway widths.
- c) Curb radii are required where the cul-de-sac bulbs intersect the typical roadway section. This should be shown on the plat. In addition, the right-of-way lines should have radii at these locations to make room for utilities around the cul-de-sacs. This may take lot area away from Lots 6 and 10, causing them to drop below the 1.00 acres required for septic systems.
- d) Lots 1 through 4 have direct access onto 89<sup>th</sup> Street. While the Subdivision Regulations do not prohibit direct access onto a collector road, there are recommendations in the Comprehensive Plan to limit the number of driveway access points. For this reason, the preliminary plat includes a note that requires shared driveways for Lots 1 & 2, and Lots 3 & 4.

**6. Storm Sewer and Stormwater Management: Section 6.06**

- a) Enclosed storm sewers: The proposed storm sewer elements associated with the street construction are consistent with the requirements of the Subdivision Regulations.
- b) Stormwater Management: The City's storm water management criteria are found in Section 5600 of the Kansas City Chapter of the American Public Works Association (KCAPWA) standard specifications. In accordance with the criteria, stormwater detention is required for any development unless it can be shown, by engineering study, that there are no downstream flooding problems that would result from the development. As part of the application, a drainage study was performed to assess the impacts of the development on runoff from the site. A stormwater detention facility is proposed in the southwest portions of the site. After review of the drainage study, Staff finds that additional information and revisions to the drainage study are required. The requested revisions are as follows:
  - (1) The study reports that there are 50 acres of land that drain onto the site via the drainage channel at the southwest corner. The drainage area map provided does not include the tributary acreage south of K-10. Staff estimates that there is approximately 40 acres of land south of K-10 that drains onto this site. This will drastically impact all the calculations associated with the proposed detention facility, and the needed easements associated with the channel.
  - (2) The contours shown on the preliminary plat and in the drainage study do not appear to be the latest data available from the Johnson County AIMS department (See the Physical Features Map in this report). This could dramatically impact the detention storage volumes and how the pond functions.



The plat and drainage study should be revised to show the latest contour data from the County.

(3) The study does not include tables for the detention facility stage vs. storage, and stage vs. discharge. These should be shown in the study.

(4) The total volume indicated for the proposed detention facility is 121,474 cubic feet. Based on the preliminary grading plan, I estimate the volume to be only about 75,000 cubic feet.

(5) In general, considering the large tributary area associated with the drainage channel, the construction and function of the detention facility within the channel is problematic. It will require special permitting to construct, and the outlet structure will have to be substantial in order to handle the runoff from the 100+ acres upstream.

(6) The City's stormwater specifications, (Section 5600 of the APWA requirements), call for the preservation of all streams with tributary areas larger than 40 acres. A stream buffer is required. The buffer must be 60 foot in width measured from the ordinary high water mark, in each direction of the stream. This buffer should be shown on the plat as an easement that restricts disturbance activities.

(7) There is a 24" culvert running under Waverly Road adjacent to Lot 15 that carries flow from approximately 10 acres. This flow travels across Lot 15 and into the larger channel along Lot 14. The plat should indicate a drainage easement for this channel, or it should indicate provisions to re-route this flow. The existence of this drainage easement may make the installation of a septic system unfeasible on Lot 15.

The above listed corrections to the drainage study will most likely result in changes to the plat layout. It is therefore concluded that the preliminary plat proposal should not be acted upon by the Planning Commission until these changes are produced.

#### **7. Sanitary Sewers: Section 6.07**

a) On site septic systems will be needed to provide for the sanitary sewer disposal of the proposed lots. The applicant has coordinated with Steve Chick, De Soto's Building Official, to perform a septic system site evaluation on each lot within the proposed subdivision. The results of Mr. Chick's investigations are contained in his report attached as **Exhibit A**. Mr. Chick is recommending the use of aerobic systems for Lots 13, 14 and 15, and conventional septic tanks with shallow lateral fields or mounds for the remainder of the lots.

#### **8. Water Supply: Section 6.08**

The plat indicates a new 6-inch water mains along the two proposed cul-de-sacs. There are no fire hydrants shown. The plan should indicate the location of proposed hydrants.

#### **Utilities: Section 6.09**

Adequate allowances for the installation of other public utilities including gas, power, cable, and telephone services should be shown on the plat. Although utility easements are provided



around the parameter of the subdivision parcels, there are no easements shown along the proposed rights-of-way. 10-foot utility easements should be added along all proposed streets.

**Sidewalks: Section 6.10**

a) The preliminary plat document indicates 5-foot concrete sidewalks, although the grading plan shows 4-foot walks. The grading plan should be revised to show 5-foot walks.

**9. Open Space: Section 6.11**

In accordance with the Subdivision Regulations, all developments are required to contribute either park land or fees in lieu of park land. The amount of dedication required is 4% of the land being subdivided. In this case, the area would be approximately 0.78 acres. In accordance with the 'Future Parks and Service Area Map' contained within the Comprehensive Plan, there are no projected neighborhood or regional parks in the area of the proposed subdivision. The subdivision lies within the "Driving Service Area" of Miller Park. Because the proposed and existing nature of development in this area is rural-residential, the need for common public open space is somewhat diminished. It is therefore recommended to accept the fee in lieu of parkland dedication for this subdivision. Park fees are currently \$350 per unit, due upon building permit application.

## IV. Conclusions and Recommendations

**Due to the numerous issues outlined on this staff report, and the potential for these issues to impact the overall layout and nature of the proposed development, it is recommended to table this application until the December Planning Commission meeting.**

In general terms, staff is concerned about the viability of Lots 13 through 15 as shown. This is primarily due to the existing drainage patterns in that area and how those drainage patterns will affect the ability to place septic systems on those lots. Further, there appears to be little justification for varying the stream buffer requirements and allowing the construction of the detention facility within the existing stream bed. Rather, the detention facility should be constructed outside of the stream bed, potentially on portions of Lots 13 and 14, and the existing channel should be preserved.

A general discussion with the Planning Commission at the November meeting would be helpful to staff and the applicant in the effort to improve the application. Items for discussion include the following:

- A.** Consistency with the Comprehensive Plan and Sewer Master Plan. The requirement not to protest a benefit district for future sewer improvements, and the preservation of a utility corridor through the southwest portion of the site.
- B.** The application of the stream buffer requirements and how that relates to the location of the detention facility.
- C.** The dedication of additional right-of-way for 89<sup>th</sup> Street.
- D.** The suitability of septic systems (see Exhibit A).
- E.** Impacts to surrounding road network, and the requirement not to protest a benefit district.



City of De Soto  
32905 West 84<sup>th</sup> Street  
De Soto, Kansas 66018

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"Building on Small Town Values"

**F.** The open space dedication requirements.

END OF REPORT  
EXHIBITS TO FOLLOW