



# Costin Engineering Company

CIVIL ENGINEERING & LAND SURVEYING

SERVICE PLAN  
for  
SWAN'S NEST  
METROPOLITAN DISTRICT

As Amended January 14, 1986

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## CHAPTER I

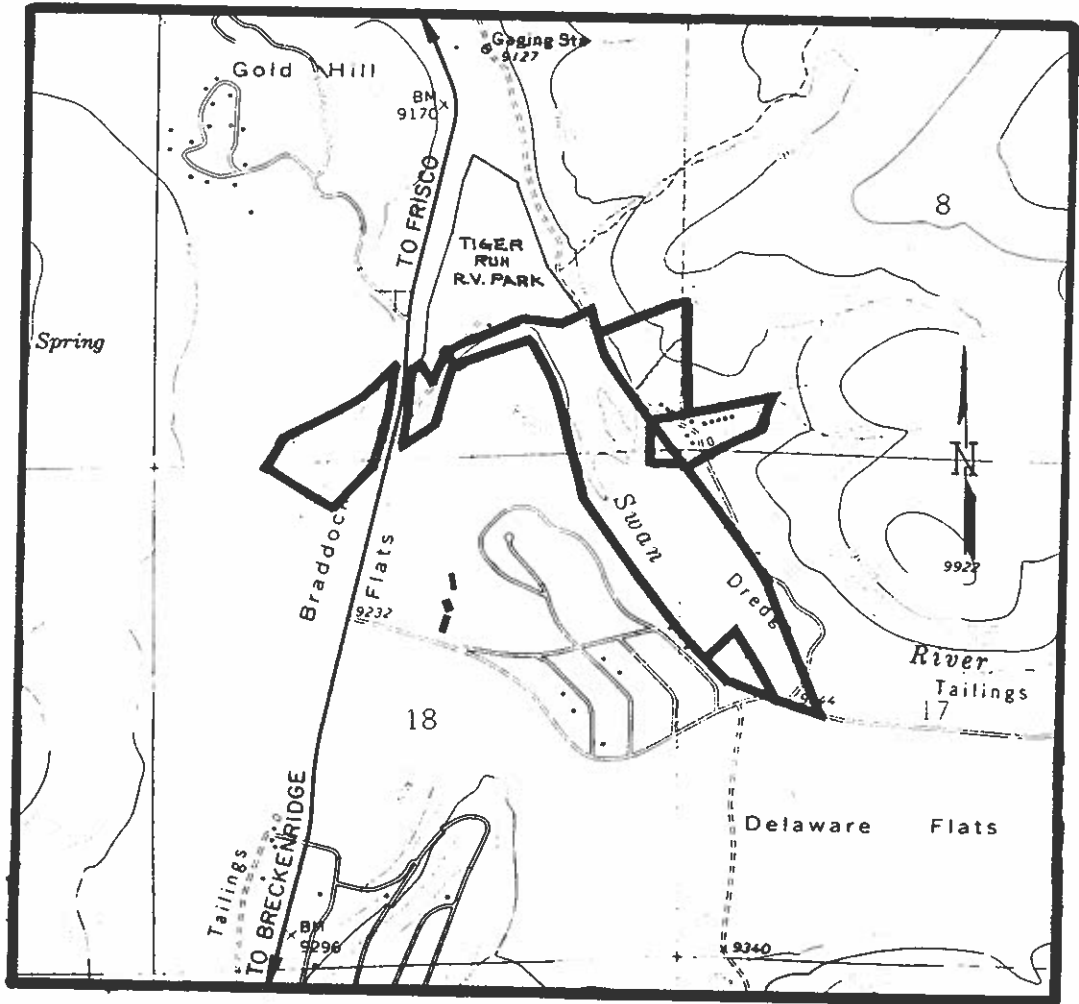
### Purpose and Introduction

The proposed Swan's Nest Metropolitan District (the "District") is being organized to provide services to the Swan's Nest Development located between Breckenridge, Colorado, and Frisco, Colorado, on Highway 9, approximately two miles South of Dillon Reservoir in Summit County (see vicinity map, page 2). The legal description and a legal description map of the District boundaries are found on pages 7 through 12. The developmental plans for the area within the district, encompassing approximately 153 acres, include single-family homes, multi-family dwellings, a small commercial area, open space areas and outdoor recreation facilities.

A special district is organized pursuant to Title 32, C.R.S., a recodification of Colorado's special district laws. Special districts may be formed to provide any of the following services: (1) fire protection (2) mosquito control (3) parks and recreation (4) safety protection (5) sanitation (6) street improvement (7) television relay and translation (8) transportation and (9) water. Metropolitan districts provide any two or more of these services, but in all other aspects are the same as a "special" district. The proponents of a special district must select the services to be provided prior to commencement of the organizational proceedings.

The Swan's Nest Metropolitan District will provide (1) water (2) sanitation (3) street improvement (4) parks and recreation (5) transportation (6) television relay and translation and (7) mosquito control for the inhabitants of the District.

# SWAN'S NEST



VICINITY MAP  
SCALE: 1" = 2000'

Special districts may also provide services and facilities outside of the boundaries of the district and may establish fees, rates, tolls, penalties or charges for such services and facilities.

The District will provide water and sanitation services and facilities to one out-of-District area, the Tiger Run Recreational Vehicle Park (Summit County Campground Association). Tiger Run R.V. Park is adjacent to the boundaries of the District and consists of approximately 45 acres subdivided into individual recreational vehicle sites for purchase. Currently, 140 sites have been developed and have sewer and water available through a contract with Swan's Nest Utility Company. The anticipated total Tiger Run build-out is 400 sites.

The District will construct certain facilities, will acquire certain existing facilities and accept the contribution of other facilities in order to provide the services for which the District is being organized. The existing wastewater treatment facilities and the existing water collection and storage facilities currently owned by Swan's Nest Utility Company and located within the District boundaries, will be purchased by the District with the cost based on the Technical Audit Water and Wastewater Facilities Swan's Nest Utility Company, July 1985, in Appendix A. All facilities outside of the District boundaries in Tiger Run are within dedicated utility easements and will be taken over by the District for maintenance.

The District will primarily serve the Swan's Nest Development which has been approved (except Parcel G) by the Summit County Commissioners. This proposed development is divided into seven parcels, each with set zoning requirements. (See Figure 1, Pg. 12.)

The area to be included in the District is not wholly or partly within any special district which provides the same services to be provided by the District. No other entity, including the county, other existing municipal or quasi-municipal corporations, including existing special districts, can provide adequate service within a reasonable time and on a comparable basis.

Therefore, the Swan's Nest Metropolitan District will be formed to serve a public use and promote the health, safety and general welfare of the inhabitants of the District by providing for the necessary services required for any development.

Each service the District will provide is explained in detail in Chapter II. Existing services which are not provided by the District but are necessary for public development (i.e. fire protection, police, electrical, gas, etc.) are also included in Chapter II.

STATUTORY COMPLIANCE

This service plan presents evidence of the following criteria, in accordance with Section 32-1-203, C.R.S.:

1. There is sufficient existing and projected need for organized service in the area to be serviced by the proposed district;
2. The existing service in the area to be served by the proposed special district is inadequate for projected needs;
3. The proposed special district is capable of providing economical and sufficient service to the area within its proposed boundaries;
4. The area to be included in the proposed special district has or will have, the financial ability to discharge the proposed indebtedness on a reasonable basis.
5. Adequate service is not, or will not be, available to the area through the county, other existing municipal or quasi-municipal corporations, including existing special districts, within a reasonable time and on a comparable basis;
6. The facility and service standards of the proposed district are compatible with the facility and service standards of Summit County and each municipality within a three-mile radius, which is an interested party under Section 32-1-204(1) C.R.S.;
7. The proposal is in substantial compliance with The Summit County Master Plan adopted pursuant to Section 30-28-108, C.R.S.;



8. The proposal is in compliance with the duly adopted state long-range water quality management plan (201) for the area; in this case, the upper Blue River Wastewater Management Plan dated December 1984, by Brown and Caldwell (B & C).
9. The creation of the proposed special district will be in the best interest of the area proposed to be served.

CHAPTER II

District Services

LOCATION

The following is a legal description and a legal description map (Figure 1, page 12) of proposed Swan's Nest Metropolitan District.

PARCEL A-1

A PORTION OF THE MUNROE PLACER M.S. 1150 AND THE RILEY PLACER M.S. 4713, SECTION 7, TOWNSHIP 6 SOUTH, RANGE 77 WEST OF THE 6TH PRINCIPAL MERIDIAN, SITUATED IN THE COUNTY OF SUMMIT, STATE OF COLORADO AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NO. 12 OF SAID MUNROE PLACER, THE TRUE POINT OF BEGINNING, THENCE

S 53°52'25" W	412.34'	TO A POINT ON THE EASTERLY RIGHT-OF-WAY OF COLORADO STATE HIGHWAY NO. 9, THENCE
NORTHEASTERLY	366.76'	ALONG THE ARC OF A 5803.60' RADIUS CURVE TO THE LEFT WHOSE LONG CHORD BEARS N 08°04'30" E 366.60' ALONG SAID RIGHT-OF-WAY, THENCE
N 06°15'45" E	431.65'	ALONG SAID RIGHT-OF-WAY, THENCE
N 65°55'51" E	141.80'	THENCE
S 18°26'38" E	82.82'	THENCE
S 56°27'18" E	149.29'	THENCE
N 33°32'42" E	340.46'	THENCE
N 60°04'09" W	77.18'	THENCE
N 29°55'51" E	49.24'	THENCE
S 52°12'18" E	51.96'	THENCE
S 62°34'47" E	182.42'	THENCE
S 57°50'56" W	300.00'	TO CORNER NO. 11 OF SAID MUNROE PLACER, THENCE
S 14°42'11" W	553.37'	TO CORNER NO. 12 OF SAID MUNROE PLACER THE TRUE POINT OF BEGINNING.

CONTAINING: 5.541 ACRES, MORE OR LESS.

PARCEL B

A PORTION OF THE KIMBALL PLACER M.S.1151 AND THE RILEY PLACER M.S. 4713, AND THE MUNROE PLACER M.S.1150 SECTION 7, TOWNSHIP 6 SOUTH, RANGE 77 WEST OF THE 6TH PRINCIPAL MERIDIAN, SITUATED IN THE COUNTY OF SUMMIT, STATE OF COLORADO AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NO. 12 OF SAID KIMBALL PLACER, THE TRUE POINT OF BEGINNING, THENCE

N 27°58'49" W 655.63', THENCE  
S 71°31'56" W 725.32', THENCE  
N 62°34'47" W 182.42', THENCE  
N 67°32'24" E 851.61', THENCE  
S 84°58'54" E 390.07', THENCE  
N 67°32'24" E 282.97' TO A POINT ON LINE 1-2 OF SAID  
KIMBALL PLACER, THENCE  
S 23°03'47" E 255.00', ALONG SAID LINE 1-2, THENCE  
N 67°04'07" E 100.00', THENCE  
S 45°52'01" E 1138.80', THENCE  
S 01°45'00" W 35.00', THENCE  
S 76°50'15" W 360.00' TO CORNER NO. 1 OF THE SWANS NEST  
PLACER M.S.14412, THENCE  
S 62°00'33" W 861.52' TO A POINT ON LINE 10-11 OF SAID  
KIMBALL PLACER, THENCE  
N 14°36'42" W 700.00' ALONG SAID LINE 10-11 TO THE TRUE  
POINT OF BEGINNING.

CONTAINING: 30.227 ACRES, MORE OR LESS.

PARCEL C

THAT PORTION OF THE COLE PLACER LEGAL SUBDIVISION 0538, ALSO KNOWN AS GOVERNMENT LOT 16, LYING NORTHERLY OF AND ADJACENT TO PARCEL B, SECTION 7, TOWNSHIP 6 SOUTH, RANGE 77 WEST OF THE 6TH PRINCIPAL MERIDIAN, SITUATED IN THE COUNTY OF SUMMIT, STATE OF COLORADO.

CONTAINING: 12.454 ACRES, MORE OR LESS.

PARCEL D

A TRACT OF LAND BEING A PORTION OF THE SWANS NEST PLACER, UNITED STATES MINERAL SURVEY NUMBER 14412, SUMMIT COUNTY, COLORADO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NO. 1 OF SAID SWANS NEST PLACER, U.S.M.S. NO. 14412, THENCE N 77°08'30" E, ALONG THE 1-2 LINE OF SAID SWANS NEST PLACER A DISTANCE OF 273.49 FEET; THENCE S 04°50'50" E A DISTANCE OF 223.17 FEET; THENCE S 21°23'29" E A DISTANCE OF 155.00 FEET; THENCE N 68°36'31" E A DISTANCE OF 155.00 FEET; THENCE N 21°23'29" W A DISTANCE OF 105.00 FEET; THENCE N 32°16'35" W A DISTANCE OF 262.36 FEET TO A POINT ON SAID 1-2 LINE OF THE SWANS NEST PLACER; THENCE N 77°09'30" E ALONG SAID 1-2 LINE A DISTANCE OF 1053.13 FEET TO CORNER NO. 2; THENCE S 21°43' W A DISTANCE OF 436.25 FEET TO CORNER NO. 3; THENCE S 62°40' W A DISTANCE OF 668.55 FEET TO CORNER NO. 4; THENCE S 18°13' E A DISTANCE OF 730.54 FEET TO CORNER NO. 5; THENCE N 30°15' W A DISTANCE OF 1366 FEET TO THE POINT OF BEGINNING, CONTAINING 13.011 ACRES, MORE OR LESS.

A TRACT OF LAND BEING A PORTION OF THE SWANS NEST PLACER, UNITED STATES MINERAL SURVEY NUMBER 14412, SUMMIT COUNTY, COLORADO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NO. 1, SAID SWANS NEST PLACER, U.S.M.S. NO. 14412, THENCE N 77°08'30" E, ALONG THE 1-2 LINE OF SAID SWANS NEST PLACER A DISTANCE OF 273.49 FEET TO THE TRUE POINT OF BEGINNING; THENCE S 04°40'40" E A DISTANCE OF 223.17 FEET; THENCE S 21°23'29" E A DISTANCE OF 155.00 FEET; THENCE N 68°35'31" E A DISTANCE OF 155.00 FEET; THENCE N 21°23'29" W A DISTANCE OF 105.00 FEET; THENCE N 32°16'35" W A DISTANCE OF 262.36 FEET TO A POINT ON SAID 1-2 LINE OF THE SWANS NEST PLACER; THENCE S 77°08'30" W ALONG SAID 1-2 LINE A DISTANCE OF 42.38 FEET TO THE TRUE POINT OF BEGINNING, CONTAINING 1.000 ACRE, MORE OR LESS.

PARCELS E & F

A PORTION OF THE KIMBALL PLACER M.S.1151 AND THE SWANS NEST PLACER M.S. 14412, SECTIONS 7, 8, 17 AND 18, TOWNSHIP 6 SOUTH, RANGE 77 WEST OF THE 6TH PRINCIPAL MERIDIAN, SITUATED IN THE COUNTY OF SUMMIT, STATE OF COLORADO AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NO. 7 OF SAID KIMBALL PLACER, THE TRUE POINT OF BEGINNING, THENCE

N 66°42'42" W 474.48' ALONG LINE 7-8 OF SAID KIMBALL PLACER, THENCE  
N 36°42'42" W 577.39', THENCE  
N 25°17'35" W 97.52', THENCE  
N 09°20'35" W 176.68', THENCE  
N 20°37'02" W 48.04', THENCE  
S 43°29'58" W 437.26' TO A POINT ON LINE 8-9 OF SAID KIMBALL PLACER, THENCE  
N 46°30'02" W 487.90' ALONG SAID LINE 8-9 TO CORNER NO. 9 OF SAID KIMBALL PLACER, THENCE  
N 36°42'42" W 1596.54' TO CORNER NO. 10 OF SAID KIMBALL PLACER, THENCE  
N 62°00'33" E 861.52' TO CORNER NO. 1 OF THE SWAN'S NEST PLACER M.S. 14412, THENCE  
S 02°42'12" W 410.55', THENCE  
S 75°48'42" E 410.55', THENCE  
N 62°21'45" E 228.94' TO CORNER NO. 4 OF SAID SWAN'S NEST PLACER, THENCE  
S 18°31'15" E 730.61' TO CORNER NO. 3 OF SAID KIMBALL PLACER, COMMON WITH CORNER NO. 5 OF SAID SWAN'S NEST PLACER, THENCE  
S 36°33'15" E 843.15' TO CORNER NO. 4 OF SAID KIMBALL PLACER, THENCE  
S 20°55'02" E 1480.03' TO CORNER NO. 7 THE TRUE POINT OF BEGINNING.

CONTAINING: 67.654 ACRES, MORE OR LESS.

PARCEL G

A PARCEL OF LAND BEING A PORTION OF THE SOUTH-WEST ONE-QUARTER OF SECTION 7 AND THE NORTH-WEST ONE-QUARTER OF SECTION 18, TOWNSHIP 6 SOUTH, ALL IN RANGE 77 WEST OF THE 6TH PRINCIPAL MERIDIAN, SUMMIT COUNTY, COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT CORNER NUMBER 13 OF THE MUNROE PLACER, U.S. MINERAL SURVEY NUMBER 1150, THENCE BOUNDARY OF SAID PROPERTY FOLLOWS THE FOLLOWING 9 COURSES:

(1) SOUTH 29 DEGREES 22 MINUTES 04 SECONDS WEST A DISTANCE OF 223.00 FEET TO A POINT, SAID POINT BEING ON THE LINE BETWEEN CORNER NUMBER 13 AND CORNER NUMBER 14 OF SAID MUNROE PLACER;

(2) NORTH 60 DEGREES 37 MINUTES 22 SECONDS WEST A DISTANCE OF 804.82 FEET TO A POINT, SAID POINT BEING ON THE LINE BETWEEN CORNER NUMBER 16 AND CORNER NUMBER 17 OF SAID MUNROE PLACER;

(3) NORTH 29 DEGREES 54 MINUTES 52 SECONDS EAST A DISTANCE OF 436.22 FEET TO CORNER NUMBER 17 OF SAID MUNROE PLACER;

(4) NORTH 58 DEGREES 50 MINUTES 03 SECONDS EAST A DISTANCE OF 957.63 FEET TO CORNER NUMBER 18 OF SAID MUNROE PLACER;

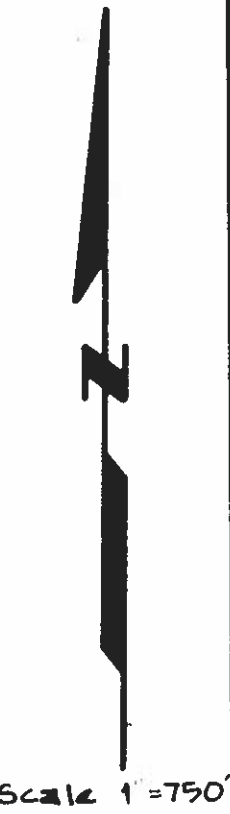
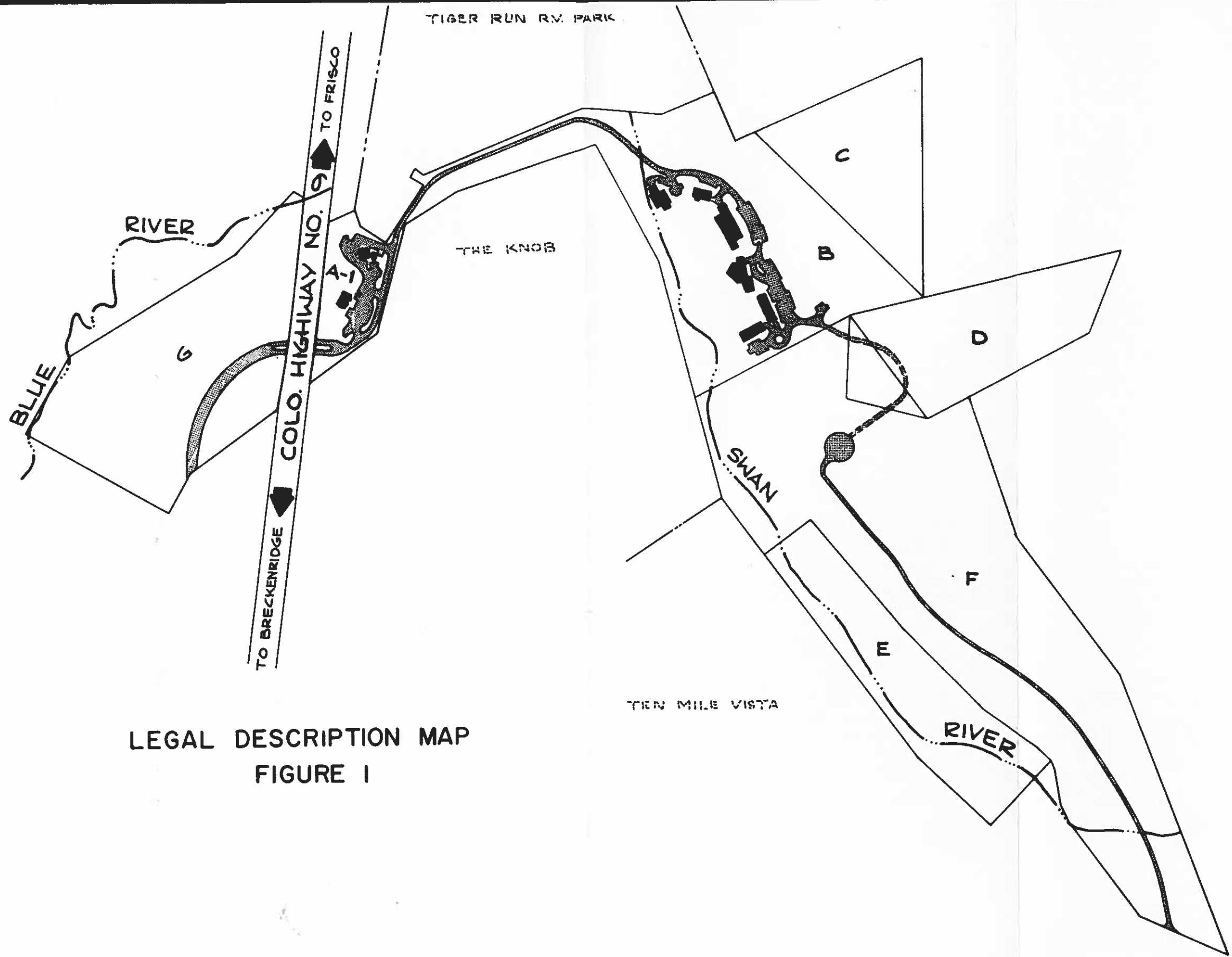
(5) NORTH 43 DEGREES 03 MINUTES 33 SECONDS EAST A DISTANCE OF 423.19 FEET TO CORNER NUMBER 19 OF SAID MUNROE PLACER;

(6) SOUTH 57 DEGREES 49 MINUTES 15 SECONDS EAST A DISTANCE OF 58.19 FEET TO A POINT, SAID POINT BEING ON THE WESTERN RIGHT OF WAY OF COLORADO STATE HIGHWAY NUMBER 9;

(7) SOUTH 6 DEGREES 15 MINUTES 45 SECONDS WEST A DISTANCE OF 536.42 FEET ALONG SAID RIGHT OF WAY LINE TO THE SOUTH TO A POINT;

(8) THENCE ALONG SAID RIGHT OF WAY LINE 513.98 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A CENTRAL ANGLE OF 5 DEGREES 12 MINUTES 26 SECONDS, A RADIUS OF 5,655.40 FEET AND A CHORD WHICH BEARS SOUTH 8 DEGREES 52 MINUTES 00 SECONDS WEST A DISTANCE OF 513.80 FEET TO A POINT, SAID POINT BEING ON THE LINE BETWEEN CORNER NUMBER 12 AND CORNER NUMBER 13 OF SAID MUNROE PLACER;

(9) SOUTH 53 DEGREES 52 MINUTES 25 SECONDS WEST A DISTANCE OF 528.34 FEET TO CORNER NUMBER 13 OF SAID MUNROE PLACER, BEING THE POINT OF BEGINNING CONTAINING 23.416 ACRES MORE OR LESS.



LEGAL DESCRIPTION MAP  
FIGURE I

The following Table I gives the proposed type of development for each of the seven parcels of land in the proposed District.

TABLE I  
SWAN'S NEST METROPOLITAN DISTRICT PARCEL DEVELOPMENT

<u>PARCEL</u>	<u># OF UNITS</u>	<u>ACRES</u>
A-1	6600 Square Feet of Commercial Building	5.54
B	128 Condominiums	30.23
C	Open Space	12.45
D	7 Single Family Residences	14.00
E	Open Space	17.84
F	18 Single Family Residences	49.81
G	90 Condominiums	23.40

The District will construct, install, and acquire (either by purchase or by contributions) the basic improvements and facilities to carry out the objectives and purposes of the District over a three-year period. Cost estimates for the improvements and facilities to be constructed or acquired with District funds and to be contributed to the District, as well as cost estimates for the operation of the District are provided in Chapter III of this report.

Table II is a land use/growth development schedule which provided the basis for design construction of infrastructure within the proposed three-year period. Specific improvements for each parcel listed are in the cost estimates in Chapter III.



TABLE II

Land Use/Growth Development

Existing Development

Parcel A - Tiger Run R.V. Park (out of District Service Area)  
140 sites are in use as of August 1985  
260 sites without sewer/water infrastructure  
---  
400 Total Sites (out-of-District Service Area)

First Year

Parcel A-1 (5.52 acres) develop 6600 sq. ft. of commercial building  
Parcel B (30.2 acres) start development of 128 condominium sites

2nd Year

Parcel B (30.2 acres) - development of 128 condominiums  
Parcel F (46 acres) - 18 single-family sites

3rd Year

Parcel B (30.2 acres) - complete development of 128 condominiums  
Parcel D (17 acres) - 7 single-family sites  
Parcel G (23.4 acres) - 90 condominium sites

The above schedule will provide for absorption rates as shown in Table III, which shows when the actual units projected above would be available for occupancy.

TABLE III

Absorption Rates (Units)

<u>Parcel</u>	<u>Existing</u>	<u>Years</u>				
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
*A (RV Park)	140	80	100	80	--	--
A-1	--	2600 SF	--	4000	--	--
B	--	20	54	54	--	--
D	--	--	--	7	--	--
F	--	--	9	5	4	--
G	--	--	--	45	45	--

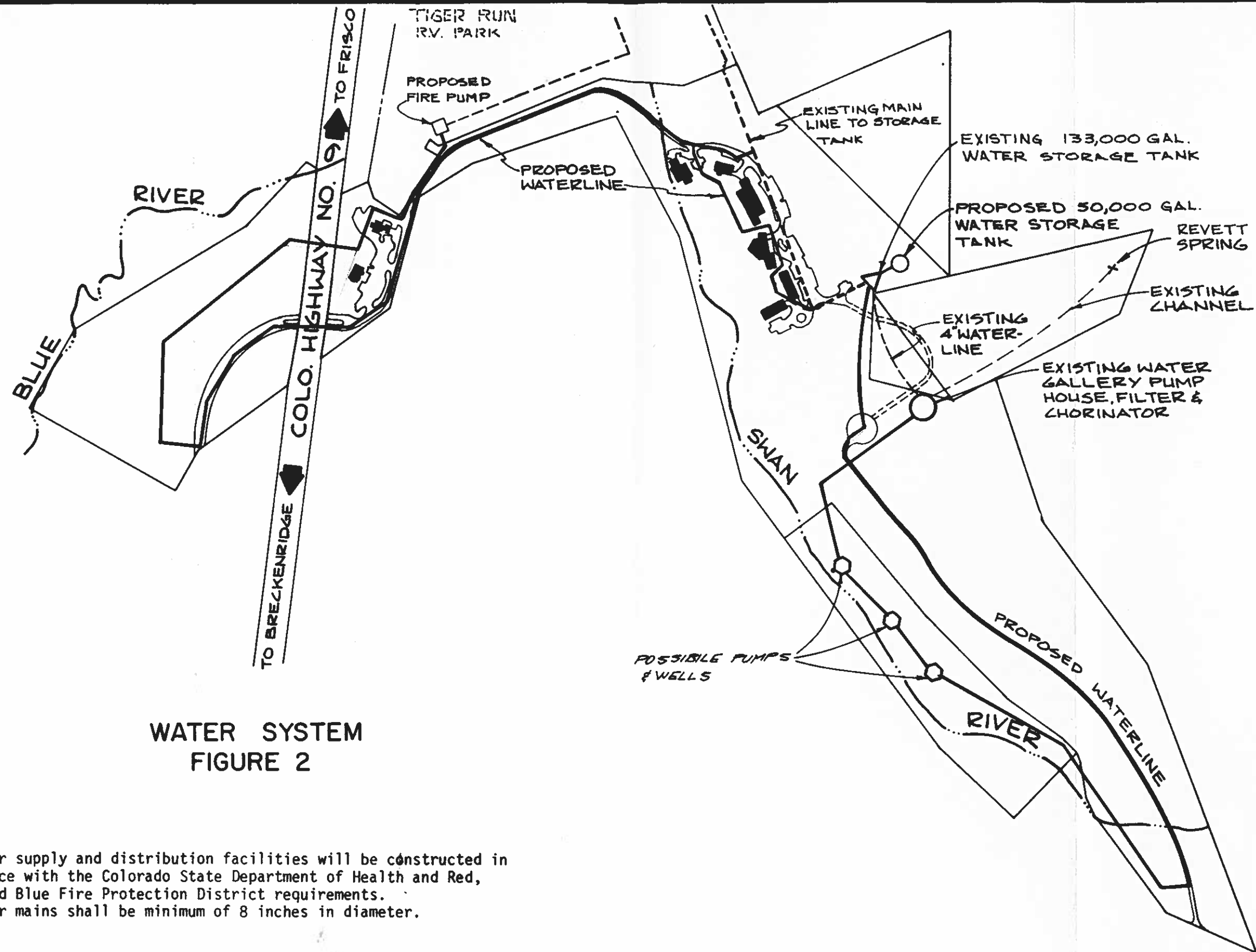
\* The Out-of-District service area.

## POTABLE WATER

The standards of the Colorado State Department of Health and the Red, White and Blue Fire Protection District will be adhered to in the planning and designing of the water network (Figure 2). The design of the network shall include looping of an 8-inch minimum water main.

Based on the report Development of Plan for Augmentation Swan's Nest Utility Company, by J.W. Patterson and Associates, Inc., Dec. 13, 1984, (the "Patterson Report"), (Appendix C), the District anticipates using the Vidler Tunnel Water rights, currently under contract to Swan's Nest Utility Company for potable water. According to the above cited report, those water rights should supply the needs of about 700 residential units. The District will use ground water obtained from constructing wells and/or infiltration galleries in the alluvium of the Swan River. This source should meet the estimated water requirements of the proposed service area. This conclusion is supported by the Patterson Report.

Currently, a catchment for water from Revett Spring, a form of surface water diversion is located within the District. The diverted water is filtered, chlorinated and pumped up to a 133,000 gallon storage tank. This amount will, according to Gormley Consultants in a letter report entitled Technical Audit Water and Wastewater Facilities, Swan's Nest Utility Company, Summit County, Colorado, June,



Scale 1"=750'

WATER SYSTEM  
FIGURE 2

- NOTE:
1. The water supply and distribution facilities will be constructed in accordance with the Colorado State Department of Health and Red, White and Blue Fire Protection District requirements.
  2. All water mains shall be minimum of 8 inches in diameter.

1985, (Appendix A) supply potable water to the planned Tiger Run recreational vehicle sites and the Tiger Run administration building.

Currently, according to the Gormley letter report cited above, there is no difficulty in producing 15,000 g.p.m. at 35 to 40 psi with the existing facilities. This indicates that the R.V. sites plus the 6600 square feet of commercial development will have a sufficient supply of potable water from the catchment.

Three water wells will be drilled in the first year to begin a constant supply of water to the condominium project in Parcel B. Also, a 10 ac-ft storage pond will be constructed during the first year for augmentation water.

The water wells will be drilled in Parcel E which has been designated for open space use along the Swan River. The wells will be connected to the existing pump house, where the water will be filtered and chlorinated, then pumped into the distribution system. The distribution system will be connected to the existing Tiger Run R.V. Park water system along Risdon Drive Road, providing a looped system within the R.V. Park.

During the second year of development, a second water storage tank of 50,000 gallons will be constructed just above the existing tank. This tank will provide the water storage needed for fire flows and is required by the Red, White and Blue Fire Protection District.

The total storage of 183,000 gallons, plus the wells, will provide sufficient water for peak demand periods and fire protection. The calculated peak demand for water is equal to: 70 gpcd x 3.5

people per unit = 245 gals/day/unit x 390 units = 95,550 gals/day.

The following Table IV provides the single family equivalents which will be used in water tap allotment. These conversions are from the Blue River Water District Tables.

TABLE IV

Water System Single Family Equiv. Chart

(Ref: Blue River Water District SFE Conversions)

<u>Parcel</u>	<u>No. Units</u>	<u>Conversion</u>	<u>SFE</u>
A	400 RV sites	0.4/site	160.0 (out of dist.)
A-1	4000 sq ft	0.5/1000 sq ft	2.0
	2600 sq ft	0.4/1000 sq ft	1.0
	2 gasoline island	1.5/island	3.0
B	128 units	1.0/unit	128.0
C	open space		
D	7 units	1.0/unit	7.0
E	open space		
F	18 units	1.0/unit	18.0
G	90 units	0.8/unit	72.0
Total SFE			391.0

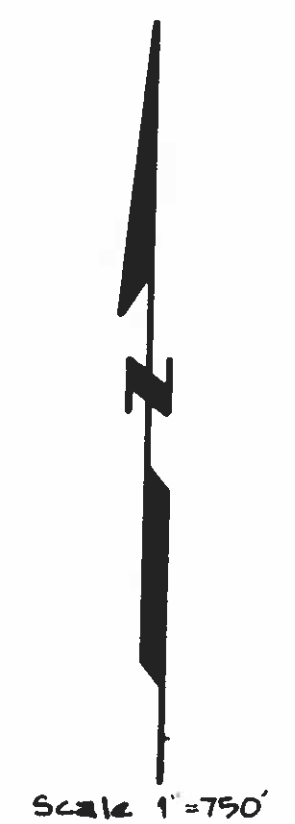
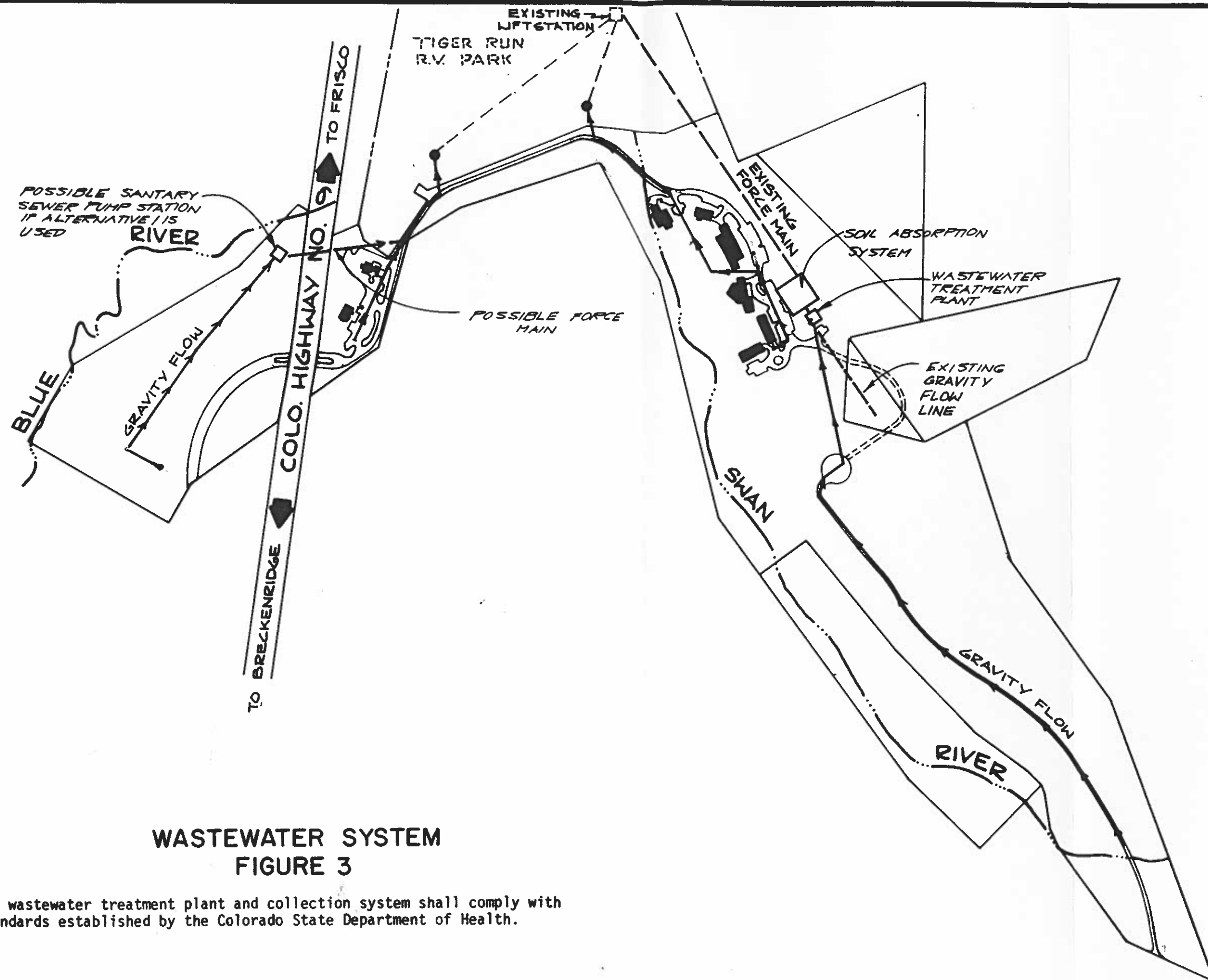
The Patterson report (see Appendix C) has evaluated the water demand of 0.27 ac-ft per single family equivalent with a 95% water return through the wastewater treatment plant. This means the minimum required water supply is (0.27 x 0.05) x 390 units or 5.3 ac-ft. The District will have at least 10 ac-ft of water rights from their purchase of the Vidler Tunnel Water Rights currently under contract to Swan's Nest Utility Company. A letter from the water attorney of Swan's Nest Utility Company is included as Appendix D. (A trial hearing date of May, 1986, has been set by the Water Court.)

## SANITATION

A wastewater treatment system already exists within the boundaries of the proposed Swan's Nest Metropolitan District. This system includes a 50,000 gallon per day treatment plant and a 60,000 square foot soil absorption system consisting of three alternating use beds. These systems are connected to an existing gravity sanitary sewer system by a force main and pump station.

The existing wastewater facilities, according to the letter report, Tiger Run Wastewater Treatment Plant by Brown and Caldwell Consulting Engineers, Dec. 17, 1984, (available upon request) are not being utilized to capacity. The facility has the capacity to support approximately 50% of the proposed development within the District and in the Tiger Run R.V. Park. Preliminary estimates suggest that two expansion alternatives should be considered when the existing plant reaches capacity. The first alternative is to update the existing system by enlarging both the treatment plant and soil absorption system. The second alternative is to study the feasibility of connecting to the Breckenridge Sanitation District's system. This service plan does not choose between the two alternatives of plant expansion, as Breckenridge Sanitation has indicated it presently does not intend to service either the District or Tiger Run R.V. Park.

A preliminary layout of the sanitary sewer system is shown on Figure 3.



**WASTEWATER SYSTEM  
FIGURE 3**

NOTE: The wastewater treatment plant and collection system shall comply with standards established by the Colorado State Department of Health.

TABLE V

Sanitary Sewer System Development

1st Year

400 R. V. sites on line	*	75 gals/unit/day	30,000 gals/day
2600 sq. ft. commercial		5000 gp/ac/day	299 gals/day
20 Condominium Units		75 gpcd (3.5 cap/unit)	5,250 gals/day
			<hr/>
			35,549 gals/day

2nd Year (Construction of Plant Expansion or Join Breckenridge Water/Sanitary District)

400 R.V. units on line	*	75 gals/unit/day	30,000 gals/day
6600 sq. ft. commercial		5000 gp/ac/d	758 gals/day
74 Condominium units on line		75 gpcd (3.5 cap/unit)	19,425 gals/day
9 Single family units		300 gals/unit/day	2,700 gals/day
			<hr/>
			52,883 gals/day

3rd Year

400 R.V. units on line	*	75 gals/unit/day	30,000 gals/day
6600 sq. ft. commercial		5000 gp/ac/d	758 gals/day
173 Condominium units on line		75 gpcd (3.5 cap/unit)	45,413 gals/day
14 Single family units		300 gals/unit/day	4,200 gals/day
			<hr/>
			80,371 gals/day

4th Year

400 R.V. units on line	*	75 gals/unit/day	30,000 gals/day
6600 sq. ft. commercial		5000 gp/ac/d	758 gals/day
218 Condominium units on line		75 gpcd (3.5 cap/unit)	57,225 gals/day
25 Single family units		300 gals/unit/day	7,500 gals/day
			<hr/>
			95,483 gals/day

\* (out of District)



The following Table VI provides the single family equivalents for sewer taps. This conversion is based on Breckenridge sanitation tables.

TABLE VI  
Sanitary Sewer System Single Family Equiv. Chart  
 (Ref: Breckenridge Sanitation District SFE Conversions)

<u>Parcel</u>	<u>No. Units</u>	<u>Conversion</u>	<u>SFE</u>
A	400 RV sites	0.25	100
	Recreation Bldg	1.0	1.0 (out of
	Admin. Bldg	1.0	1.0 District)
	Swimming Pool	1.0	1.0
A-1	6600 sq ft	0.5/1000 sq ft	3.3
	2 gasoline islands	1.5/island	3.0
B	128 units	1.4/unit	179.2
C	open space		
D	7 units	2.0/unit	14.0
F	18 units	2.0/unit	36.0
G	90 units	1.0/unit	90.0
Total SFE			428.5

The Colorado Health Department has proposed changes in the State Discharge Permit System. One proposed change is to require a permit for "no discharge" facilities. Swan's Nest treatment facility is a "no discharge facility" and the District will have to obtain a permit if and when the permits are available.

This district will specify low-flow fixtures and up-to-date pipeline construction to reduce average daily sewer flow. These measures will produce a flow rate of 60\* gals. per capita per day versus 75 gpcd used for system flow design or 100 gpcd for financial projections which will allow more sewer taps for the existing system.

(\*Ref: U.S. Dept. of Housing and Urban Development, Summary Report "Residential Water Conservation Projects" 1984)

## STREETS

Swan's Nest Metropolitan District will acquire and maintain all roadways within the District's boundary (Figure 4, page 25). All roads will conform to specifications of the County of Summit.

Road signs, lighting and other devices to control traffic in a safe and orderly manner will be acquired and maintained by the District.

Street cleaning and snow removal will be provided by the District for all District roads.

## DRAINAGE AND PARKS AND RECREATIONS

Storm water in the proposed Swan's Nest Metropolitan District (Figure 5, page 26) and all storm water flowing into the District from outside basins will be controlled by the District and/or the County of Summit. All drainage facilities and structures will conform to Summit County regulations.

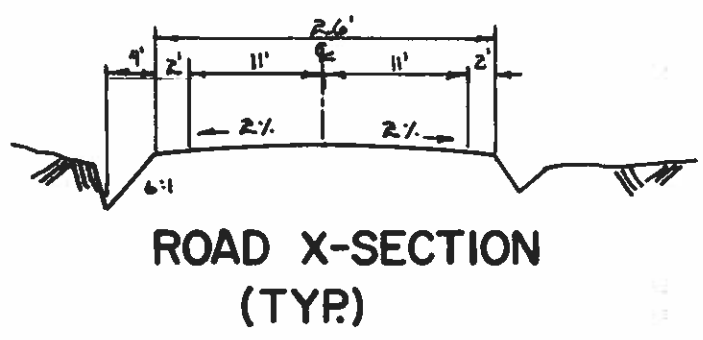
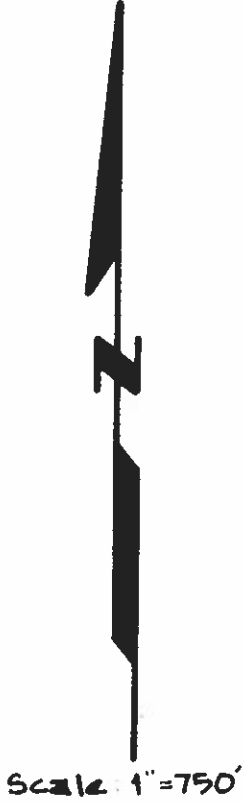
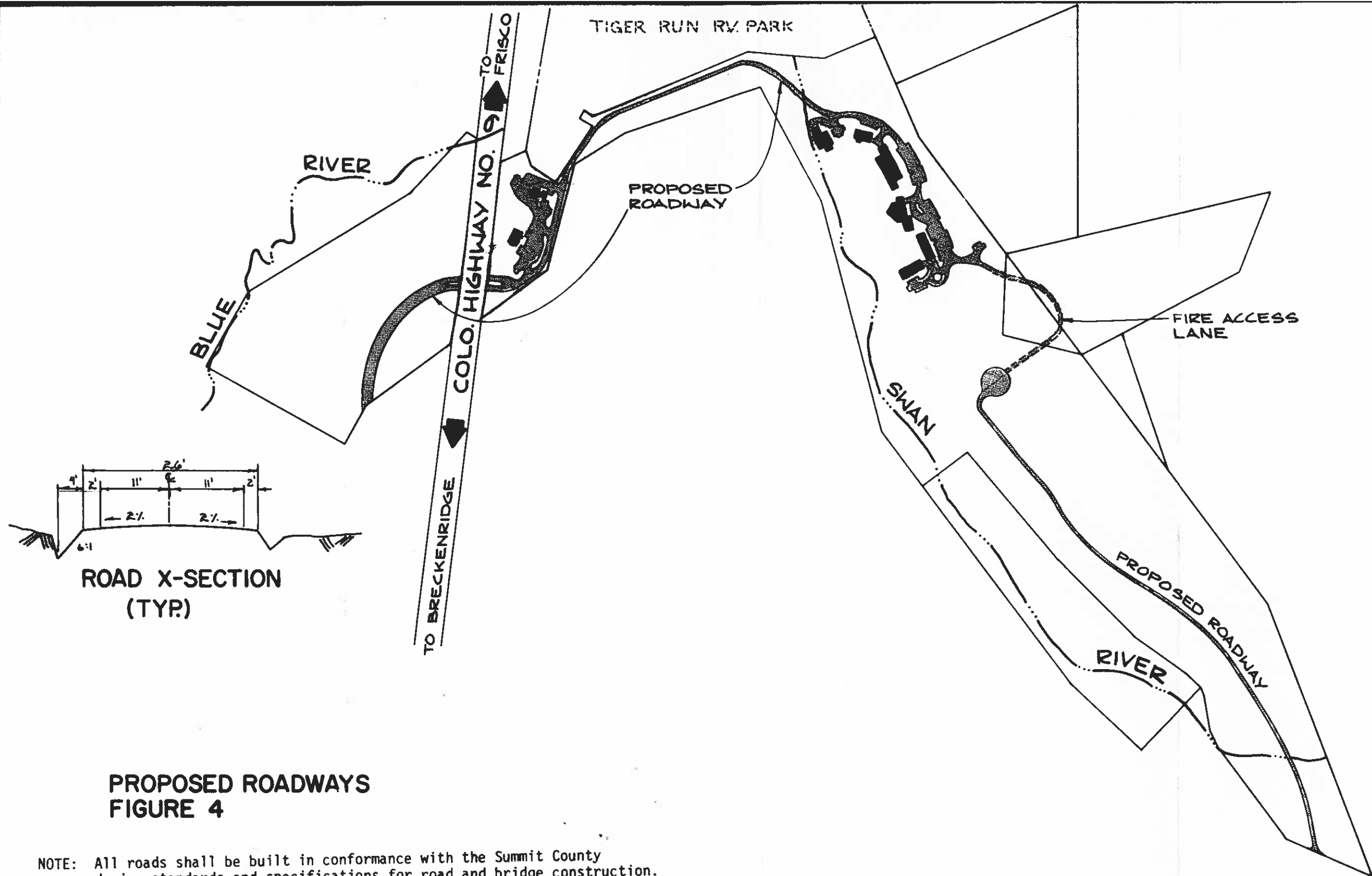
Drainageways in designated open space will be acquired and maintained by the District. The District will provide open space with recreation facilities for the benefit of District residents.

## TRANSPORTATION

Because of growth along Highway 9, the proponents of the District believe public mass transportation on a year round basis is a very real possibility in the near future. The District will acquire and maintain facilities to facilitate mass transit use by its inhabitants. Park-and-Ride facilities will be coordinated with the regional Summit Stage system and a District Shuttle system.

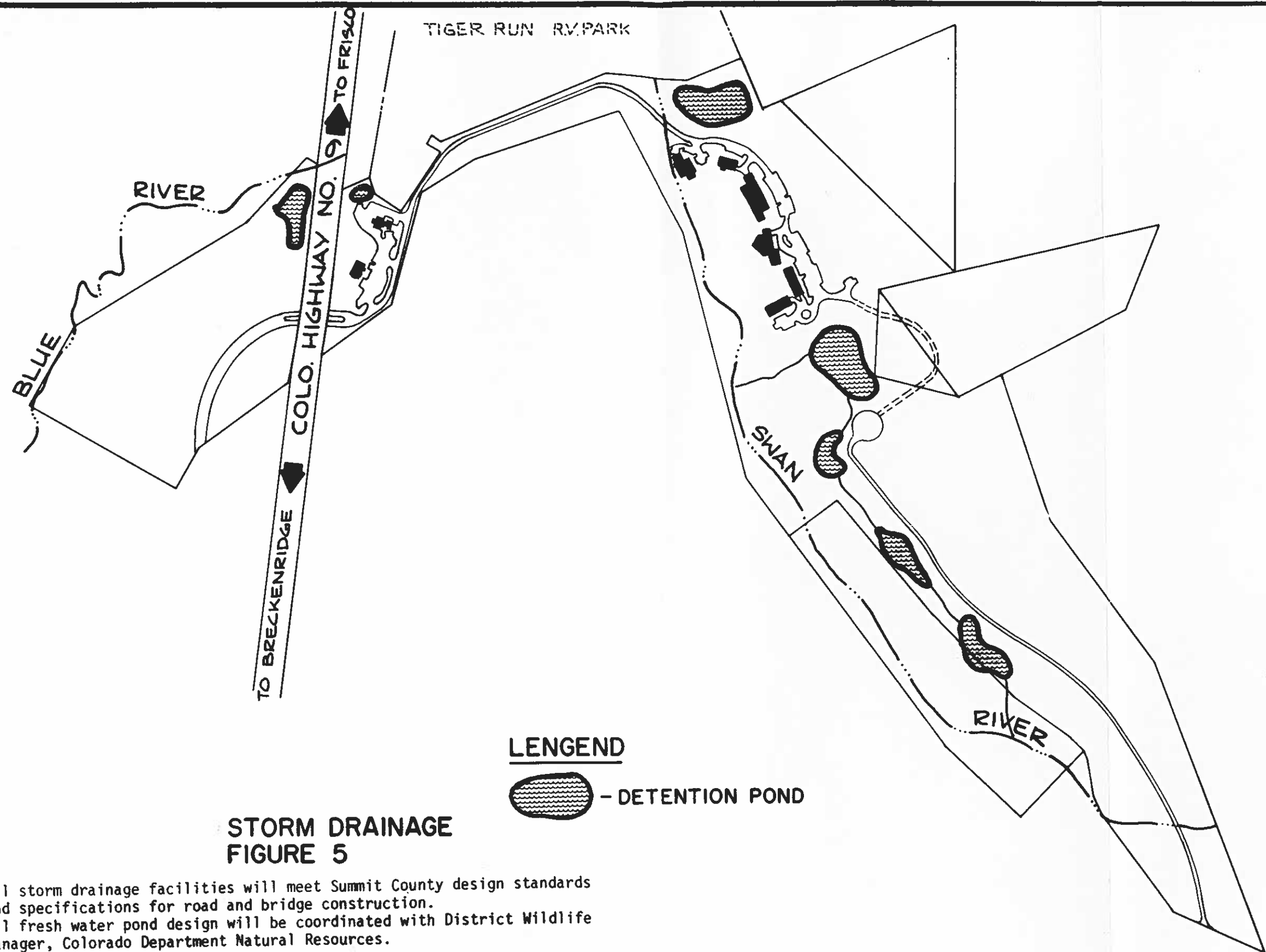
## TELEVISION TRANSMISSION

Swan's Nest Metropolitan District will acquire and maintain a television translator station to provide television signals within the District.




**PROPOSED ROADWAYS  
FIGURE 4**

NOTE: All roads shall be built in conformance with the Summit County design standards and specifications for road and bridge construction. (7-6-82)



**STORM DRAINAGE  
FIGURE 5**

**LENGEND**  
 - DETENTION POND

- NOTE: 1. All storm drainage facilities will meet Summit County design standards and specifications for road and bridge construction.  
 2. All fresh water pond design will be coordinated with District Wildlife Manager, Colorado Department Natural Resources.

Scale 1"=750'

## MOSQUITO CONTROL

The mosquito control will be provided within the District through contract with companies authorized by Summit County or the State of Colorado.

## MAINTENANCE FACILITY

A maintenance facility will be constructed to house some district vehicles and repair services. The District will also store parts that need protection from the weather in the facility. A fenced lot large enough to store other vehicles and parts will be constructed adjacent to the maintenance facility.

## PUBLIC SERVICES PROVIDED BY OTHER ENTITIES

### Fire Protection

Fire protection will be provided by the Red, White and Blue Fire District from its existing independent station.

### Police Protection

Police protection will be provided by the Summit County Sheriff Department.

### Solid Waste Disposal

Individual property owners or homeowner associations must contract for solid waste disposal from private entities as Swan's Nest Metropolitan District cannot provide this service. The District will attempt to

contract for the billing of these services through the water bills and thus affect some economies for its inhabitants.

Electric - Gas - Telephone

Electric, gas and telephone services will be provided by public utility companies. The District will coordinate with the above public utilities to ensure adequate service.

CHAPTER III

Three-Year Development Plan

INTRODUCTION

The District facilities will be acquired and/or constructed over a 3-year period. Construction schedules are based on estimates of the number of acres to be developed yearly and the type of development planned for each year. The construction schedules are based on the projections shown in Table II on page 14, which shows the projected land use and growth. Construction costs are in 1985 dollars and a 15% contingency has been added to cover both unforeseen and inflationary cost increases.

SUMMARY OF CONSTRUCTION COSTS:

Capital Costs paid by District	\$2,652,000
* Anticipated Capital Costs Contributed by Developer	\$485,497.00
Operations and Maintenance - Paid by District	\$30,000/year

\* If bond interest rate goes down more bonds may be available for District construction. Therefore, less capital costs contributed by developer.



1986

During the first year of construction, three water wells will be drilled and water mains will be installed from the wells to the chlorination and pump house. The chlorination and pump house will be updated to a capacity sufficient to accommodate total buildout of the area to be serviced.

In the first year, existing facilities for water and sanitation that are essential to the growth of the district will be purchased from Swan's Nest Utility Company for a purchase price based on the replacement cost as verified by the appraisal of Swan's Nest Utility Company by Max P. Arnold & Associates, Inc., dated August 20, 1985 (see Appendix B for portions of appraisal. Copies of the appraisal are available upon request). The water facilities to be purchased include a chlorination and pump house, filtration unit, water gallery, storage tank, auxiliary pump building, transmission lines, distribution lines and appurtenances thereto. The sanitation facilities to be purchased include collection and transmission lines, a lift station, a force main, and a treatment facility.

It is estimated that about 35.7 acres in Parcels A-1 and B will be developed in the first year, which includes the infrastructure for the 128 condos in Parcel B and 6,600 sq. ft. of commercial space. The commercial plus the 140 existing R.V. sites and the expected 300 additional R.V. sites to be developed in the first year will be the equivalent to 132.3 single-family units in sanitation and in potable water. Sewage treatment capacity needed for 132.3 SFE is 35549 gpd.

1986 Capital Costs - Existing Facilities

1985 REPLACEMENT COST ESTIMATE  
 SWAN'S NEST RESORT WATER FACILITY

(Ref: Technical Audit Water and Wastewater Facilities Swan's Nest  
 Utility Co., July 1985)

<u>Item</u>	<u>Unit</u>	<u>Cost (\$)</u>	<u>Totals (\$)</u>
Water Supply and Storage			
Water Gallery	L.S.	6,600	
Filtration Unit	L.S.	7,000	
Chlorination and Pump House and Appurtenances	L.S.	9,100	
Storage Tank	L.S.	60,000	
Auxiliary Pump Bldg and Appurtenances	L.S.	14,600	
			----- \$97,300.00
Transmission Line	1000 ft.		\$28,000.00
Water Distribution System			
4" dia. and 6" dia. Distribution lines	9770 ft.	219,800	
Valves	38	18,600.00	
Hydrants	12	19,200.00	
			----- \$257,600.00
			----- Subtotal \$382,900.00
			15% Engineering \$57,435.00
			5% Overhead and Construction \$19,145.00
			----- TOTAL WATER FACILITY \$459,480.00

(Ref: Appraisal of SWAN'S NEST UTILITY COMPANY; by Max P. Arnold and  
 Assoc.; dated August 20, 1985)

	Water Rights Cost	\$134,375.00
Legal Cost - Acquisition 10 Ac.Ft. from Vidler Tunnel Company (Contract Price)		\$30,000.00
Land - 1 Acre (Plant Site) @ \$15,000/Acre		\$15,000.00
		-----
	TOTAL WATER SYSTEM COST	\$638,855.00

1985 REPLACEMENT COST ESTIMATE  
SWAN'S NEST RESORT WASTEWATER FACILITY

(Ref: Technical Audit Water and Wastewater Facilities SWAN'S NEST  
UTILITY COMPANY; July 1985)

<u>Item</u>	<u>Unit</u>	<u>Cost (\$)</u>	<u>Totals (\$)</u>
<b>Wastewater Collection</b>			
Sewer, 8" dia.	8384 ft.	188,600	
Manholes	30	39,000	
Cleanouts	6	1,200	
	Subtotal		----- \$228,800.00
<b>Wastewater Transmission</b>			
Lift Station	L.S.	35,500	
Force Main	2546 ft.	50,900	
	Subtotal		----- \$86,400.00
<b>Wastewater Treatment Facility</b>			
Building	L.S.	54,600	
Soil Absorption System			
- Earthwork	L.S.	41,800	
- Hardware	L.S.	17,500	
	Subtotal		----- \$113,900.00
50,000 gpd E.A. System			
- Treatment Plant		83,000	
- Polishing Filter		18,000	
	Subtotal		----- \$214,900.00
	Subtotal-Total		----- \$530,100.00
	Engineering (15%)		\$79,515.00
	Overhead & Const. 5%		\$26,505.00
	TOTAL WASTEWATER FACILITY		----- \$636,170.00

(Ref: Appraisal of SWAN'S NEST UTILITY COMPANY; by Max P. Arnold and  
Assoc.; dated August 20, 1985)

Land - 3 Acres @ \$15,000/Acres	\$45,000.00
	-----
<b>TOTAL WASTEWATER SYSTEM COST</b>	<b>\$681,170.00</b>

SWAN'S NEST

1986 Capital Costs - New Construction by District

PARCEL A-1

Sanitary Sewer

2000 L.F. 12" PVC @ \$20 L.F.	\$40,000.00
7 Manholes @ \$1650 ea.	11,550.00
Engineering (10%)	5,155.00

Subtotal	\$56,705.00
----------	-------------

Water System

2700 L.F. 8" DIP @ \$20 L.F.	\$54,000.00
Engineering (10%)	5,400.00

Subtotal	\$59,400.00
----------	-------------

Streets

1000 L.F. of 4" Asphalt @ \$29.85 L.F.	\$29,850.00
Engineering (10%)	2,985.00

Subtotal	\$32,835.00
----------	-------------

Subtotal Parcel A-1	\$148,940.00
---------------------	--------------

PARCEL B

Sanitary Sewer

Lift Station	\$35,500.00
4750 L.F. 12" PVC @ \$20 L.F.	95,000.00
10 Manholes @ \$1650 ea.	16,500.00
Engineering (10%)	14,700.00

Subtotal	\$161,700.00
----------	--------------

Water System

Gas Chlorination System	\$ 12,000.00
3 Water Wells Drilled	15,000.00
8925 L.F. 8" DIP @ \$20 L.F.	178,500.00
Water Storage Reservoir (Incl Engr)	110,000.00
Engineering (10%)	20,550.00

Subtotal	\$336,050.00
----------	--------------

1986 Capital Costs - New Construction by District (cont'd)

Streets

4700 L.F. of 4" Asphalt @ \$29.85 L.F. \$140,295.00  
Engineering (10%) 14,030.00

-----  
Subtotal \$154,325.00

Recreation/Open Space

Hiking Trail (Gravel) \$5,000.00

Maintenance Facility

Addition to Existing Wastewater  
Treatment Plant Building \$200,000.00

-----  
Subtotal Parcel B \$857,075.00  
-----

Subtotal Parcel A-1 & B \$1,006,015.00  
10% Contingency 100,602.00

-----  
Total Capital Costs  
Parcels A1 & B \$1,106,617.00  
-----

Capital Costs Existing  
Water/Wastewater Facilities \$1,320,000.00  
-----

1986 Total Capital Cost District \$2,426,617.00

SWAN'S NEST

1986 Anticipated Capital Costs Contributed by Developer

PARCEL A-1

<u>Streets</u>	
1809 Tons of 4" Subbase @ \$3.65 Ton	\$ 6,603.00
1809 Tons of 4" base @ \$4.00 Ton	7,236.00
Engineering (10%)	1,384.00
	-----
Subtotal Parcel A-1	\$ 15,223.00

PARCEL B

<u>Streets</u>	
8500 Tons of 4" Subbase @ \$3.65 Ton	\$ 31,025.00
8500 Tons of 4" base @ \$4.00 Ton	34,000.00
Engineering (10%)	6,503.00
	-----
Subtotal Parcel B	\$ 71,528.00
Total Parcels A-1 & B	\$ 86,751.00

Operations and Maintenance Paid by District

1986 Operations/Maintenance	\$30,000.00
-----------------------------	-------------

SWAN'S NEST

1987

In the second year of construction, approximately 20 acres of land will be developed. A 50,000 gallon water storage tank to satisfy the total water storage needs of the service area. This water storage tank will be constructed as early in the year as possible. The costs of engineering and construction of the wastewater treatment plant expansion are allocated during this year.

1987 Capital Costs - New Construction by District

PARCEL F

Sanitary Sewer

800 L.F. 12" PVC @ \$20 L.F.	\$	16,000.00
3 Manholes @ \$1650 ea.		4,950.00
Engineering (10%)		2,095.00
		-----
Subtotal	\$	23,045.00

Water System

1200 L.F. 8" DIP @ \$20 L.F.		24,000.00
Water Tank (50,000 gal)		30,000.00
Engineering (10%)		5,400.00
		-----
Subtotal	\$	59,400.00

Streets

1000 L.F. of 4" Asphalt @ \$29.85 L.F.	\$	29,900.00
2000' of Gutter @ \$10.00 L.F.		20,000.00
Engineering (10%)		4,990.00
		-----
Subtotal	\$	54,890.00

Mosquito Control

Spraying of Pesticides	\$	2,000.00
------------------------	----	----------

Storm Drainage

Detention and Sedimentation Ponds	\$	64,500.00
		-----
Subtotal Parcel F	\$	203,835.00
10% Contingency	\$	20,384.00
		-----

Total Capital Costs by District	\$	224,219.00
---------------------------------	----	------------

Summation of District Capital Costs

Grand Total Capital Costs for		
Construction by District	1986	\$2,426,617.00
	1987	\$224,219.00
		-----
GRAND TOTAL		\$2,650,836.00

SWAN'S NEST

1987 Anticipated Capital Costs Contributed by Developer

PARCEL D

Sanitary Sewer

200 L.F. 12" PVC @ \$20 L.F.	\$ 4,000.00
1 Manhole @ \$1650 ea.	1,650.00
Engineering (10%)	565.00

Subtotal Parcel D	\$ 6,215.00
-------------------	-------------

PARCEL G

Sanitary Sewer

1000 L.F. 12" PVC @ \$20 L.F.	\$ 20,000.00
4 Manholes @ \$1650 ea.	6,600.00
Engineering (10%)	2,660.00

Subtotal	\$ 29,260.00
----------	--------------

Water System

1625 L.F. 8" DIP @ \$20 L.F.	\$ 32,500.00
Engineering (10%)	3,250.00

Subtotal	\$ 35,750.00
----------	--------------

Streets

1000 L.F. of 4" Asphalt @ \$29.85 L.F.	\$ 29,900.00
1809 Tons of 4" Subbase @ \$3.65 Ton	6,600.00
1809 Tons of 4" base @ \$4.00 Ton	7,300.00
Engineering (10%)	4,380.00

Subtotal	\$ 48,180.00
----------	--------------

Landscape/Open Space

	\$ 40,000.00
--	--------------

Mosquito Control

Spraying of Pesticides	\$ 2,000.00
------------------------	-------------

Mass Transportation

Waiting Areas	\$ 8,000.00
---------------	-------------

Television Transmission

Translator Station	\$ 10,000.00
--------------------	--------------

Total Parcel G	\$173,190.00
----------------	--------------

Subtotal Parcels D & G	\$179,405.00
------------------------	--------------

10% Contingency	17,941.00
-----------------	-----------

1987 Total Capital Costs Developer	\$197,346.00
------------------------------------	--------------

Operation and Maintenance Paid by District

1987 Operations/Maintenance	\$30,000.00
-----------------------------	-------------



1988

The sewer and water system will be expanded to accommodate the development of another 40 acres.

1988 Anticipated Capitol Costs - Contributed by Developer

	<u>TOTALS (\$)</u>
<u>Water System</u>	
1625 LF 8" DIP @ \$20/LF	= 32,500
Engineering (15%)	= 4,900
<u>Sanitary Sewer System</u>	
1000 L.F. 12" PVC @ \$20/LF	= 20,000
4 Manholes @ \$1650/M.H.	= 6,600
Engineering (15%)	= 4,000
<u>Streets</u>	
1,000 4" Asphalt @ \$29.85/LF	= 29,900
1,809 Tons of 4" Subbase @ \$3.65/Ton	= 6,600
1,809 Tons of 4" Base @ \$4.00/Ton	= 7,300
2,000' of Gutter @ 10.00/LF	= 20,000
Engineering (15%)	= 9,600
<u>Landscape / Open Space</u>	\$40,000.00
<u>Mosquito Control</u>	
Spraying of Pesticides	\$2,000.00
<u>Mass Transportation</u>	
Waiting Areas	\$8,000.00
<u>Television Transmission</u>	
Translator Station	\$10,000.00
Total 1988 Capital Costs Contributed by Developer	----- \$201,400.00
<u>Operations and Maintenance</u>	
1988 Operations and Maintenance	\$30,000.00

## CHAPTER IV

### Financial Detail for the Swan's Nest Metropolitan District

This chapter reviews the financing program for the Swan's Nest Metropolitan District. The balance of the information is presented in tabular form for rapid analysis and review.

#### Major Assumption

Table 4-1 (page 39) sets forth the major assumptions for the financing of the Swan's Nest Metropolitan District. The key assumptions are as follows:

- Contingencies on construction costs are set at 10%
- All costs are shown in 1985 dollars
- All bond issues are 20 year bonds, maturing serially
- Bond interest is assumed at 8.5% per annum
- Property tax assessments are set at 30 mills
- Water and sewer service charges are set at \$45.00 per month (\$30 water + \$15 sewer) for each service, per Equivalent Residential unit (SFE).
- Water taps are set at \$4,763 per EQR
- Sewer taps are set at \$3,000 per EQR

#### Water User Fee:

\$90 for the First 1500 Gallons per SFE/Quarter or \$30/Month

#### Sewer User Fee:

\$15 per SFE/Month

TABLE 4-1  
 SWAN'S NEST METROPOLITAN DISTRICT  
 TABLE OF ASSUMPTIONS

CONSTRUCTION COSTS

1. Construction costs are based upon engineer's estimates.
2. All costs are in 1985 dollars.
3. Contingency is 10%.

FINANCING ASSUMPTIONS

1. All bond issues mature serially over 20 years and include capitalized interest.
2. The first two years interest payments on the bonds are capitalized in the bond issue; therefore, no net cash outflows are charged the District for two years.
3. After 1988, no bond interest is capitalized.
4. Bond interest is assumed at 8.5%.
5. Bond issuance fees and expenses are estimated at 5.0% of the total bond issue.
6. Gradually escalating debt service payments are assumed after initial first two years of bond issue.

ASSESSED VALUATION CALCULATIONS

Assessed values are based upon the following table:

CONSTRUCTION CONVERSION ASSESSMENT

USAGE	COSTS (1.) TO	'77 VALUE (2.)	FACTOR (2.)	NET VALUE per SQ.FT.
Condominiums	\$115	70.0%	21.0%	\$19.02
Single Family	\$150	70.0%	21.0%	\$16.65
Commercial	\$120	70.0%	29.0%	\$18.27

REVENUES

1. Property taxes are set at 30 Mills.
2. Water service charges are \$30.00 per EQR per month.
3. Sewer service charges are \$20.00 per EQR per month.

4. New units pay water and sewer service 0.5 year.
5. Water tap fees \$4,763 per EQR.
6. Sewer tap fees are \$3,000 per EQR.
7. Property tax collections lag two years behind construction.
8. Interest income from invested idle fund 7.0% based on the previous year's cash balance.
9. Property tax net income has been reduced by 2% to allow for county treasurer collection fees.

FOOTNOTES

- (1.) Based on information supplied by Swan's Nest Development.
- (2.) Based on information supplied by Summit County Assessor's Office.

Estimated Assessed Valuation Schedule

Table 4-2 (page 42) sets forth the projected assessed values schedule for the Swan's Nest Metropolitan District over the next 20 years. Actual construction schedules will vary as will the timing and dollar amounts of the bond issues based upon the growth of the District.

Inflation is not included in these projections. 1985 construction costs are used throughout.

SWAN'S NEST METROPOLITAN DISTRICT  
ESTIMATED ASSESSED VALUATION\*

TABLE 4-2

ASSESSMENT YEAR	CONSTRUCTION YEAR	COMMERCIAL PARCEL A-1 NUMBER	COMMERCIAL PARCEL A-1 VALUE	COMMERCIAL PARCEL A-1 SQ. FT.	CONDOMINIUM PARCEL B NUMBER	CONDOMINIUM PARCEL B VALUE PER UNIT	SINGLE FAM. PARCEL D NUMBER	SINGLE FAM. PARCEL D VALUE PER UNIT	SINGLE FAM. PARCEL F NUMBER	SINGLE FAM. PARCEL F VALUE PER UNIT	CONDOMINIUM PARCEL G NUMBER	CONDOMINIUM PARCEL G VALUE PER UNIT	CONDOMINIUM PARCEL H NUMBER	CONDOMINIUM PARCEL H VALUE PER UNIT	TOTAL COMMERCIAL PARCELS	TOTAL COMMERCIAL VALUE	TOTAL CONDOMINIUM PARCELS	TOTAL CONDOMINIUM VALUE	TOTAL SINGLE FAM. PARCELS	TOTAL SINGLE FAM. VALUE	TOTAL PARCELS	TOTAL VALUE	RESIDENTIAL PARCELS	RESIDENTIAL VALUE	COMMERCIAL PARCELS	COMMERCIAL VALUE	TOTAL PARCELS	TOTAL VALUE	ASSESSMENT YEAR	VALUATION YEAR		
1983	1984																													1985		
1984	1985																													1986		
1985	1986																													1987		
1986	1987																													1988		
1987	1988																													1989		
1988	1989	6,600	\$528,000		128	\$14,080,000																								1990		
1989	1990						7	\$2,450,000																						1991		
1990	1991										90	\$8,100,000																		1992		
1991	1992																													1993		
1992	1993																													1994		
1993	1994																													1995		
1994	1995																													1996		
1995	1996																													1997		
1996	1997																													1998		
1997	1998																													1999		
1998	1999																													2000		
1999	2000																													2001		
2000	2001																													2002		
2001	2002																													2003		
2002	2003																													2004		
2003	2004																													2005		
																5,600	\$528,000	128	\$14,080,000	7	\$2,450,000	18	\$2,100,000	90	\$8,100,000	90	\$528,000	\$32,730,000	\$79,200	\$3,273,000		

\*Based on developer projection of build-out

Estimated Debt Service

Table 4-3 (page 44) sets forth the calculation of the annual debt service using an assumption of 10% interest costs. The far right hand side of the table sets forth the total per year annual costs. It should be noted that 18 years of debt service is shown. This is because for the first two of the 20-year bond issues, interest costs are capitalized within the bond issue and will not be paid directly by the District.

Estimated Financing Plan

Table 4-4 (page 45) summarizes the growth of the condominium, single family and commercial areas in terms of Equivalent Residential (EQR's) units per year. Also shown on this table are revenues per year. The right hand columns summarize the cumulative figures for the next 20 years.

SWAN'S NEST METROPOLITAN DISTRICT  
 ESTIMATED DEBT SERVICE SCHEDULE  
 \$3,400,000 20 YEAR AMORTIZATION

TABLE 4-3

COLL. YEAR	\$3,400,000 4/1/86 PRINCIPAL	COUPON	INTEREST	ANNUAL PAYMENT	COLL. YEAR
1985					1985
1986					1986
1987			\$192,667	\$192,667	1987
1988			289,000	289,000	1988
1989	\$5,000	8.50%	289,000	294,000	1989
1990	10,000	8.50%	288,575	298,575	1990
1991	15,000	8.50%	287,725	302,725	1991
1992	20,000	8.50%	286,450	306,450	1992
1993	25,000	8.50%	284,750	309,750	1993
1994	50,000	8.50%	282,625	332,625	1994
1995	75,000	8.50%	278,375	353,375	1995
1996	100,000	8.50%	272,000	372,000	1996
1997	125,000	8.50%	263,500	388,500	1997
1998	150,000	8.50%	252,875	402,875	1998
1999	200,000	8.50%	240,125	440,125	1999
2000	250,000	8.50%	223,125	473,125	2000
2001	325,000	8.50%	201,875	526,875	2001
2002	400,000	8.50%	174,250	574,250	2002
2003	475,000	8.50%	140,250	615,250	2003
2004	550,000	8.50%	99,875	649,875	2004
2005	625,000	8.50%	53,125	678,125	2005
	\$3,400,000		\$4,400,167	\$7,800,167	

ESTIMATED USE OF BOND PROCEEDS

Construction & Engineering	\$2,652,000
Capitalized Interest (2 years)	578,000
Other Issuing Costs (5%)	170,000
	-----
	\$3,400,000



SNOWS MEST METROPOLITAN DISTRICT  
ESTIMATED FINANCING PLAN  
\$3,400,000 20 YEAR AMORTIZATION

TABLE 4-4

COLL. YEAR	TOTAL PROJECTED ASSESSED VALUATION/1	MILL LEVY	TAX REVENUES	INT. INCOME ON CAPITALIZED INTEREST	INT. INCOME ON CAPITAL. FUNDS-%	INT. INCOME ON CONSTR. FUNDS-%	INT. INCOME SURPLUS/2	NUMBER OF SEWER SEE-STEER SEWER	SEWER TAP FEE REVENUE @ \$3,000/TAP	NUMBER OF SEE-STEER WATER	WATER TAP FEE REVENUE @ \$4.767/TAP	TOTAL TAP FEE REVENUE	SERVICE FEES SEMESTER	SERVICE FEES WATER/3	TOTAL SERVICE FEES	TOTAL REVENUES AVAIL. FOR DEBT SERVICE MAINTENANCE/3	OPERATIONS & DEBT SERVICE	TOTAL DEBT SERVICE	ANNUAL SURPLUS	CUMULATIVE COLL. SURPLUS YEAR
1985																				
1986	835,475		835,475	826,973	835,000	835,000	843,048	50.0	\$150,000	134.0	\$638,742	\$788,242	\$19,440	\$81,000	\$100,440	\$638,973	\$75,000	\$192,667	709,063	\$614,973
1987	395,475		395,475				92,683	50.0	150,000	25.0	113,675	268,875	32,940	101,400	137,340	931,730	30,000	284,000	186,098	1,324,037
1988	395,475		395,475				103,289						38,540	141,840	178,380	499,098	30,000	294,000	359,086	1,683,128
1989	1,882,675	30	656,480				130,425			72.0	342,936	342,936	36,540	141,840	178,380	681,086	30,000	296,375	68,361	1,751,581
1990	2,937,675	30	88,150				135,211						36,540	141,840	178,380	396,936	30,000	302,725	93,296	2,024,877
1991	3,747,675	30	112,430				141,741						36,540	141,840	178,380	426,021	30,000	306,450	100,599	2,125,475
1992	3,871,582	30	116,977				146,783						36,540	141,840	178,380	437,049	30,000	309,750	109,018	2,234,493
1993	4,053,485	30	126,469				156,415						36,540	141,840	178,380	448,168	30,000	332,625	96,638	2,331,132
1994	4,215,625	30	131,517				162,319						36,540	141,840	178,380	473,227	30,000	353,175	89,852	2,422,983
1995	4,384,250	30	138,789				169,609						36,540	141,840	178,380	484,777	30,000	388,500	77,543	2,500,526
1996	4,559,620	30	142,260				175,403						36,540	141,840	178,380	494,043	30,000	402,875	74,287	2,574,813
1997	4,742,000	30	147,951				180,831						36,540	141,840	178,380	507,162	30,000	440,175	48,155	2,702,968
1998	4,931,605	30	153,869				186,031						36,540	141,840	178,380	527,608	30,000	473,125	24,681	2,727,649
1999	5,128,952	30	160,923				189,402						36,540	141,840	178,380	555,934	30,000	526,875	120,911	2,709,465
2000	5,334,110	30	166,424				191,130						36,540	141,840	178,380	541,125	30,000	574,250	163,123	2,846,388
2001	5,547,475	30	173,081				189,684						36,540	141,840	178,380	543,630	30,000	615,250	110,420	2,544,740
2002	5,769,373	30	180,004				185,745						36,540	141,840	178,380	543,716	30,000	649,875	1136,159	2,408,582
2003	6,000,148	30	187,205				178,132						36,540	141,840	178,380	541,674	30,000	678,125	(166,451)	2,242,130
2004	6,240,154	30	194,673				168,401						36,540	141,840	178,380	541,674	30,000	678,125		
2005	6,489,761	30	194,673				168,401						36,540	141,840	178,380	541,674	30,000	678,125		
				\$578,000	\$26,973	\$35,000	\$2,336,943	100	\$300,000	231	\$1,100,253	\$1,400,253	\$673,560	\$2,396,680	\$3,279,240	\$10,637,287	\$895,000	\$7,800,167		

1/ ASSESSED VALUATION IS INCREASED 4% PER ANNUM BEGINNING IN 1992.  
2/ INTEREST INCOME ON CAPITALIZED INTEREST, CONSTRUCTION FUNDS AND CUMULATIVE SURPLUSES ARE CALCULATED AT 7%.  
3/ PROVIDED BY THE DEVELOPER.

APPENDIX A

July 10, 1985

Project No. 585  
585C02

Mr. Steve Thompson  
Swan's Nest Utility Company  
P.O. Box 2260  
Breckenridge, CO 80424

Letter Report  
Technical Audit  
Water and Wastewater Facilities  
Swan's Nest Utility Company  
Summit County, Colorado

Dear Mr. Thompson:

In accordance with our proposal dated May 2, 1985, Gormley Consultants Inc. has conducted a technical audit of the water and wastewater facilities at the Swan's Nest Utility Company (Swan's Nest) in Summit County, Colorado. The audit objectives are to provide the following to Swan's Nest:

- o An evaluation of the present conditions regarding compliance with State and County regulations.
- o An evaluation of present operation and maintenance conditions.
- o A determination of replacement costs of existing facilities.
- o An assessment of capabilities for facilities' expansion.

To accomplish these objectives, we have participated in a project meeting and site visit/inspection with the Swan's Nest officials, Costin Engineering Co. (Costin), and the facilities' operations and maintenance contractor, Utility Management Services Inc. (UMS); reviewed information provided by Swan's Nest, Costin and UMS; contacted cognizant State and County health personnel; evaluated the sizing of facility components; received construction cost information from Costin and performed independent computations for facility replacement costs. This report is organized to state our understanding of the Swan's Nest facilities and operations and present our findings consistent with the stated objectives of the audit.

## FACILITIES DESCRIPTIONS

### Water

Installed water facilities presently provide potable water supplies to about 260 (over half) of the planned sites in the Recreation Vehicle (RV) development and the Administration Building. The water facilities consist of the following major components:

- o A catchment for water from Revett Spring (present source);
- o A water gallery connecting the flow from the catchment to the chlorination and pump house;
- o A chlorination and pump house where water is pumped from the water gallery to the storage tank depending on water levels in the storage tank. The water is chlorinated at this location as it is pumped to the storage tank;
- o A ceramic filtration system that operates in conjunction with the chlorination unit. This system is presently being installed.
- o A 133,000 gallon storage tank situated on a hillside above the resort at an elevation that provides adequate line pressures [reported as 35 to 40 pounds per square inch (psi)] for the current uses and fire protection.
- o A 8-inch diameter transmission line from the storage tank to the development and a water distribution system in the development consisting of 4-inch and 6-inch diameter potable water piping, valves, hydrants, an auxiliary pump building and appurtenances and connections for future expansion.

### Wastewater

Installed wastewater collection facilities serve the same portion of the development as the water distribution system. The 50,000 gallon per day (gpd) operating treatment facility serves the present development facilities and has substantial capacity as is for considerably more development buildout. The wastewater facility consists of the following major components:

- o An 8-inch diameter gravity sewer system including manholes and cleanouts which drains to the lift station;
- o A wet well-dry well type sewage lift (pump) station which receives all of the sewer drainage from the development and

pumps it by way of force main to the wastewater treatment facility;

- o A 50,000 gpd extended aeration packaged wastewater treatment plant equipped with a vacuum polishing filter. Treated and polished effluent is discharged to an adjacent soil absorption system;
- o A 60,000 square foot (sq.ft.) soil absorption system compatible in size with the 50,000 gpd wastewater treatment plant. The soil absorption system consists of three equally sized absorption beds. Each bed has a minimum two feet of soil overlying a granular underdrain which is set on undisturbed soil. The undisturbed soil zone is located so as to have at least a four foot thickness above the groundwater table. There is no point source discharge from the soil absorption system.

For purposes of this audit, all the facilities described above will be assumed to have the same start up date as the recorded start up date of the wastewater treatment facility of February 15, 1983.

#### PRESENT CONDITIONS - PERMITTING

##### Water

The water supply for the resort is categorized as a "non-community public system". The Colorado Department of Health (CDH) has nominal requirements for such a system including operation and maintenance by a certified operator and a quarterly sampling of the water supply for bacterial testing.

The operation and maintenance is by UMS and UMS has the appropriate certification among its employees. Samples are taken approximately monthly by UMS and tested by the Summit County Health Department (Mr. Bill Smith). According to the Summit County Health Department, all bacterial tests have shown the water supply to be acceptable for domestic use.

A 1983 inspection report by CDH identified that the water supply would require metering. Subsequent to the report, metering was installed in the chlorination and pump house. The meter is typically read daily by UMS. The current CDH inspection (June, 1985) showed the water supply system to be in good operating condition. The treatment facility (filtration and chlorination) meets the requirements of CDH and generally accepted standards for this type of water source.

It is understood that Swan's Nest is going to upgrade the water facility soon by installation of groundwater supply well(s). The upgrade will include either appropriate revisions to the treatment facility or a new treatment facility to accommodate the characteristics of the new water supply source and the capacity for increased flows.

### Wastewater

The application for sewage treatment works was approved by the Colorado Water Quality Control Commission in August 1981 with stipulations on monitoring wells and actions to be taken in the event of phosphorus migration from the soil absorption system. The wastewater treatment facility plans and specifications were approved by CDH in September 1981. The wastewater treatment facility began operation in mid-February 1983. Monitoring wells were installed as required. Reported measurements of phosphorus from May 1983 through March 1985 show no change compared to background levels measured prior to system start up.

The CDH performed a facility inspection on February 8, 1985 and reported that the plant is severely underloaded, that is, there is insufficient waste loading from the resort for the plant to operate efficiently. The report also acknowledged that the plant operators are taking appropriate steps to compensate for this problem by occasional injections of waste sludges from the South Blue River Waste Treatment Plant to sustain the biological processes.

At the time the wastewater treatment facility was approved by CDH, no discharge permit was required since there was no point source discharge associated with the facility. This is still the circumstance. However there is an impending change in the State Discharge Permit System which will include permit requirements for "no discharge" facilities such as soil absorption systems. CDH identifies that Swan's Nest is aware of this possible change and has already (January, 1985) made a request for permit in writing through UMS. The permit will most likely include a Dillon Reservoir phosphorus allocation. Assuming no degradation from current performance and no phosphorus concentration increases downstream of the soil absorption system, the development's application for and receipt of a discharge permit should be uncomplicated.

The major and longstanding permitting issue with Swan's Nest and all other wastewater facilities in the Upper Blue River Basin is the strict limitation on the quality of treated effluent discharges in order to protect Dillon Reservoir waters from degradation. In particular, and most important, wastewater treatment facilities in the Basin are restricted by the amount of total phosphorus that can be discharged. The succession of studies and planning in nearly a decade are manifest in the December 1984 Facility Plan Report, Upper Blue River Wastewater Management Plan. Therein, the Swan's Nest wastewater treatment facility (formerly known as Tiger Run) is identified as a "demonstration project for package treatment systems utilizing the soil system for effluent polishing" and consistent with treatment recommendations for future relatively small treatment facilities in the Basin. The facility is ranked as a good prospect for adequate removal of phosphorus because of the extended aeration process with chemical addition and filtration and the low loading rates on the soil absorption system. The facility plan recommends for the contin-

ed operation of the Swan's Nest wastewater treatment facility. The Report also identifies that the Swan's Nest facility treatment performance should be evaluated as flows approach 80% of present capacity. That evaluation should account for any performance changes in the intended expansion to 100,000 gpd and provide for consideration of the option of connecting to the Breckenridge Sanitation District and the Breckenridge Wastewater Reclamation Facility.

The CDH adheres to compliance with the Dillon Reservoir phosphorus limitations and would impose the Dillon Reservoir waste load allocation on Swan's Nest future wastewater facility discharge permit. The wastewater facility is regarded by CDH as being adequately operated and monitored. If a phosphorus buildup were detected in the monitoring system, CDH would anticipate adjustments to the chemical addition-filtration system or rehabilitation of the soil absorption system (replacement of soil) or a combination of both to occur.

In summary, from a permitting perspective, the Swan's Nest wastewater treatment facility is presently in compliance; should obtain a discharge permit with no complications; and is sufficiently flexible in its operating and expansion options to be regarded as a viable long term wastewater treatment facility by CDH and in the Upper Blue River Wastewater Management Plan, Facility Plan Report.

#### OPERATING CONDITIONS

##### Water

Water consumption currently ranges up to about 15,000 gpd and there is no reported difficulty with the water supply source in meeting this demand. The water gallery, chlorination and pump operations and storage tank are checked regularly by UMS. They show no complications/degradations since start up. The water meter is read daily by UMS and residual chlorine measurements are regularly taken at a number of locations in the treatment, storage and distribution system.

The installed water distribution system is consistent with contemporary design standards. The distribution piping is of adequate size and type for safe and cost effective operations. No extraordinary pressure or flow losses have been reported since start up. The system was pressure tested in November 1984 by the local fire department and determined to be consistent with fire protection requirements. The system operating pressure is reported as 35 to 40 psi. These are indications that no measurable degradation has occurred to the water distribution system since installation.

##### Wastewater

The installed sewer system is consistent with contemporary design standards. Pipe size, type and configuration provides for acceptable gravity flow conditions and reasonable maintenance accessibility.

UMS has detected nominal infiltration to the sewer. UMS expects that the majority of infiltration is through the risers and occurs during occasional high flow periods. The UMS plan is to detect infiltration during high flow periods and make repairs as required.

The lift station has operated normally since installation. It is regularly monitored by UMS and maintained according to their master maintenance schedule. Inspection of the facilities showed proper protection, ventilation and dry conditions in the dry well. Based on available information, the pumps are more than adequately sized for average and peak flows from the RV development buildout of 400 units, assuming 75 gallons per day per unit and 70% occupancy; i.e., there is capacity for waste flows over and above what can be reasonably expected from the RV development buildout.

The extended aeration treatment plant is the best suited activated sludge process for relatively low flow treatment facilities. The 50,000 gpd packaged treatment plant is presently operating at the low end of its effective treatment range. Overall treatment effectiveness will improve as the waste loading to the plant increases. The plant is sized for 50,000 gpd. Special features with the packaged plant include oversized blowers (aeration pumps) and a down stream chemical addition and polishing filter unit.

Inspection and review of operations with UMS indicates that the plant components have operated as designed since start up. No deterioration or major breakdowns are reported. The waste flow volumes have been estimated from a record of lift pump operating time. Recently a V-notch weir measuring device with continuous recorder was installed in the treatment plant. This is an appropriate measuring device for the range of flows that will occur in the treatment plant.

There is one operational problem (cited in the previous section) associated with the low waste loadings. These type of systems require a certain amount of sludges resulting from the aerobic biological treatment process to sustain the treatment effectiveness. During low waste load periods, the amount of sludge may become ineffective. UMS has identified and corrected for this operational problem by occasionally obtaining aerated sludge from another wastewater treatment facility and injecting it to the extended aeration plant.

There is limited information available on operation, maintenance and repair costs. There will be modest extraordinary chemical costs associated with the alum addition for phosphorus removal, but other than that, all units appear in good repair and should operate efficiently as waste loads increase.

The soil absorption system is designed to operate compatibly with the 50,000 gpd treatment plant. Normally, two of the three absorption beds will be operating and one bed will be at rest. With the plant operation at capacity, the normal surface loading would be about 1.25 gpd per sq. ft. This is a low loading for such a system which should be beneficial to longer term phosphorus uptake by the soils. Al-



though the plans call for top soil over the soil absorption surface to induce vegetative growth (and consequently phosphorus and nitrogen uptake), vegetation is sparse. It could prove to be a worthwhile effort to improve conditions for vegetative growth on the beds. Even with a short growing season, nutrient uptake by the vegetation could extend the useful 'life' of the soil in the beds.

The soil absorption system is operating well. No breakouts or ponding have been reported since start up. Three monitoring wells have been reinstalled closer to and along the boundary that the major groundwater flow component should cross. These wells are used to detect any water table build up (mounding) and obtain samples for chemical testing.

#### REPLACEMENT COSTS

##### Water

Replacement costs for the water system as installed have been computed on the basis of furnishing and installing the system at 1985 prices. The units and prices by system component are provided in Table 1. The estimated total replacement cost is \$382,900. The distribution system is the major component of the replacement cost at \$257,600. The composite unit price per length for the water distribution system, including its appurtenant valves and hydrants, is about \$26.40 per foot.

The replacement costs include excavation, bedding and backfilling, furnishing and installing materials and equipment, and contractor overhead and profit. Other costs, such as property or easement acquisition, engineering design, or construction monitoring are not included. The As Built and Design Drawing Set by Resort Development, Inc. was the primary reference for determining quantities; up-to-date Summit County construction costs reported by Costin, current construction cost guides and manufacturer price quotations were the bases for determining costs for the water and wastewater facilities.

##### Wastewater

Estimated replacement costs for the wastewater collection, treatment and disposal facilities as installed have been computed on the basis of furnishing and installing the system at 1985 prices. The units and prices by system component are provided in Table 2. The estimated replacement cost is \$530,100. The wastewater collection system, including the piping, manholes and cleanouts is \$228,800 or a composite unit price of about \$27.30 per foot.

The replacement costs include excavation, bedding and backfilling, furnishing and installing of materials and equipment, and contractor overhead and profit. Other costs such as property or easement acquisition, engineering design or construction monitoring are not included.

## EXPANSION CONSIDERATIONS

Water

With the planned development of a groundwater supply system, there will be a safe yield determined by pump tests that should, by itself, or in conjunction with the Revett Spring flow, accommodate the development's buildout plans. Depending on the magnitude of safe yield, it may be necessary to increase water storage capacity in order to accommodate peak demands from an expanded development.

It is anticipated that a new chlorination system or an adaptation of the existing chlorination system will be necessary to operate with the new groundwater supply. Additional treatment could be necessary, depending on the groundwater quality. For information, a fully packaged gas chlorination system for a 50,000 gallon per day water supply would cost about \$4,000.

There should be no complication with expanding the water distribution system in the RV development. Sizes and configurations in place are apparently designed for the intended buildout. Using the composite unit price for water distribution from Table 1 and an estimated 4,000 feet of system expansion, the construction costs of expanding the water distribution system to buildout is approximately \$106,000.

Based on available information on system pressures, the fire protection system for the RV development should be adequate. Planned development in addition to the RV facility does include a systematic rechecking of the overall water storage, transmission and distribution system for conformance to fire protection standards. For example, planning for a commercial area development has recently involved the Fire Department. On the Fire Department's advice, Swan's Nest will install a fire pump for the commercial facility, in the vicinity of the Administration Building.

Wastewater

The RV development's in-place sewer and lift station are readily adapted to the planned buildout. Sewer sizes and configurations are adequate to transmit flows from the expansion and, based on available information, the lift station could adequately discharge estimated peak flows from the completed RV development to the wastewater treatment facility. Using composite unit prices for the sewer system from Table 2 and an estimated 5,000 feet of system expansion, the construction costs of expanding the RV development sewer system to buildout is approximately \$137,000.

The lift station-forcemain configuration should be rechecked for adequate discharge versus head characteristics when adding in wastewater flows from the upstream condominium-homesite development. There is capacity available for more than the RV development and if more capacity were needed, larger pumps could be placed in the existing lift station, or an additional lift station could be added to the

system. For information, and estimated lift station furnished and installed price (based on the existing lift station replacement) is \$35,500.

From the installation/operation viewpoints, the extended aeration treatment facility and the soil absorption system pose no complication to an expansion of double its present size. For estimating purposes, the replacement cost for the existing systems on Table 2 could be used (\$155,600 for the wastewater treatment facility and \$59,300 for the soil absorption system). If the estimated waste flow range at buildout warrants (i.e., if the estimated low flow is less than 25,000 gpd), it is suggested, at the next phase of expansion, that an additional compartment and associated piping be added to the aeration tank in order to provide more treatment flexibility at low flows.

The recently installed flow measuring device and regular monitoring of the chemical and bacterial effluent characteristics is very important information for the expansion design. The actual hydraulic and waste loadings from the planned development will likely be somewhat different than the design loadings for the existing facilities. Accordingly, the actual performance may indicate design modifications and improvements for the expansion unit.

From the permitting viewpoint, on-site wastewater treatment facility expansion is primarily contingent on phosphorus containment. The system as designed provides the flexibility for varying operations or even modifying components to further improve phosphorus removal. Several components of the system relate to the overall phosphorus removal capability - the extended aeration process itself, the chemical (alum) feed and filtration unit and the soil absorption beds.

The chemical feed system could be altered to achieve higher removal rates if necessary and the soil in the absorption system could be refurbished or replaced to reestablished higher phosphorus removal efficiencies. There is no established method for accurately predicting how long a soil absorption bed will provide for adequate phosphorus uptake. However, information reported in the literature suggests that the period of effectiveness would be measured in terms of years. Considering the Swan's Nest maintenance program, the phosphorus removal by chemical addition in the treatment plant and the relatively low design loadings on the beds, the soil in each bed should be effective for a number of years.

#### SUMMARY

The Swan's Nest water and wastewater facilities are adequately designed and installed and they are in good operating condition. The facilities are in compliance with the regulatory jurisdictions and operations are maintained by individuals trained and certified to do so.

When CDH requires permitting of "no discharge" systems, the facility should have no problem in being permitted. That permit will likely

include the Dillon Reservoir phosphorus allocation for Swan's Nest that reported in the Facility Plan Report. The present water supply is adequately treated, maintained and monitored. As the groundwater supply comes on line, modified or new treatment units will be added as necessary to maintain a high quality potable water supply.

Swan's Nest plans for buildout and expansion are consistent with the Upper Blue River Wastewater Management Plan, Facility Plan Report. The Report identifies the Swan's Nest waste water facilities as a "demonstration project for package treatment systems utilizing the soil system for effluent polishing" and consistent with treatment recommendations for future relatively small treatment facilities in the Basin. The Swan's Nest facility is ranked as a good prospect for adequate removal of phosphorus because of the extended aeration process with chemical addition and filtration and the low loading rates on the soil absorption system.

Current replacement costs of the installed water and wastewater facilities are \$382,900 and \$530,100 respectively. Some of the computed unit prices from Tables 1 and 2 may be useful in considering certain buildout or expansion alternatives. Both the water and wastewater facilities offer favorable prospects for expansion. They are in good operating condition and they are designed and installed to be adaptable to expansion.

Respectfully Submitted,

  
John T. Gormley, Ph.D., P.E.

APPENDIX B

A PORTION OF

APPRAISAL

OF

Swan's Nest Utility Company

Breckenridge, Colorado

August 20, 1985

For

Mr. Steve Thompson

Swan's Nest Utility Company

Breckenridge, CO

By

Max P. Arnold & Associates, Inc.

Max P. Arnold, F.A.S.A.

222 Milwaukee, Suite 400

Denver, Colorado 80206



max p. arnold & associates, inc.  
222 milwaukee street, suite 400  
denver, colo. 80206  
303/355-3547

Thomas A. Arnold, Associate  
Lenny R. Arnold, Associate

Max P. Arnold, F.A.S.A., President

September 25, 1985

Mr. Steve Thompson  
Swan's Nest Utility Co.  
0050 County Road #315  
Breckenridge, CO 80424

Dear Steve:

We have inspected the subject property and in our opinion the present market value of the Swan's Nest water and wastewater facility is \$1,320,000 as of July 16, 1985. We further estimate the value of the facilities at build-out to be \$3,063,000.

At build-out, we have estimated the present worth of the fully developed building sites to be \$4,660,000.

Also included in the report is a financial analysis of the plant investment fees and revenue projected to be generated by the water and wastewater facilities.

Very truly yours,

MAX P. ARNOLD & ASSOCIATES, INC.

  
Max P. Arnold, F.A.S.A.

## SUMMARY

It is our opinion that as of July 16, 1985, the market value of Swan's Nest Development Company's present water and wastewater sanitation facilities was \$1,320,000.

We have also reviewed the engineering reports which contain the estimated costs of expanding the present system over the next three years and the costs in those reports -- \$1,292,950 -- appear reasonable. We conclude the market value of the system at build-out to be \$3,063,000.

Market value - present water and wastewater facilities	\$1,320,000
Market value - water and wastewater facilities at build-out	\$3,063,000

Present market value of subject property	\$2,238,000
Present worth of subject property at site build-out	\$4,660,000

Also included in this report is a financial analysis of the plant investment fees and water service revenues projected to be generated by the water and wastewater system.

We have estimated the present market value of the subject property to be \$2,238,000 which is the value of the undeveloped land -- \$918,000 -- plus the cost of the present facilities -- \$1,320,000. We have also estimated the present worth of the fully developed sites to be \$4,660,000.



APPENDIX C

DEVELOPMENT OF PLAN FOR AUGMENTATION  
SWAN'S NEST UTILITY COMPANY  
SUMMIT COUNTY, COLORADO

Job No. 0450

Prepared for

Swan's Nest Utility Company  
Box 2260  
Breckenridge, Colorado 80424

Attention: Mr. Glenn Campbell

December 1984

J. W. Patterson & Associates, Inc.  
6825 E. Tennessee Avenue  
Building 2, Suite 250  
Denver, Colorado 80224

**J.W. PATTERSON & ASSOCIATES, INC.**

CONSULTING ENGINEERS — GROUND AND SURFACE WATER HYDROLOGY, WATER RIGHTS,  
ENGINEERING GEOLOGY, AND IRRIGATION AND DRAINAGE

Denver  
December 13, 1984

Swan's Nest Utility Company  
Box 2260  
Breckenridge, Colorado 80424

Attention: Mr. Glenn Campbell

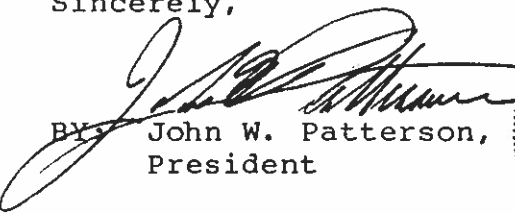
Re: Development of Plan for Augmentation, Swan's Nest Utility  
Company, Summit County, Colorado  
Job No. 0450

Gentlemen:

As requested, we have estimated the number of single family residential units or the equivalent that might be served water by the Swan's Nest Utility Company. We conclude Swan's Nest has the potential to supply water to approximately 700 single family residential units or the equivalent assuming (a) water use is limited to in-house purposes, (b) utilization of a central sewage system and (c) ten acre-feet of water is acquired by Swan's Nest from the Vidler Tunnel Water Company. Implementation of service would be subject to approval by the Water Court for Water Division 5 of the required Plan for Augmentation.

If you should have any questions, we would be pleased to discuss them with you.

Sincerely,

  
BY: John W. Patterson,  
President



JWP/lr

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FIGURES

Figure

- 1            LOCATION MAP, SWAN'S NEST UTILITY, SUMMIT COUNTY, COLORADO
- 2            VICINITY MAP, SUMMIT COUNTY, COLORADO
- 3            PROPOSED SERVICE AREAS FOR SWANS NEST UTILITY, SUMMIT COUNTY, COLORADO

DEVELOPMENT OF PLAN FOR AUGMENTATION  
SWAN'S NEST UTILITY COMPANY  
SUMMIT COUNTY, COLORADO

SCOPE

Swan's Nest Utility Company (Swan's Nest) is a private utility company that proposes to supply water for recreational, residential and related uses in Summit County, Colorado. The service area is about 6 miles southeast of Frisco and about 3 miles north of Breckenridge in Former Water District 36 of Water Division 5 as shown on Figures 1, 2 and 3.

Our report discusses means whereby Swan's Nest might provide a dependable water supply to the area based on the 10 acre-feet of Vidler Tunnel water rights reportedly under contract to Swan's Nest. The Vidler Tunnel rights represent water available for either diversion outside the Blue River Basin and its tributaries or within the Basin. The water can be consumed to extinction.

Our study has included (1) estimates of water requirements for the proposed service area, (2) analyses of surface and ground water availability, (3) estimates of sewage return flow as a percentage of gross in-house water use, and (4) recommendations relating to development of a dependable water supply. We have relied on (a) information supplied by representatives of Swan's Nest, (b) Water Court documents from Case Nos. W-217 and W-2110 regarding the Vidler Tunnel Water

Company water rights, (c) Water Court Document Case Nos. W-1900 and W-1900-77 and well permit 25876 regarding Swan's Nest water rights, (d) surface water supply records collected in the Blue River Basin by the U.S. Geological Survey, and (e) field inspection of the proposed service area.

#### VIDLER TUNNEL COMPANY WATER RIGHTS

The Vidler Tunnel Company originally was organized to transport water from the Blue River drainage through the Continental Divide near the base of Argentine Pass into Clear Creek of the South Platte drainage. Vidler Tunnel water rights are based primarily on previously modified irrigation water rights in the Blue River Basin which are senior to those rights of Green Mountain and Dillon Reservoir. The irrigation rights are among the more senior in the Colorado River Basin and historically have diverted without restriction. However, the decree modifying the rights from irrigation limited diversion to the historic season of use.

#### SITE DESCRIPTION AND SERVICE AREA

Swans Nest proposes to supply water to an estimated 400± acres as shown on Figure 3. Elevations range from approximately 10,700 feet near the south end of the service area to about 9,150 feet near the confluence of the Blue and Swan Rivers.

Vegetal cover is primarily natural grasses with isolated groups of trees and shrubs.

Average monthly precipitation in the region ranges from 1.07 inches in October to 1.82 inches in April, with an annual average of about 16.8 inches. Average monthly temperatures varies from 16.0°F in January to 55.6°F in July, with an annual average of 35.2°F. Climatic information is based on records from 1951 through 1980 as maintained by the National Ocean and Atmospheric Administration.

#### WATER REQUIREMENTS

We have assumed for preliminary estimates of gross in-house single family residential water use (1) an average of 3.5 people per household or household equivalent, (2) average gross in-house water requirement of 70 gallons per capita per day (gpcd), and (3) year-round occupancy. The resulting in-house water demand would approximate 0.27 acre-feet per family per year, calculated by :

$$\frac{3.5 \text{ people}}{\text{unit}} \times 70 \text{ gpcd} \times 365 \text{ days} = 89,425 \text{ gallons}$$

or

$$\frac{89,425 \text{ gallons}}{325,850 \text{ gallons/ac-ft}} = 0.27 \text{ ac-ft/single family residential unit or equivalent}$$

This estimate is probably on the high side because much of the area proposed to be served by Swan's Nest will involve recreational development which is seasonal.

It is our understanding either a central waste disposal treatment plant will be constructed by Swan's Nest or sewage treatment will be handled by the central sewer system operated by the Town of Breckenridge. Typically, water return flow through a central sewage plant will exceed 95 percent of gross in-house water use. Consumption of water for in-house purposes or the equivalent is estimated to be less than 5 percent of the gross water demand or approximately 0.014 acre-feet per year per single family dwelling (0.27 acre-feet x .05).

In our opinion, a "Plan for Augmentation" as described in Section 37-92-103(9) of the 1973 Colorado Revised Statutes as Amended is a practical means to optimize utilization of the 10 acre-feet of Vidler Tunnel water rights. A Plan for Augmentation is defined as

"A detailed program to increase the supply of water available for beneficial use in a Division or portion thereof, by the development of new or alternate means of points of diversion, by pooling the water resources, by water exchange projects, by providing substitute supplies of water, by the development of new sources of water, or by any other appropriate means."

An approved Plan for Augmentation would permit Swan's Nest to replace to the stream system water that is consumed within its service area. Depending on location, a Plan for Augmentation might also require releases of water to the stream system based on the timing and quantity of water depletions resulting from the combined influences of gross water demands,



consumptive use and subsurface seepage return flow to the surface water system.

We conclude the 10 acre-feet of Vidler Tunnel water reportedly available to Swan's Nest have the capability of supplying in excess of 700 single family residential units or the equivalent based on the following:

$$\frac{10 \text{ acre-feet}}{0.014} = 700 \text{ units}$$

The use of Vidler water for an augmentation source could be accomplished by leaving water in the Peru Creek Basin and allowing it to flow into Dillon Reservoir to compensate Denver for water that might be consumed by Swan's Nest. The Town of Breckenridge has also obtained "conditional water rights" (unperfected water rights) for 3 cubic feet per second of water to irrigate the Breckenridge golf course, and conditional storage rights for almost 60,000 acre-feet of water from the Swan River. Although these rights, if perfected, would probably be senior to the Plan for Augmentation proposed for Swan's Nest, the proposed Swan's Nest water diversion system is downstream of storage facilities proposed by Breckenridge. In as much as water rights claimed by Breckenridge are junior to Dillon Reservoir, the town only rarely would be entitled to impound water on its own priority thereby leaving a "live" stream downstream of the reservoirs. In our opinion, the rights of the City of Denver in Dillon Reservoir, and the Town of Breckenridge

can be adequately protected assuming implementation of the Swan's Nest proposed Plan for Augmentation.

#### WATER SUPPLY

Water could be supplied to the service areas by surface water diversion from the Swan River, ground water withdrawal from wells or an infiltration gallery constructed into the alluvium, or some combination thereof. Our analyses of streamflow records for the Blue River correlated with flows in the Swan River indicate that during the last 70 years more than enough flow was available in the Swan River to meet estimated gross water requirements to supply the Swan's Nest proposed service area.

Our field inspection indicated the alluvium along the Swan River has the capability of supplying estimated service area water requirements. Wells constructed in the alluvium have the advantage of being less subject to freezing and surface contamination while providing the benefit of water filtration. In addition, wells can be developed in phases as need occurs.

As an alternate to a well, an infiltration gallery can also be constructed. The gallery is in effect a horizontal well that can intercept the underground flow of a river or stream.

## CONCLUSIONS AND RECOMMENDATIONS

1. In our opinion, Swan's Nest Utility Company has the capability of supplying in-house use water to approximately 700 residential units or the equivalent based on the utilization of 10 acre feet of Vidler Tunnel water.

2. Withdrawal of ground water by either wells or infiltration galleries would probably provide the best source of water supply for Swan's Nest Utility.

3. We recommend you consult with your water rights attorney regarding conclusions and recommendations contained in this report.

APPENDIX D

**DAVID C. LINDHOLM**  
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(303) 442-2156  
August 20, 1985

Mr. L. George Wingfield  
Costin Engineering  
2775 West Hampden Avenue  
Englewood, Colorado 80110

Re: Swans Nest Utility Company

Dear Mr. Wingfield:

Pursuant to your request, what follows is a summary of the legal aspects of the water supply plan proposed by the Swans Nest Utility Company for the Swans Nest Development in Summit County.

The water needs for the project will be provided from a series of wells. It is envisioned that the portion of the project located in Sections 7, 8, 17 and 18, Township 6 South, Range 77 West, 6th P.M. will be served by a central water system. Wells serving the central system will be drilled into the alluvium of the Swan River. The exact number of wells needed will be a function of yield. It is hoped that yields approximating 100 gallons per minute will be obtained. If so, anywhere from 3 to 5 wells will probably be constructed. The Company is in the process of finalizing well permit applications for submittal to the Division of Water Resources.

The portion of the development located in Sections 19, 20, 21, 28 and 29, Township 6 South, Range 77 West, 6th P.M., will be served by wells drilled into the fractured granites. The yield of wells in granite formations is highly variable. Therefore, one well per development unit may be required. However, if yields so justify, one well may be used to serve two or more structures.

In order to insure that the junior priority dates associated with the wells will be available for use as needed on a year around basis, the Company has filed an Application for Approval of a Plan for Augmentation with the Division No. 5 Water Court. A Pretrial Conference is scheduled in the case on September 25, 1985. A trial, if one becomes necessary, will be set by the Court at the Pretrial Conference.

Mr. L. George Wingfield  
August 20, 1985  
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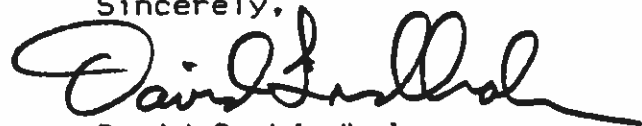
The purpose of the Plan for Augmentation is to insure that depletions to the Swan River - Blue River stream system which are associated with out-of-priority pumping from the wells are covered by the release of senior consumptive use water. Swans Nest has contracted with the Vidler Tunnel Water Company for the purchase of 10 acre feet of senior augmentation water. This water will be used in one of two ways. Either it will be released to the stream system on a continuous basis in order to cover the Utility Company's out-of-priority stream depletions or it will be exchanged to storage for later release as needed.

The specific volume of augmentation water needed by the proposed development in any given year will be dependent upon the uses to which water pumped from the wells is placed. It is my understanding that the specific number of units to be served will be contingent upon the approval of the Summit County Planning Commission and Board of Commissioners. However, some examples may be helpful. If the entire development is connected to a central wastewater treatment facility and outside irrigation is prohibited, as much as 200 acre feet of water could be pumped out-of-priority each year. If, on the other hand, all of the effluent is treated using septic leach field systems and one acre of blue grass is irrigated, a maximum of 88 acre feet of water could be pumped out-of-priority annually.

The exact development mix will no doubt consist of a combination of units served by a central wastewater treatment facility, units served by septic leach field systems and some outside irrigation. Therefore, the total amount of out-of-priority pumping from the proposed wells will be between 100 and 200 acre feet each year. The plan for augmentation will require metering of the wells and monitoring by the state water administration officials to insure that out-of-priority stream depletions never exceed the available amount of augmentation water.

If you have any remaining questions or desire further clarification, please do not hesitate to call.

Sincerely,



David C. Lindholm

DCL:dr

cc: Robert G. Campbell  
Steve Thompson  
Stanley A. Ward  
J. W. Patterson