

**UPDATED TRAFFIC IMPACT ANALYSIS SUMMARY**  
**Silverstone at Pinnacle Peak**  
**177-PA-2005/15-ZN-2005/7-GP-2005**

**Summary Prepared by Jennifer Bohac, COS Traffic Engineering**  
**Traffic Impact Study Prepared by Cathy Hollow, Parsons Brinkerhoff.**

**Existing Conditions:**

The site is located along Scottsdale Road, extending from Williams Drive to Pinnacle Peak Road. The site extends east from Scottsdale Road to Miller Road.

Scottsdale Road is classified as a Major Arterial Roadway in the city's Streets Master Plan. Scottsdale Road currently consists of two lanes in each direction along the western boundary of the site. Future plans call for an expansion to three lanes in each direction with a raised center median. The intersection of Scottsdale Road/Pinnacle Peak, which is currently a four-leg intersection, is signalized. The posted speed limit on Scottsdale Road the vicinity of the site is 55 mph. The current daily traffic volume adjacent to the site is 33,000 vehicles.

Pinnacle Peak Road is classified as a Minor Arterial on the city's Streets Master Plan. Pinnacle Peak currently consists of one lane in each direction with a center turn lane in the vicinity of the site. The intersection of Pinnacle Peak Road and Miller Road is signalized. The posted speed limit on Pinnacle Peak Road is 45 mph. The current daily traffic volume adjacent to the site is 17,400 vehicles.

Miller Road, which is a north-south roadway that connects Happy Valley Road with Deer Valley Road, is classified as a Minor Arterial on the city's Streets Master Plan. In the vicinity of Pinnacle Peak Road, Miller Road currently consists of two northbound lanes and one southbound lane with a raised median; in the vicinity of Williams Road, Miller Road consists of one lane in each direction. The posted speed limit on Miller Road is 35 mph. The current daily traffic volume adjacent to the site is 9,600 vehicles.

Williams Road is classified as a Major Collector on the city's Streets Master Plan. The intersection of Williams Road and Scottsdale Road is a two-way stop controlled intersection, with the Williams Road approaches being stop controlled. The intersection of Williams Road and Pinnacle Peak Road is unsignalized, with the north and south approaches being stop controlled. The posted speed limit on Williams Road is 30 mph. The current daily traffic volume adjacent to the site is 3,500 vehicles.

In the immediate vicinity of the site, there are several existing developments. Current Land uses surrounding the site are:

- To the north, retail-office
- To the south, industrial-commercial
- To the east – retail, office, residential
- To the west – vacant (City of Phoenix)

The accident history in the vicinity of the proposed site was examined for the period from 2002-2004. Table 1 below presents a summary of the accident rates by year. The accident rates are shown as accidents/million entering vehicles.

**TABLE 1- INTERSECTION ACCIDENT SUMMARY**

<b>Location</b>	<b>2002</b>	<b>2004</b>
	<b>Accident Rate</b>	<b>Accident Rate</b>
Scottsdale & Pinnacle Peak	0.86	0.71
Miller & Pinnacle Peak	NA	0.54
City-wide Average	0.54	0.63

This area is expanding with planned developments along with residential subdivisions and retail centers already built and prospering nearby. To the west of Scottsdale Road, is the planned Paradise Ridge development, which will likely have a high-intensity development plan of various residential and commercial elements.

**Proposed Development**

The 160-acre site currently has a zoning designation of Western Theme Park (W-P). The proposed rezoning to Community District (P-C) and change in the General Plan from Cultural/Institutional to Mixed-use would allow the development of 165,000 SF of general office space, 95,000 SF of retail space, 25,000 SF of library (municipal use), a 10,000 square foot fire station, 706 residential townhouse/condominium units (with some units identified as "live-work" units), 270 congregate care residential units, and 60 beds for assisted living.

The trip generation calculation for the current zoning is based on potential development allowed by the existing Western Theme Park (W-P) category. The trip generation for the proposed zoning is based on the development plan submitted with the requested change to the Community District (P-C) zoning category. The trip generation estimate for the previous land use on the site, the Rawhide Western Theme Park, was based upon an estimated 800,000 annual visitors. It should be noted that this comparison was for an average weekday and the trip generation would likely be higher on the weekends and during special events. The trip generation numbers for the development under the current and proposed zoning categories are presented in the Table 2.

This trip generation is based on data contained in the Institute of Transportation Engineer's *Trip Generation*. The trip generation calculations indicate that the proposed development would generate approximately 13,657 daily trips, with 698 trips generated during the a.m. peak hour and 1,317 trips generated during the p.m. peak hour.

**TABLE 2 - TRIP GENERATION COMPARISON**

Land Use	Daily Total	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
<b>Development Under Current Zoning</b>							
Western Theme Park	7,576	19	2	21	241	154	395
Rawhide Traffic Estimate	2,200						
<b>Development Under Proposed Zoning</b>							
Retail – 95,000 SF	6,568	93	59	152	290	315	605
Office – 165,000 SF	1,962	246	34	280	45	219	264
Office (live/work) – 87 units	396	0	0	0	0	0	0
Condo/Town home (Parcel E2)– 175 units	1,033	16	65	81	62	33	95
Condo/Town home (Parcels F & G) – 444 units	2,279	34	136	170	133	71	204
Municipal Use (Library) – 25,000 SF	1,379	20	8	28	76	83	159
Congregate Care – 270 units	545	10	6	16	26	20	46
Assisted Living – 60 beds	213	5	3	8	6	7	13
Sub-Total	14,375	424	311	735	638	748	1,386
Internal Trips (5%)	719	21	16	37	32	37	69
<b>Proposed Total</b>	<b>13,657</b>	<b>403</b>	<b>295</b>	<b>698</b>	<b>606</b>	<b>711</b>	<b>1,317</b>

**Future Conditions**

Capacity calculations were performed for 2008 and 2010 conditions for the signalized intersections of Scottsdale Road/ Pinnacle Peak Road, Scottsdale Road/Williams Drive, Pinnacle Peak Road/Miller Road, and Williams Drive/Miller Road to evaluate the level of service (LOS) at the intersections. Capacity calculations were also performed at the unsignalized site driveways along Williams Road, Miller Road, Pinnacle Peak Road, and Scottsdale Road. The 2008 scenario assumes build out and occupancy of the residential parcels within the development. The associated street system assumes widening of Pinnacle Peak, Williams Road, and Miller Road to their ultimate four lane cross sections. The 2010 scenario assumes build out of the non-residential parcels within the development. The associated street system assumes widening of Scottsdale Road to Pinnacle Peak Road to its ultimate six lane cross section.

Capacity calculations for the signalized intersection were evaluated for the intersection approaches and the overall intersection. At the unsignalized intersections, the level of service was evaluated for each movement. The worse movement at the unsignalized intersections is usually the exiting left-turn movement onto a roadway with relatively high through volume.

The results of the capacity calculations for the signalized intersections are presented in the Table 3.

**TABLE 3 - LEVEL OF SERVICE**

Intersection	Type	2008 Scenario		2010 Scenario	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Scottsdale Rd/ Pinnacle Peak Road	Signalized	D	D	D	D
Scottsdale Rd/ Williams Dr	Signalized	A	A	A	B
Pinnacle Peak Rd/ Miller Rd	Signalized	C	D	B	D
Miller Rd/ Williams Dr	Signalized	B	B	B	B

The table above shows that all of the signalized study intersections are projected to operate at level of service D or better in 2010 with the site-generated traffic, assuming recommended intersection improvements (outlined below)

The unsignalized intersections all had acceptable levels of service for the turning movements, with the exception of the left turn movements at driveways along Pinnacle Peak Road and Scottsdale Road

The following intersection improvements are recommended

**Scottsdale Road and Pinnacle Peak Road**

- Add dual left turn lanes on all four approaches
- Add separate right-turn lanes for the eastbound, northbound, and southbound approaches

**Pinnacle Peak Road and Miller Road**

- Add a westbound left turn phase

**Scottsdale Road and Williams Road**

- Install traffic signal

**Miller Road and Williams Road**

- Install traffic signal

**Additional Information.**

Pinnacle Peak Road, Scottsdale to Pima Road, is being planned as a four-lane roadway (two each direction) with a raised landscaped median. The current adopted capital improvement plan indicates that construction will be completed by 2008

Scottsdale Road, Thompson Peak to Pinnacle Peak, is being planned to expand the current four-lane roadway to the six lane ultimate cross-section with a raised landscaped median. It is currently estimated that this project will be completed by 2010

## **Summary**

Analysis of the trip generation calculations indicate that the proposed development would generate approximately 13,657 daily trips, with 698 trips generated during the a.m. peak hour and 1,317 trips generated during the p.m. peak hour. Capacity calculations indicate that the major intersections in the vicinity of the site will operate at acceptable levels of service with the addition of the site-generated traffic. These analyses assume recommended intersection improvements at the intersections of Scottsdale Road and Pinnacle Peak Road, and Miller Road and Pinnacle Peak Road. It is also recommended that the currently unsignalized intersections of Scottsdale Road and Williams Road, and Miller Road and Williams Road be signalized with the site development. It is also assumed, consistent with the zoning case stipulations, that Williams Road and Miller Road will be widened to four lanes with the site development.



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May 3, 2005

Mr. Douglas L. Mann, P. E.  
Water Resources Engineer  
City of Scottsdale, Water Resources  
9388 East San Salvador Drive  
Scottsdale, AZ 85258

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Re: **SEC Pinnacle Peak and Scottsdale Road 160-Acre Mixed Use Project**  
General Plan Amendment - Preliminary Wastewater Basis of Design  
Scottsdale, Arizona  
WP #042309.02

Dear Mr. Mann,

This Preliminary Wastewater Basis of Design has been prepared to support the general plan amendment for the 160-acre parcel located at the southeast corner of Pinnacle Peak Road and Scottsdale Road, within the City of Scottsdale, Arizona. The parcel is also located at the northwest quarter of Section 14, Township 4 North, Range 4 East, of the Gila and Salt River Meridian. The mixed use project will be a phased development that proposes a maximum of 1,891 multi-family dwelling units, 799,200 square feet of retail/commercial area, and 675,300 square feet of office area, per the requested General Plan Amendment.

This professional civil engineering work product was prepared for RHVT Limited Partnership, Mr. Mike Pacheco, 602-230-1051, current owner of the 160 acres at the southeast corner of Pinnacle Peak Road and Scottsdale Road

Currently, the project area consists of *Rawhide*, a western theme park. On-site land slopes are generally in the southwesterly direction at approximately 2.5 percent; elevations range from 1,875-feet to 1,795-feet. It is expected that wastewater generated on-site will gravity drain in the direction of natural grade to the ultimate point of discharge into existing public wastewater infrastructure.

The proposed wastewater system for the 160-acre mixed use project is presented as two options to accommodate timing of parcel development. Option 1 consists of 8-inch, 12-inch, and 15-inch gravity wastewater lines, while Option 2 consists of 8-inch, 12-inch, 15-inch, and 18-inch gravity wastewater lines along the interior roadways to connect to public wastewater infrastructure at three locations described below. Please refer to the attached exhibits *Option 1 Conceptual Wastewater System* and *Option 2 Conceptual Wastewater System* for the locations of these connections.

- Node R along Scottsdale Road
- Node E along Scottsdale Road
- Node P along Scottsdale Road

Both options ultimately gravity outfall to the same public wastewater line location in Scottsdale Road. The timing of parcel development will control which option or wastewater route will be implemented.

**15-ZN-2005**  
**7-1-05**



Projected wastewater flows were calculated using the City of Scottsdale's wastewater system design criteria, 'unit daily design flows' as provided by City of Scottsdale staff, and Title 18, Chapter 9 of the *Arizona Administrative Code*. The estimated peak-hour wastewater flow for the proposed development totals 4.08 millions gallons per day (MGD). Two spreadsheets displaying the estimated average-day and peak-hour wastewater design flows and pipe capacity calculations for the proposed on-site infrastructure are attached.

During the peak-hour scenario for existing conditions the existing 15-inch trunk wastewater line along Scottsdale Road, just downstream from the proposed development currently has an anticipated excess capacity of 3.06 MGD, as indicated by segment SRT-073P (Scottsdale Road Interceptor) of the *City of Scottsdale Wastewater System Master Plan*. It is our understanding that the City of Scottsdale Water Resources Department is aware of the limited capacity of segment SRT-073P for ultimate build-out conditions and plans to implement a provision to accommodate future peak flows once the City's Wastewater System Master Plan is updated. City of Scottsdale Water Resources Department representatives reported that the Wastewater Master Plan updates are anticipated to occur in February or March of 2006.

Please refer to the table below for the City of Scottsdale's anticipated existing flow scenarios for segment SRT-073P. Detailed information regarding segment SRT-073P from the City's master plan is provided and attached to this letter.

	Total Flow* (MGD)	Qfull* (MGD)	QXcess* (MGD)	D/d*	Additional Flow** (MGD)
Existing Conditions - Average Flow	0.95	6.0	5.0	0.3	1.11
Existing Conditions - Peak Flow	2.89	6.0	3.06	0.6	4.08

\* Values obtained from the *City of Scottsdale Wastewater System Master Plan, 2002 Update, Management System MODEL RESULTS*

\*\* Additional flow is the flow generated by the proposed 160-acre development at the southeast corner of Pinnacle Peak Road and Scottsdale Road.

The proposed on-site wastewater improvements will be coordinated with the City of Scottsdale's planning and construction of future parallel or upsizing trunk wastewater lines along Scottsdale Road. The City and the developer will need to coordinate phasing and parcel development schedules based on the timing of future wastewater improvements along Scottsdale Road.

The attached exhibits illustrate the proposed wastewater pipe locations and sizes for Options 1 and 2. The Preliminary Wastewater Basis of Design for the 160-acre mixed use project demonstrates the adequacy of the proposed on-site wastewater collection system to service the 160-acre parcel, and has been prepared with our understanding of the City of Scottsdale's technical requirements for wastewater system design criteria.

Wood/Patel believes that the modeled on-site wastewater system will provide necessary system conveyance and capacity within the previously-defined design, according to the calculations presented as part of this letter, representative of full build-out condition per the General Plan Amendment densities.

Mr Douglas L Mann  
City of Scottsdale, Water Resources Dept  
**SEC Pinnacle Peak and Scottsdale Road 160-Acre Mixed Use Project**  
General Plan Amendment - Preliminary Wastewater Basis of Design  
WP #042309 02

May 3, 2005  
Page 3

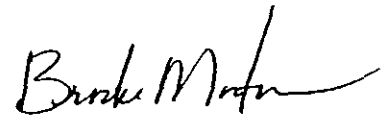
Thank you for your review of our modeled wastewater system for the Preliminary Wastewater Basis of Design serving the 160-acre parcel at the SEC of Pinnacle Peak and Scottsdale Road. If you have any questions, please feel free to contact us.

Sincerely,

**WOOD, PATEL & ASSOCIATES, INC**



Darrel E Wood, P E , R L S  
Principal



Brooke Morton  
EIT

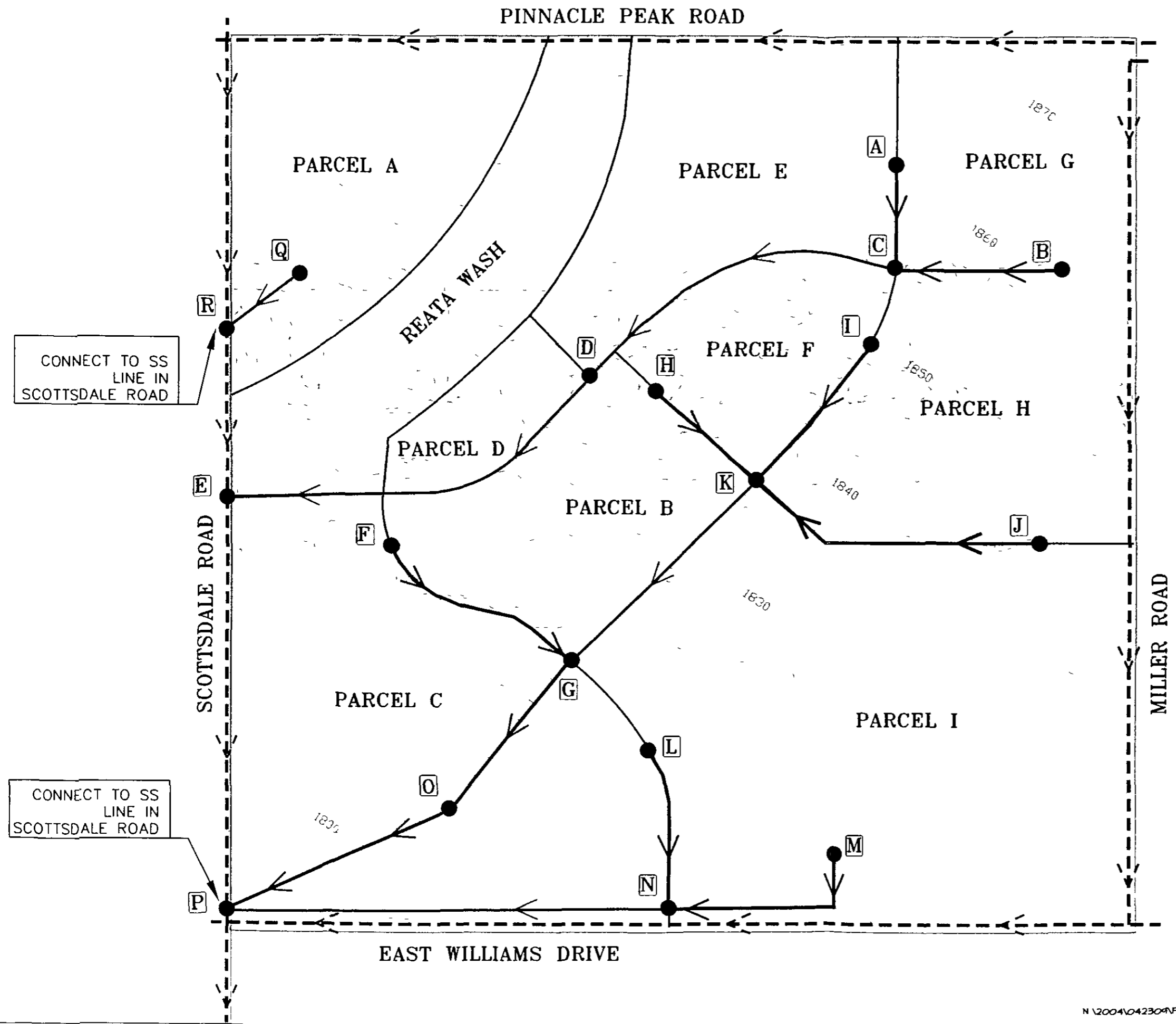
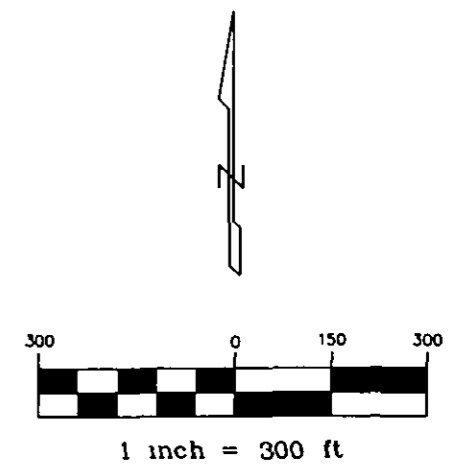
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**Attachments**

- Option 1 – Conceptual Wastewater System Exhibit (1 page)
- Option 1 – Pipe Capacity Calculations (1 page)
- Option 1 – Estimated Wastewater Design Flow Calculations (1 page)
- Option 2 – Conceptual Wastewater System Exhibit (1 page)
- Option 2 – Pipe Capacity Calculations (1 page)
- Option 2 – Estimated Wastewater Design Flow Calculations (1 page)
- Map 5 - City of Scottsdale Modeled Wastewater System (1 page)
- MODEL Results (4 pages)



OPTION 1  
 CONCEPTUAL WASTEWATER SYSTEM  
 SEC PINNACLE PEAK AND SCOTTSDALE ROAD  
 160-ACRE MIXED USE PROJECT



**LEGEND**

- 8" PROPOSED SANITARY SEWER
- 12" PROPOSED SANITARY SEWER
- 15" PROPOSED SANITARY SEWER
- - - 8" EXISTING SANITARY SEWER
- - - 15" EXISTING SANITARY SEWER
- PARCEL BOUNDARY
- - - PROJECT BOUNDARY

NOTE THE LOCATION AND SIZES OF THESE SEWER LINES ARE A CONCEPTUAL DESIGN AND SHOULD NOT BE USED FOR CONSTRUCTION

**WOOD/PATEL**  
 CIVIL ENGINEERS HYDROLOGISTS LAND SURVEYORS CONSTRUCTION MANAGERS  
 7031 W. Northern Suite 100 Phoenix, Arizona 85021 Ph: (602) 315-8500

Project *SEC Pinnacle Peak and Scottsdale Road Mixed Land Use*  
 Location *City of Scottsdale, Arizona*  
 Date *2-May-05*  
 References *City of Scottsdale Design Standards and Policy Manual*  
 Project Number *042309 02*  
 Project Engineer *Darrel Wood, P E , R L S*

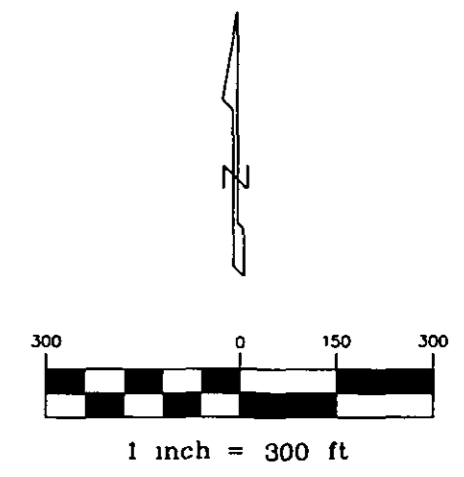
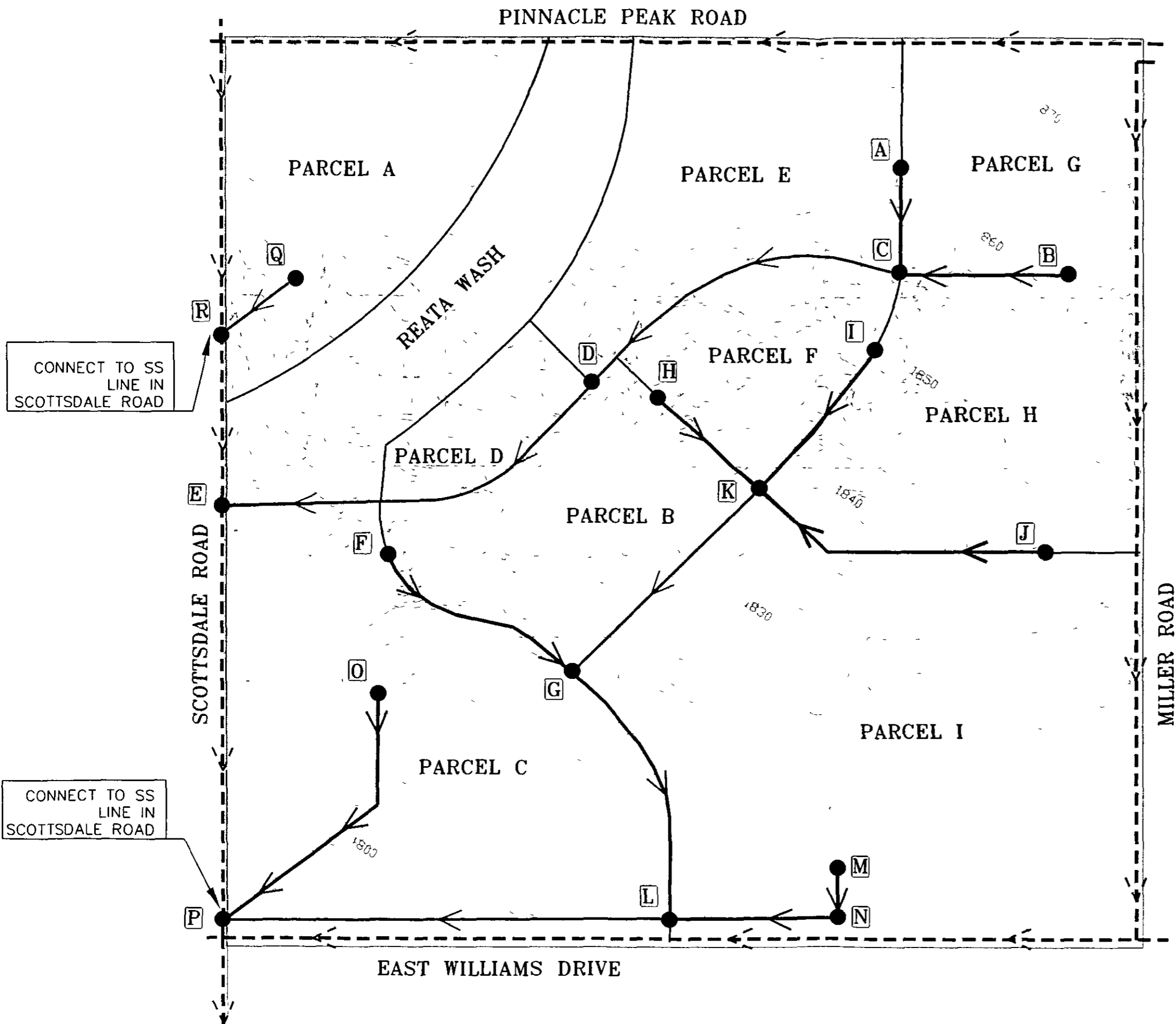
SEGMENT	PIPE SIZE (IN)	PEAK FLOW (GPD)	MINIMUM PIPE SLOPE (FT / FT)	FULL FLOW VELOCITY, V <sub>0</sub> (FPS)	PARTIAL FLOW VELOCITY, V <sub>1</sub> (FPS)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	d/D RATIO
Total for Segment A-C	8	52,875	0 0052	2 5	1 6	564,339	511,464	0 21
Total for Segment B-C	8	104,500	0 0052	2 5	1 9	564,339	459,839	0 29
Total for Segment C-D	12	585,667	0 0030	2 5	2 4	1,263,964	678,297	0 48
Total for Segment D-E	12	894,801	0 0030	2 5	2 7	1,263,964	369,163	0 62
Total for Segment F-G	8	309,134	0 0052	2 5	2 6	564,339	255,205	0 53
Total for Segment H-K	8	55,667	0 0052	2 5	1 6	564,339	508,673	0 21
Total for Segment I-K	8	236,667	0 0052	2 5	2 4	564,339	327,673	0 45
Total for Segment J-K	8	181,000	0 0052	2 5	2 2	564,339	383,339	0 39
Total for Segment K-G	12	1,059,801	0 0030	2 5	2 8	1,263,964	204,163	0 70
Total for Segment G-O	15	1,436,465	0 0022	2 5	2 7	1,962,657	526,193	0 64
Total for Segment O-P	15	1,503,995	0 0022	2 5	2 7	1,962,657	458,663	0 66
Total for Segment M-N	8	277,333	0 0052	2 5	2 5	564,339	287,006	0 50
Total for Segment L-N	8	277,333	0 0052	2 5	2 5	564,339	287,006	0 50
Total for Segment N-P	12	622,197	0 0030	2 5	2 5	1,263,964	641,767	0 50
Total for Segment Q-R	12	1,058,610	0 0030	2 5	2 8	1,263,964	205,354	0 70

Project SEC Pinnacle Peak and Scottsdale Road Mixed Land Use  
 Location City of Scottsdale, Arizona  
 Date 2-May-05  
 References City of Scottsdale Design Standards and Policy Manual

Project Number 042309 02  
 Project Engineer Darrel Wood, P E ,R L S

SEGMENT	PARCEL	LAND USE	AREA OF CONTRIBUTING PARCEL	RESIDENTIAL-MULTI-FAMILY			COMMERCIAL-OFFICE			COMMERCIAL-RETAIL			PARCEL ADF (GPD)	PARCEL PEAK FLOW (GPD)	CUMULATIVE ADF (GPD)	CUMULATIVE PEAK FLOW (GPD)
				NUMBER OF DWELLING UNITS	ADF / UNIT (GPD)	RESIDENTAIL PEAKING FACTOR	OFFICE SPACE (SQ FT)	OFFICE ADF / SQ FT (GPD)	OFFICE PEAKING FACTOR	RETAIL SPACE (SQ FT)	RETAIL ADF / SQ FT (GPD)	RETAIL PEAKING FACTOR				
A-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
A-C	E	Condo/Town House	4 7	107	250	4 0			3 0			3 5	26,750	107,000		
<b>Total for Segment A-C</b>			<b>9 2</b>	<b>212</b>									<b>52,875</b>	<b>211,500</b>	<b>52,875</b>	<b>211,500</b>
B-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
<b>Total for Segment B-C</b>			<b>4 5</b>	<b>105</b>									<b>26,125</b>	<b>104,500</b>	<b>26,125</b>	<b>104,500</b>
C-D	E	Condo/Town House	9 3	214	250	4 0			3 0			3 5	53,500	214,000		
C-D	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment C-D</b>			<b>11 8</b>	<b>270</b>									<b>67,417</b>	<b>269,667</b>	<b>67,417</b>	<b>269,667</b>
D-E	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
D-E	D	Municipal	3 5			4 0			3 0			3 5				
<b>Total for Segment D-E</b>			<b>7 1</b>							<b>124,400</b>			<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
F-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
<b>Total for Segment F-G</b>			<b>3 6</b>							<b>124,400</b>			<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
H-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment H-K</b>			<b>2 4</b>	<b>56</b>									<b>13,917</b>	<b>55,667</b>	<b>13,917</b>	<b>55,667</b>
I-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
I-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment I-K</b>			<b>10 3</b>	<b>237</b>									<b>59,167</b>	<b>236,667</b>	<b>59,167</b>	<b>236,667</b>
J-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment J-K</b>			<b>7 9</b>	<b>181</b>									<b>45,250</b>	<b>181,000</b>	<b>45,250</b>	<b>181,000</b>
K-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
K-G	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment K-G</b>			<b>15 6</b>	<b>277</b>						<b>124,400</b>			<b>157,657</b>	<b>586,467</b>	<b>157,657</b>	<b>586,467</b>
G-O	C	Office	8 6			4 0	225,100	0 100	3 0			3 5	22,510	67,530		
<b>Total for Segment G-O</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>22,510</b>	<b>67,530</b>
O-P	C	Office	8 6			4 0	225,100	0 100	3 0			3 5	22,510	67,530		
<b>Total for Segment O-P</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>22,510</b>	<b>67,530</b>
M-N	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment M-N</b>			<b>12 1</b>	<b>277</b>									<b>69,333</b>	<b>277,333</b>	<b>69,333</b>	<b>277,333</b>
L-N	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment L-N</b>			<b>12 1</b>	<b>277</b>									<b>69,333</b>	<b>277,333</b>	<b>69,333</b>	<b>277,333</b>
N-P	C	Office	8 6			4 0	225 100	0 100	3 0			3 5	22 510	67,530		
<b>Total for Segment N-P</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>22,510</b>	<b>67,530</b>
Q-R	A	Retail/Comm	12 2			4 0			3 0	426,000	0 71	3 5	302,460	1,058,610		
<b>Total for Segment Q-R</b>			<b>12 2</b>							<b>426,000</b>			<b>302,460</b>	<b>1,058,610</b>	<b>302,460</b>	<b>1,058,610</b>
<b>Development Total</b>			<b>135</b>	<b>1,891</b>			<b>450,200</b>			<b>799,200</b>			<b>1,107,712</b>	<b>4,079,602</b>		

OPTION 2  
 CONCEPTUAL WASTEWATER SYSTEM  
 SEC PINNACLE PEAK AND SCOTTSDALE ROAD  
 160-ACRE MIXED USE PROJECT



- LEGEND**
- 8" PROPOSED SANITARY SEWER
  - 12" PROPOSED SANITARY SEWER
  - 15" PROPOSED SANITARY SEWER
  - 18" PROPOSED SANITARY SEWER
  - - - 8" EXISTING SANITARY SEWER
  - - - 15" EXISTING SANITARY SEWER
  - PARCEL BOUNDARY
  - PROJECT BOUNDARY

NOTE THE LOCATION AND SIZES OF THESE SEWER LINES ARE A CONCEPTUAL DESIGN AND SHOULD NOT BE USED FOR CONSTRUCTION

**WOOD/PATEL**  
 CIVIL ENGINEERS HYDROLOGISTS LAND SURVEYORS CONSTRUCTION MANAGERS  
 2051 West Northern Suite 100 Phoenix, Arizona 85011 Phone: (602) 335 8500

Project *SEC Pinnacle Peak and Scottsdale Road Mixed Land Use*  
 Location *City of Scottsdale, Arizona*  
 Date *2-May-05*  
 References *City of Scottsdale Design Standards and Policy Manual*  
 Project Number *042309 02*  
 Project Engineer *Darrel Wood, P E ,R L S*

SEGMENT	PIPE SIZE (IN)	PEAK FLOW (GPD)	MINIMUM PIPE SLOPE (FT / FT)	FULL FLOW VELOCITY, V <sub>0</sub> (FPS)	PARTIAL FLOW VELOCITY, V <sub>1</sub> (FPS)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	d/D RATIO
Total for Segment A-C	8	52,875	0 0052	2 5	1 6	564,339	511,464	0 21
Total for Segment B-C	8	104,500	0 0052	2 5	1 9	564,339	459,839	0 29
Total for Segment C-D	12	585,667	0 0030	2 5	2 4	1,263,964	678,297	0 48
Total for Segment D-E	12	894,801	0 0030	2 5	2 7	1,263,964	369,163	0 62
Total for Segment F-G	8	309,134	0 0052	2 5	2 6	564,339	255,205	0 53
Total for Segment H-K	8	55,667	0 0052	2 5	1 6	564,339	508,673	0 21
Total for Segment I-K	8	236,667	0 0052	2 5	2 4	564,339	327,673	0 45
Total for Segment J-K	8	181,000	0 0052	2 5	2 2	564,339	383,339	0 39
Total for Segment K-G	12	990,467	0 0030	2 5	2 8	1,263,964	273,497	0 67
Total for Segment G-L	15	1,507,601	0 0022	2 5	2 7	1,962,657	455,056	0 66
Total for Segment M-N	8	208,000	0 0052	2 5	2 3	564,339	356,339	0 42
Total for Segment N-L	8	416,000	0 0052	2 5	2 7	564,339	148,339	0 64
Total for Segment L-P	18	2,024,896	0 0017	2 5	2 7	2,805,653	780,757	0 63
Total for Segment O-P	8	101,295	0 0052	2 5	1 9	564,339	463,044	0 29
Total for Segment Q-R	12	1,058,610	0 0030	2 5	2 8	1,263,964	205,354	0 70

Project SEC Pinnacle Peak and Scottsdale Road Mixed Land Use  
 Location City of Scottsdale, Arizona  
 Date 2-May-05  
 References City of Scottsdale Design Standards and Policy Manual

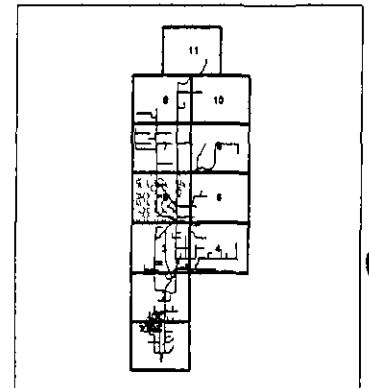
Project Number 042309 02  
 Project Engineer Darrel Wood, P.E., R.L.S

SEGMENT	PARCEL	LAND USE	AREA OF CONTRIBUTING PARCEL	RESIDENTIAL-MULTI-FAMILY			COMMERCIAL-OFFICE			COMMERCIAL-RETAIL			PARCEL ADF (GPD)	PARCEL PEAK FLOW (GPD)	CUMULATIVE ADF (GPD)	CUMULATIVE PEAK FLOW (GPD)
				NUMBER OF DWELLING UNITS	ADF / UNIT (GPD)	RESIDENTIAL PEAKING FACTOR	OFFICE SPACE (SQ FT)	OFFICE ADF / SQ FT (GPD)	OFFICE PEAKING FACTOR	RETAIL SPACE (SQ FT)	RETAIL ADF / SQ FT (GPD)	RETAIL PEAKING FACTOR				
A-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
A-C	E	Condo/Town House	4 7	107	250	4 0			3 0			3 5	26,750	107,000		
<b>Total for Segment A-C</b>				<b>212</b>	<b>507</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>52,875</b>	<b>211,500</b>	<b>52,875</b>	<b>211,500</b>
B-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
<b>Total for Segment B-C</b>				<b>105</b>	<b>261,250</b>	<b>4 0</b>			<b>3 0</b>			<b>3 5</b>	<b>26,125</b>	<b>104,500</b>	<b>26,125</b>	<b>104,500</b>
C-D	E	Condo/Town House	9 3	214	250	4 0			3 0			3 5	53,500	214,000		
C-D	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment C-D</b>				<b>270</b>	<b>670</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>67,417</b>	<b>269,667</b>	<b>67,417</b>	<b>269,667</b>
D-E	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
D-E	D	Municipal	3 5			4 0			3 0			3 5				
<b>Total for Segment D-E</b>				<b>71</b>		<b>4 0</b>			<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>3 5</b>	<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
F-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
<b>Total for Segment F-G</b>				<b>36</b>		<b>4 0</b>			<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>3 5</b>	<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
H-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment H-K</b>				<b>58</b>	<b>144,250</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>13,917</b>	<b>55,667</b>	<b>13,917</b>	<b>55,667</b>
I-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
I-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment I-K</b>				<b>103</b>	<b>237</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>59,167</b>	<b>236,667</b>	<b>59,167</b>	<b>236,667</b>
J-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment J-K</b>				<b>79</b>	<b>181</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>45,250</b>	<b>181,000</b>	<b>45,250</b>	<b>181,000</b>
K-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
K-G	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment K-G</b>				<b>126</b>	<b>208</b>	<b>4 0</b>			<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>3 5</b>	<b>140,324</b>	<b>517,134</b>	<b>140,324</b>	<b>517,134</b>
G-L	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment G-L</b>				<b>91</b>	<b>208</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>52,000</b>	<b>208,000</b>
M-N	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment M-N</b>				<b>91</b>	<b>208</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>52,000</b>	<b>208,000</b>
N-L	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment N-L</b>				<b>91</b>	<b>208</b>	<b>4 0</b>			<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>104,000</b>	<b>416,000</b>
L-P	C	Office	12 9			4 0	337,650	0 10	3 0			3 5	33,765	101,295		
<b>Total for Segment L-P</b>				<b>129</b>		<b>4 0</b>	<b>337,650</b>	<b>0 10</b>	<b>6 0</b>			<b>7 0</b>	<b>33,765</b>	<b>101,295</b>	<b>33,765</b>	<b>101,295</b>
O-P	C	Office	12 9			4 0	337,650	0 10	3 0			3 5	33,765	101,295		
<b>Total for Segment O-P</b>				<b>129</b>		<b>4 0</b>	<b>337,650</b>	<b>0 10</b>	<b>6 0</b>			<b>7 0</b>	<b>33,765</b>	<b>101,295</b>	<b>33,765</b>	<b>101,295</b>
Q-R	A	Retail/Comm	12 2			4 0			3 0	426,000	0 71	3 5	302,460	1,058,610		
<b>Total for Segment Q-R</b>				<b>122</b>		<b>4 0</b>			<b>6 0</b>	<b>426,000</b>	<b>0 71</b>	<b>3 5</b>	<b>302,460</b>	<b>1,058,610</b>	<b>302,460</b>	<b>1,058,610</b>
<b>Development Total</b>			<b>135</b>	<b>1,891</b>		<b>4 0</b>	<b>675,300</b>		<b>6 0</b>	<b>799,200</b>		<b>7 0</b>	<b>1,107,712</b>	<b>4,079,602</b>		

# City of Scottsdale Modeled Wastewater System

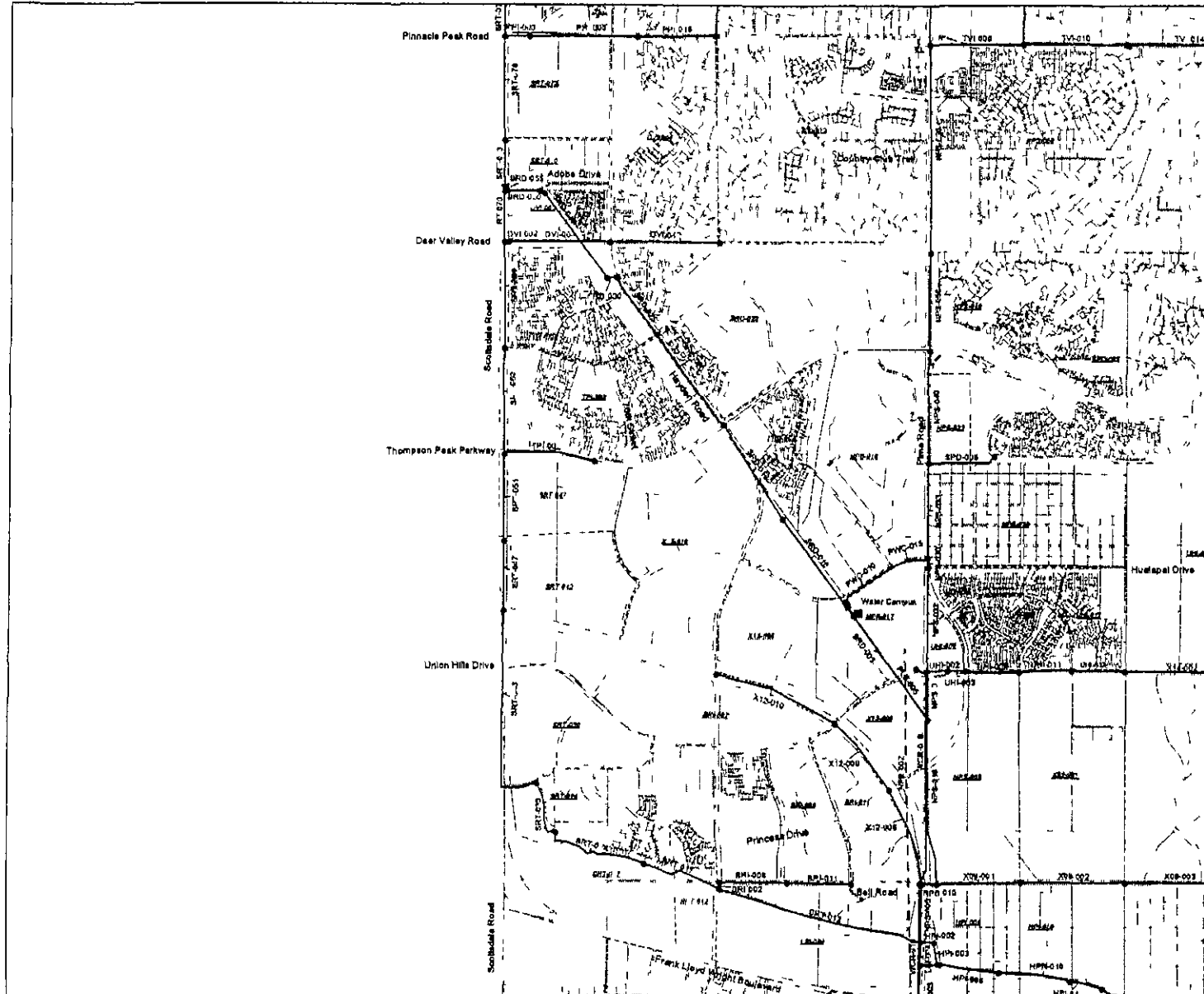


- Analysis Node
- Gravity Sewer
- Force Main
- Lift Station
- ▼ Diversion
- A00-025P Model ID
- Tributary Area
- A00-025E Tributary ID



Map Index

## Map 5



City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN									NEW			PARALLEL		
		San	Other	Total	Mont	Length (ft)	Slope (ft/ft)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (ft/s)	D/d	Size (in)	Flow	Vel (ft/s)	Size (in)	Flow	Vel (ft/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD 045P	EP	1.28	1.61	2.89		143	0.034	24.0	21.0	013	8.58	5.60	3.2	5						
SRD 050P	EP	1.28	1.61	2.89		803	0.027	24.0	14.0	013	7.64	4.67	3.0	5						
SRD 055P	EP	1.28	1.61	2.89		101	0.031	24.0	7.0	013	8.10	5.14	3.1	5						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT-012P	EP	1.04	59	1.63	1.63	5,239	0.038	24.0	22.0	013	8.98	7.26	2.8	3						
SRT 017P	EP	90	63	1.53		2,050	0.026	24.0	8.0	013	7.52	5.92	2.4	3						
SRT 024P	EP	73	63	1.36		2,572	0.023	24.0	7.0	013	6.96	5.53	2.2	3						
SRT 030P	EP	41	63	1.04		1,479	0.038	15.0	12.0	013	2.60	1.53	2.8	5						
SRT 043P	EP	41	63	1.04	1.04	5,306	0.112	15.0	11.0	013	4.43	3.34	3.8	4						
SRT 047P	EP	41		41		1,765	0.145	15.0	7.0	013	5.04	4.59	3.3	2						
SRT 051P	EP	41		41		2,204	0.143	15.0	7.0	013	5.01	4.55	3.2	2						
SRT 060P	EP	39		39		2,848	0.157	18.0	8.0	013	8.53	8.05	3.3	2						
SRT 064P	EP	29		29		2,883	0.164	18.0	7.0	013	8.72	8.34	3.1	2						
SRT 070P	EP	02		02		1,288	0.138	15.0	8.0	013	4.92	4.85	1.2	1						
SRT 072D	DI					0														
SRT 072P	EP	1.28	1.61	2.89		90	0.118	15.0	7.0	013	4.54	1.61	5.3	7						
SRT 073P	EP	1.28	1.61	2.89		1,236	0.206	15.0	6.0	013	6.00	3.08	6.4	6						
SRT-076P	EP	1.28	1.61	2.89		2,842	0.187	15.0	6.0	013	5.72	2.78	6.2	6						
SRT 079P	EP	92	1.61	2.53		1,284	0.187	15.0	6.0	013	5.72	3.13	5.9	5						
SRT 081P	EP	86	1.61	2.46		898	0.164	15.0	7.0	013	5.36	2.85	5.6	5						
SRT-086P	EP	83	1.61	2.44		3,146	0.150	21.0	11.0	013	12.59	10.03	5.2	3						
SRT-094P	EP	83	1.61	2.44		4,890	0.175	18.0	13.0	013	9.01	6.48	5.6	4						
SRT 100P	EP	78	1.61	2.39		2,786	0.150	18.0	15.0	013	8.33	5.85	5.3	4						
SRT 103P	EP	73	1.61	2.34		2,571	0.188	18.0	12.0	013	9.28	6.84	5.7	4						
SRT-107P	EP	72	1.61	2.33		2,678	0.111	18.0	10.0	013	7.18	4.78	4.7	4						
SRT 111P	EP	65	1.61	2.26	2.26	2,811	0.100	18.0	11.0	013	6.82	4.49	4.5	5						
SRT 115P	EP	57	79	1.35		1,349	0.134	18.0	12.0	013	7.87	6.44	4.3	3						
SRT 121P	EP	53	79	1.32		3,965	0.097	18.0	14.0	013	6.71	5.33	3.8	3						
SRT 125P	EP	53	79	1.32		2,752	0.057	18.0	13.0	013	5.13	3.76	3.2	4						
SRT 129P	EP	23	79	1.02		2,525	0.076	18.0	12.0	013	5.93	4.85	3.2	3						



City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	MonIt	Length (ft)	Slope (ft/ft)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (ft/s)	D/d	Size (In)	Flow	Vel (ft/s)	Size (in)	Flow	Vel (ft/s)
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT-012P	EP	47	33	80	80	5,239	0038	24.0	22.0	013	8.98	8.09	2.3	2						
SRT-017P	EP	38	21	58		2,050	0028	24.0	8.0	013	7.52	6.68	1.9	2						
SRT-024P	EP	30	21	51		2,572	0023	24.0	7.0	013	8.98	6.38	1.7	2						
SRT-030P	EP	17	21	38		1,479	0038	15.0	12.0	013	2.60	2.19	1.9	3						
SRT-043P	EP	17	21	38	38	5,308	0112	15.0	11.0	013	4.43	4.00	2.9	2						
SRT-047P	EP	17		17		1,765	0145	15.0	7.0	013	5.04	4.82	2.6	2						
SRT-051P	EP	17		17		2,204	0143	15.0	7.0	013	5.01	4.78	2.6	2						
SRT-060P	EP	17		17		2,649	0157	18.0	8.0	013	8.53	8.28	2.8	1						
SRT-064P	EP	13		13		2,683	0164	18.0	7.0	013	8.72	8.51	2.5	1						
SRT-070P	EP	01		01		1,288	0138	15.0	8.0	013	4.92	4.86	7	0						
SRT-072D	DI					0														
SRT-072P	EP	52	43	95		90	0118	15.0	7.0	013	4.54	3.55	3.7	4						
SRT-073P	EP	52	43	95		1,238	0208	15.0	8.0	013	8.00	5.00	4.6	3						
SRT-078P	EP	52	43	95		2,642	0187	15.0	8.0	013	5.72	4.72	4.4	3						
SRT-079P	EP	37	43	80		1,284	0187	15.0	6.0	013	5.72	4.88	4.2	3						
SRT-081P	EP	34	43	77		898	0164	15.0	7.0	013	5.38	4.54	4.0	3						
SRT-086P	EP	33	43	76		3,148	0150	21.0	11.0	013	12.59	11.70	3.9	2						
SRT-094P	EP	33	43	76		4,890	0175	18.0	13.0	013	9.01	8.18	4.1	2						
SRT-100P	EP	31	43	74		2,786	0150	18.0	15.0	013	8.33	7.50	3.9	2						
SRT-103P	EP	29	43	72		2,571	0186	18.0	12.0	013	9.28	8.46	4.1	2						
SRT-107P	EP	29	43	72		2,878	0111	18.0	10.0	013	7.18	6.40	3.4	3						
SRT-111P	EP	28	43	69	69	2,611	0100	18.0	11.0	013	6.82	6.08	3.3	3						
SRT-115P	EP	23	40	63		1,349	0134	18.0	12.0	013	7.87	7.17	3.5	2						
SRT-121P	EP	21	40	61		3,965	0097	18.0	14.0	013	6.71	6.03	3.1	2						
SRT-125P	EP	21	40	61		2,752	0057	18.0	13.0	013	5.13	4.48	2.5	3						
SRT-129P	EP	09	40	49		2,525	0076	18.0	12.0	013	5.93	5.38	2.7	2						
SRT-135P	EP	09	40	49		2,638	0081	15.0	11.0	013	3.78	3.23	2.7	3						
<b>TPI THOMPSON PEAK INTERCEPTOR</b>																				
TPI-002P	EP	01		01		2,281	0013	12.0	9.0	013	8.2	0.80	5	1						

City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	Mont	Length (ft)	Slope (ft/ft)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (ft/s)	D/d	Size (in)	Flow	Vel (ft/s)	Size (in)	Flow	Vel (ft/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD-020P	EP	1.57	1.03	2.60		2,784	0.104	21.0	12.0	0.13	10.49	7.78	4.7	4						
SRD 025P	EP	1.35	1.03	2.37		1,755	0.108	21.0	12.0	0.13	10.87	8.19	4.6	4						
SRD 030P	EP	1.35	1.03	2.37		258	0.045	24.0	10.0	0.13	9.82	7.35	3.3	4						
SRD 040P	EP	1.35	1.03	2.37		2,644	0.027	24.0	15.0	0.13	7.88	5.21	2.8	4						
SRD 045P	EP	1.35	1.03	2.37		143	0.034	24.0	21.0	0.13	8.58	6.12	3.0	4						
SRD 050P	EP	1.35	1.03	2.37		803	0.027	24.0	14.0	0.13	7.84	5.19	2.8	4						
SRD 055P	EP	1.35	1.03	2.37		101	0.031	24.0	7.0	0.13	8.10	5.65	2.9	4						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT 012P	EP	1.63	33	1.95		5,239	0.038	24.0	22.0	0.13	8.98	6.93	2.9	4						
SRT-017P	EP	1.26	21	1.47		2,050	0.026	24.0	8.0	0.13	7.52	5.98	2.4	3						
SRT 024P	EP	1.08	21	1.26		2,572	0.023	24.0	7.0	0.13	6.98	5.63	2.1	3						
SRT 030P	EP	90	21	1.11		1,479	0.038	15.0	12.0	0.13	2.60	1.46	2.7	5						
SRT 043P	EP	72	21	92		5,306	0.112	15.0	11.0	0.13	4.43	3.46	3.6	4						
SRT 047P	EP	50		50		1,765	0.145	15.0	7.0	0.13	5.04	4.49	3.5	3						
SRT 051P	EP	44		44		2,204	0.143	15.0	7.0	0.13	5.01	4.52	3.3	2						
SRT 060P	EP	30		30		2,849	0.157	18.0	8.0	0.13	8.53	8.14	3.1	2						
SRT 064P	EP	21		21		2,683	0.164	18.0	7.0	0.13	8.72	8.42	2.9	1						
SRT 070P	EP	04		04		1,288	0.138	15.0	6.0	0.13	4.92	4.84	1.6	1						
SRT 072D	DI					0														
SRT 072P	EP					90	0.118	15.0	7.0	0.13	4.54	4.50	2							
SRT 073P	EP	1.35	1.03	2.37		1,238	0.208	15.0	6.0	0.13	6.00	3.57	6.0	5						
SRT 076P	EP	1.31	1.03	2.34		2,642	0.187	15.0	6.0	0.13	5.72	3.33	5.8	5						
SRT 079P	EP	1.13	1.03	2.18		1,284	0.187	15.0	6.0	0.13	5.72	3.50	5.7	5						
SRT 081P	EP	1.11	1.03	2.13		898	0.164	15.0	7.0	0.13	5.38	3.18	5.4	5						
SRT 086P	EP	1.10	1.03	2.12		3,148	0.150	21.0	11.0	0.13	12.59	10.34	5.0	3						
SRT 094P	EP	1.07	1.03	2.09		4,890	0.175	18.0	13.0	0.13	9.01	6.83	5.3	4						
SRT 100P	EP	1.04	1.03	2.07		2,788	0.150	18.0	15.0	0.13	8.33	6.17	5.1	4						
SRT 103P	EP	92	1.03	1.95		2,571	0.188	18.0	12.0	0.13	9.28	7.23	5.3	4						
SRT 107P	EP	89	1.03	1.92		2,678	0.111	18.0	10.0	0.13	7.18	5.20	4.5	4						
SRT 111P	EP	85	1.03	1.88		2,611	0.100	18.0	11.0	0.13	6.82	4.87	4.3	4						

City of Scottsdale  
Wastewater Management System  
MODEL RESULTS ALL

ID	Type *	FLOW				EXISTING OR DESIGN									NEW			PARALLEL		
		San	Other	Total	Monit	Length (ft)	Slope (f/f)	Size (In)	Depth (ft)	Man N	QFull	QXcess	Vel (f/s)	D/d	Size (in)	Flow	Vel (f/s)	Size (In)	Flow	Vel (f/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD 010P	EP	3.81	3.13	6.95		2,740	0.082	24.0	16.0	013	13.25	6.17	5.7	6						
SRD 015P	EP	3.81	2.79	6.60		2,786	0.122	21.0	10.0	013	11.35	4.63	6.5	6						
SRD-020P	EP	3.81	2.79	6.60		2,784	0.104	21.0	12.0	013	10.49	3.78	6.2	7						
SRD 025P	EP	3.25	2.79	6.04		1,755	0.108	21.0	12.0	013	10.67	4.53	6.1	6						
SRD 030P	EP	3.25	2.79	6.04		256	0.045	24.0	10.0	013	9.82	3.68	4.4	6						
SRD 040P	EP	3.25	2.79	6.04		2,644	0.027	24.0	15.0	013	7.66	1.54	3.7	8						
SRD 045P	EP	3.25	2.79	6.04		143	0.034	24.0	21.0	013	8.58	2.45	4.0	7						
SRD 050P	EP	3.25	2.79	6.04		803	0.027	24.0	14.0	013	7.64	1.52	3.7	8						
SRD 055P	EP	3.25	2.79	6.04		101	0.031	24.0	7.0	013	8.10	1.98	3.9	7						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT 012P	EP	3.54	62	4.16		5,239	0.038	24.0	22.0	013	8.98	4.73	3.7	5						
SRT 017P	EP	2.85	63	3.48		2,050	0.028	24.0	8.0	013	7.52	3.96	3.1	5						
SRT 024P	EP	2.38	63	3.00		2,572	0.023	24.0	7.0	013	6.96	3.89	2.8	5						
SRT-030P	EP	2.06	63	2.69		1,479	0.038	15.0	12.0	013	2.60	0.12	3.4	10	18.0	4.18	3.4	6.0	22	1.6
SRT 043P	EP	1.65	63	2.28		5,306	0.112	15.0	11.0	013	4.43	2.10	4.8	6						
SRT 047P	EP	1.11		1.11		1,785	0.145	15.0	7.0	013	5.04	3.88	4.2	4						
SRT 051P	EP	99		99		2,204	0.143	15.0	7.0	013	5.01	3.97	4.1	3						
SRT 060P	EP	68		68		2,649	0.157	18.0	8.0	013	8.53	7.76	3.8	2						
SRT 064P	EP	47		47		2,683	0.164	18.0	7.0	013	8.72	8.17	3.5	2						
SRT 070P	EP	07		07		1,288	0.138	15.0	6.0	013	4.92	4.81	2.0	1						
SRT-072D	DI					0														
SRT 072P	EP					90	0.118	15.0	7.0	013	4.54	4.50	2							
SRT 073P	EP	3.25	2.79	6.04		1,236	0.206	15.0	6.0	013	6.00	0.09	7.8	10	18.0	9.67	7.8	4.0	18	2.7
SRT 076P	EP	3.18	2.79	5.97		2,642	0.187	15.0	6.0	013	5.72	0.31	7.5	10	18.0	9.21	7.5	6.0	49	3.6
SRT 079P	EP	2.75	2.79	5.54		1,284	0.187	15.0	6.0	013	5.72	0.12	7.4	9						
SRT 081P	EP	2.69	2.79	5.48		898	0.164	15.0	7.0	013	5.36	0.17	6.9	10	18.0	8.84	7.0	6.0	46	2.8
SRT 086P	EP	2.66	2.79	5.45		3,146	0.150	21.0	11.0	013	12.59	7.02	6.6	5						
SRT 094P	EP	2.59	2.79	5.38		4,890	0.175	18.0	13.0	013	9.01	3.54	7.1	6						
SRT 100P	EP	2.53	2.79	5.32		2,786	0.150	18.0	15.0	013	8.33	2.93	6.7	7						
SRT 103P	EP	2.23	2.79	5.02		2,571	0.186	18.0	12.0	013	9.28	4.17	7.1	6						



Darrel E Wood, PE RLS  
Ashok C Patel, PE, RLS CFM  
Gordon W R Wark, PE  
James S Campbell, PE  
Thomas R. Gettings, R.L.S  
Timothy A. Huval PE  
Michael T Young, PE  
Peter Hemingway PE  
Jeffrey R. Minch PE  
Robert D Gofonia, PE. RLS

May 3, 2005

Mr Douglas L Mann, P E  
Water Resources Engineer  
City of Scottsdale, Water Resources  
9388 East San Salvador Drive  
Scottsdale, AZ 85258

Phone (480) 312-5636  
Fax (480) 312-5615  
Email [dmann@scottsdaleaz.gov](mailto:dmann@scottsdaleaz.gov)

Re **SEC Pinnacle Peak and Scottsdale Road 160-Acre Mixed Use Project**  
General Plan Amendment - Preliminary Wastewater Basis of Design  
Scottsdale, Arizona  
WP #042309 02

Dear Mr Mann,

This Preliminary Wastewater Basis of Design has been prepared to support the general plan amendment for the 160-acre parcel located at the southeast corner of Pinnacle Peak Road and Scottsdale Road, within the City of Scottsdale, Arizona. The parcel is also located at the northwest quarter of Section 14, Township 4 North, Range 4 East, of the Gila and Salt River Meridian. The mixed use project will be a phased development that proposes a maximum of 1,891 multi-family dwelling units, 799,200 square feet of retail/commercial area, and 675,300 square feet of office area, per the requested General Plan Amendment.

This professional civil engineering work product was prepared for RHVT Limited Partnership, Mr Mike Pacheco, 602-230-1051, current owner of the 160 acres at the southeast corner of Pinnacle Peak Road and Scottsdale Road.

Currently, the project area consists of *Rawhide*, a western theme park. On-site land slopes are generally in the southwesterly direction at approximately 2.5 percent, elevations range from 1,875-feet to 1,795-feet. It is expected that wastewater generated on-site will gravity drain in the direction of natural grade to the ultimate point of discharge into existing public wastewater infrastructure.

The proposed wastewater system for the 160-acre mixed use project is presented as two options to accommodate timing of parcel development. Option 1 consists of 8-inch, 12-inch, and 15-inch gravity wastewater lines, while Option 2 consists of 8-inch, 12-inch, 15-inch, and 18-inch gravity wastewater lines along the interior roadways to connect to public wastewater infrastructure at three locations described below. Please refer to the attached exhibits *Option 1 Conceptual Wastewater System* and *Option 2 Conceptual Wastewater System* for the locations of these connections.

- Node R along Scottsdale Road
- Node E along Scottsdale Road
- Node P along Scottsdale Road

Both options ultimately gravity outfall to the same public wastewater line location in Scottsdale Road. The timing of parcel development will control which option or wastewater route will be implemented.



Projected wastewater flows were calculated using the City of Scottsdale's wastewater system design criteria, 'unit daily design flows' as provided by City of Scottsdale staff, and Title 18, Chapter 9 of the *Arizona Administrative Code*. The estimated peak-hour wastewater flow for the proposed development totals 4.08 millions gallons per day (MGD). Two spreadsheets displaying the estimated average-day and peak-hour wastewater design flows and pipe capacity calculations for the proposed on-site infrastructure are attached.

During the peak-hour scenario for existing conditions the existing 15-inch trunk wastewater line along Scottsdale Road, just downstream from the proposed development currently has an anticipated excess capacity of 3.06 MGD, as indicated by segment SRT-073P (Scottsdale Road Interceptor) of the *City of Scottsdale Wastewater System Master Plan*. It is our understanding that the City of Scottsdale Water Resources Department is aware of the limited capacity of segment SRT-073P for ultimate build-out conditions and plans to implement a provision to accommodate future peak flows once the City's Wastewater System Master Plan is updated. City of Scottsdale Water Resources Department representatives reported that the Wastewater Master Plan updates are anticipated to occur in February or March of 2006.

Please refer to the table below for the City of Scottsdale's anticipated existing flow scenarios for segment SRT-073P. Detailed information regarding segment SRT-073P from the City's master plan is provided and attached to this letter.

	Total Flow* (MGD)	Qfull* (MGD)	QXcess* (MGD)	D/d*	Additional Flow** (MGD)
Existing Conditions - Average Flow	0.95	6.0	5.0	0.3	1.11
Existing Conditions - Peak Flow	2.89	6.0	3.06	0.6	4.08

\* Values obtained from the *City of Scottsdale Wastewater System Master Plan, 2002 Update, Management System MODEL RESULTS*

\*\* Additional flow is the flow generated by the proposed 160-acre development at the southeast corner of Pinnacle Peak Road and Scottsdale Road.

The proposed on-site wastewater improvements will be coordinated with the City of Scottsdale's planning and construction of future parallel or upsizing trunk wastewater lines along Scottsdale Road. The City and the developer will need to coordinate phasing and parcel development schedules based on the timing of future wastewater improvements along Scottsdale Road.

The attached exhibits illustrate the proposed wastewater pipe locations and sizes for Options 1 and 2. The Preliminary Wastewater Basis of Design for the 160-acre mixed use project demonstrates the adequacy of the proposed on-site wastewater collection system to service the 160-acre parcel, and has been prepared with our understanding of the City of Scottsdale's technical requirements for wastewater system design criteria.

Wood/Patel believes that the modeled on-site wastewater system will provide necessary system conveyance and capacity within the previously-defined design, according to the calculations presented as part of this letter, representative of full build-out condition per the General Plan Amendment densities.

Mr Douglas L Mann  
City of Scottsdale, Water Resources Dept  
**SEC Pinnacle Peak and Scottsdale Road 160-Acre Mixed Use Project**  
General Plan Amendment - Preliminary Wastewater Basis of Design  
WP #042309 02

May 3, 2005  
Page 3

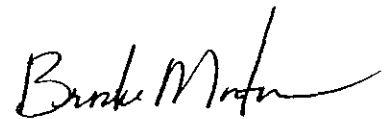
Thank you for your review of our modeled wastewater system for the Preliminary Wastewater Basis of Design serving the 160-acre parcel at the SEC of Pinnacle Peak and Scottsdale Road. If you have any questions, please feel free to contact us.

Sincerely,

**WOOD, PATEL & ASSOCIATES, INC**



Darrel E Wood, P E , R.L.S  
Principal



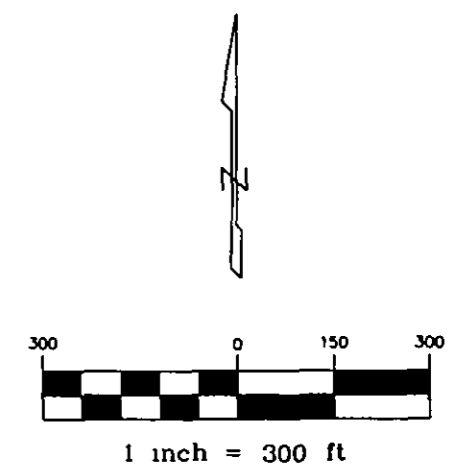
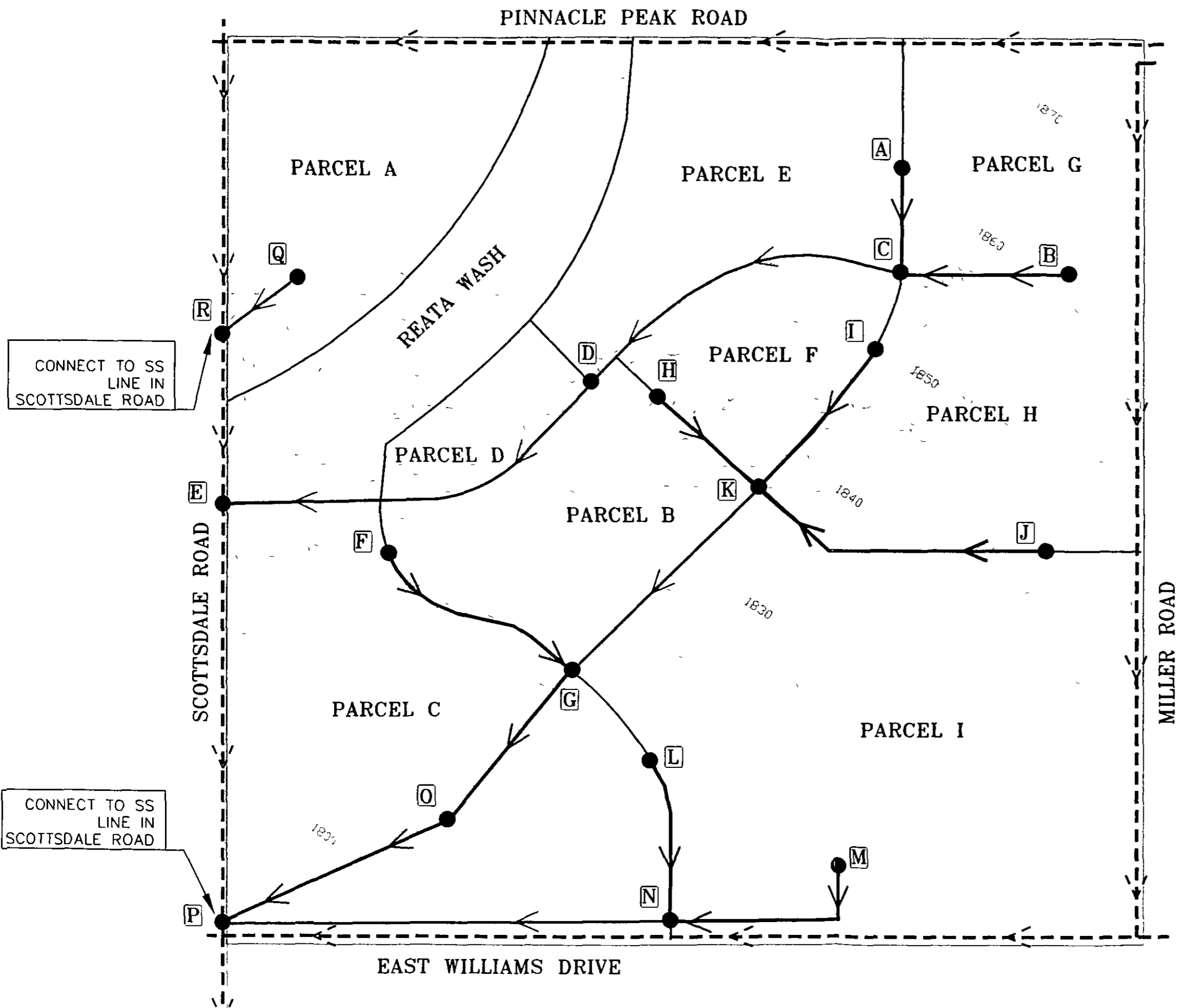
Brooke Morton  
EIT

DEW/km

**Attachments**

- Option 1 – Conceptual Wastewater System Exhibit (1 page)
- Option 1 – Pipe Capacity Calculations (1 page)
- Option 1 – Estimated Wastewater Design Flow Calculations (1 page)
- Option 2 – Conceptual Wastewater System Exhibit (1 page)
- Option 2 – Pipe Capacity Calculations (1 page)
- Option 2 – Estimated Wastewater Design Flow Calculations (1 page)
- Map 5 - City of Scottsdale Modeled Wastewater System (1 page)
- MODEL Results (4 pages)

OPTION 1  
 CONCEPTUAL WASTEWATER SYSTEM  
 SEC PINNACLE PEAK AND SCOTTSDALE ROAD  
 160-ACRE MIXED USE PROJECT



- LEGEND**
- 8" PROPOSED SANITARY SEWER
  - 12" PROPOSED SANITARY SEWER
  - 15" PROPOSED SANITARY SEWER
  - - - 8" EXISTING SANITARY SEWER
  - - - 15" EXISTING SANITARY SEWER
  - PARCEL BOUNDARY
  - PROJECT BOUNDARY

NOTE: THE LOCATION AND SIZES OF THESE SEWER LINES ARE A CONCEPTUAL DESIGN AND SHOULD NOT BE USED FOR CONSTRUCTION

**WOOD/PATEL**  
 CIVIL ENGINEERS, HYDROLOGISTS, LAND SURVEYORS, CONSTRUCTION MANAGERS  
 7051 West Northern Suite 100 Phoenix, Arizona 85021 Phone (602) 315-8500

Project *SEC Pinnacle Peak and Scottsdale Road Mixed Land Use*  
 Location *City of Scottsdale, Arizona*  
 Date *2-May-05*  
 References *City of Scottsdale Design Standards and Policy Manual*  
 Project Number *042309 02*  
 Project Engineer *Darrel Wood, P E , R L S*

SEGMENT	PIPE SIZE (IN)	PEAK FLOW (GPD)	MINIMUM PIPE SLOPE (FT / FT)	FULL FLOW VELOCITY, V <sub>0</sub> (FPS)	PARTIAL FLOW VELOCITY, V <sub>1</sub> (FPS)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	d/D RATIO
Total for Segment A-C	8	52,875	0 0052	2 5	1 6	564,339	511,464	0 21
Total for Segment B-C	8	104,500	0 0052	2 5	1 9	564,339	459,839	0 29
Total for Segment C-D	12	585,667	0 0030	2 5	2 4	1,263,964	678,297	0 48
Total for Segment D-E	12	894,801	0 0030	2 5	2 7	1,263,964	369,163	0 62
Total for Segment F-G	8	309,134	0 0052	2 5	2 6	564,339	255,205	0 53
Total for Segment H-K	8	55,667	0 0052	2 5	1 6	564,339	508,673	0 21
Total for Segment I-K	8	236,667	0 0052	2 5	2 4	564,339	327,673	0 45
Total for Segment J-K	8	181,000	0 0052	2 5	2 2	564,339	383,339	0 39
Total for Segment K-G	12	1,059,801	0 0030	2 5	2 8	1,263,964	204,163	0 70
Total for Segment G-O	15	1,436,465	0 0022	2 5	2 7	1,962,657	526,193	0 64
Total for Segment O-P	15	1,503,995	0 0022	2 5	2 7	1,962,657	458,663	0 66
Total for Segment M-N	8	277,333	0 0052	2 5	2 5	564,339	287,006	0 50
Total for Segment L-N	8	277,333	0 0052	2 5	2 5	564,339	287,006	0 50
Total for Segment N-P	12	622,197	0 0030	2 5	2 5	1,263,964	641,767	0 50
Total for Segment Q-R	12	1,058,610	0 0030	2 5	2 8	1,263,964	205,354	0 70



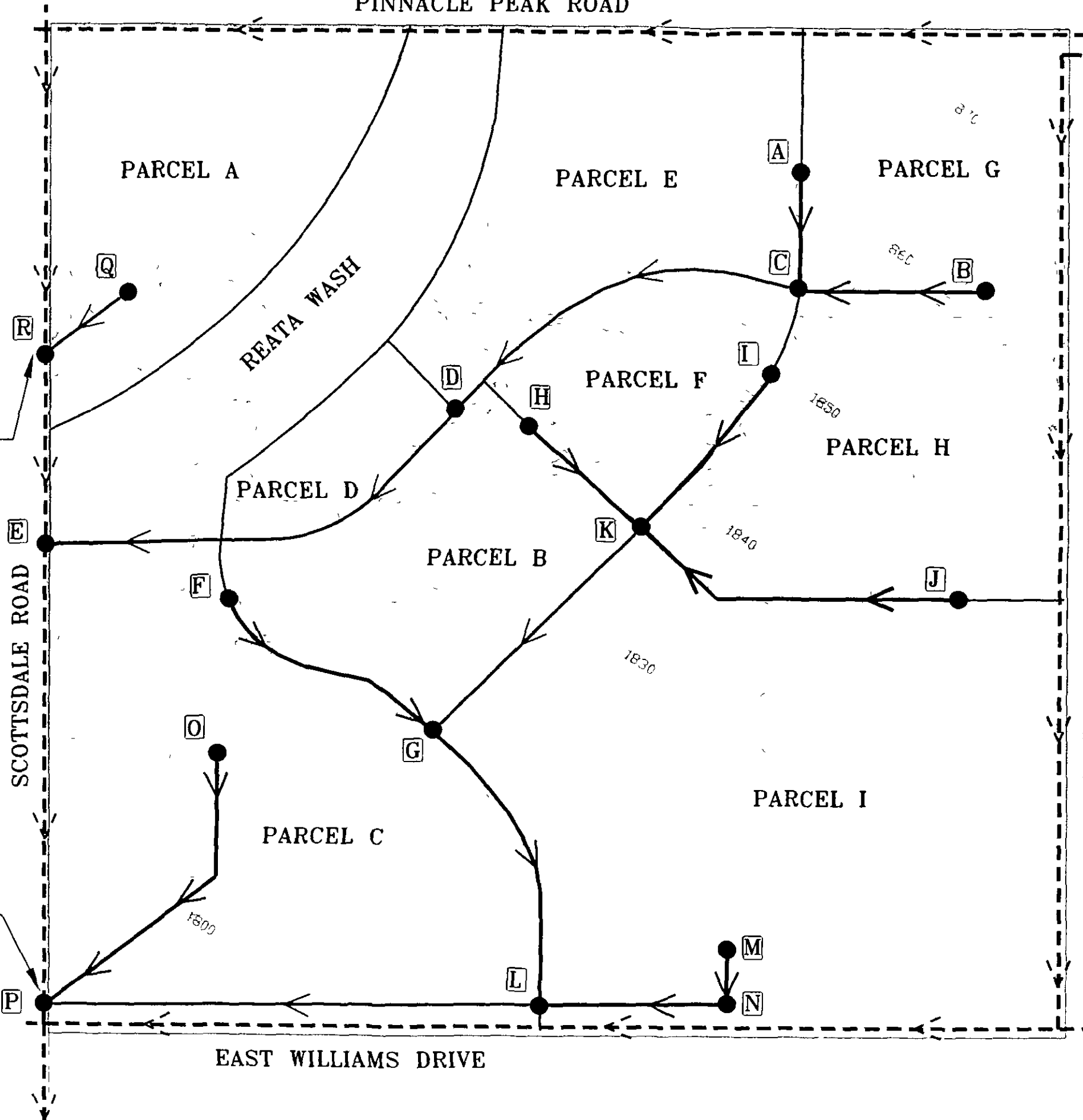
Project SEC Pinnacle Peak and Scottsdale Road Mixed Land Use  
 Location City of Scottsdale, Arizona  
 Date 2-May-05  
 References City of Scottsdale Design Standards and Policy Manual

Project Number 042309 02  
 Project Engineer Darrel Wood, P E ,R L S

SEGMENT	PARCEL	LAND USE	AREA OF CONTRIBUTING PARCEL	RESIDENTIAL-MULTI-FAMILY			COMMERCIAL-OFFICE			COMMERCIAL-RETAIL			PARCEL ADF (GPD)	PARCEL PEAK FLOW (GPD)	CUMULATIVE ADF (GPD)	CUMULATIVE PEAK FLOW (GPD)
				NUMBER OF DWELLING UNITS	ADF / UNIT (GPD)	RESIDENTAIL PEAKING FACTOR	OFFICE SPACE (SQ FT)	OFFICE ADF / SQ FT (GPD)	OFFICE PEAKING FACTOR	RETAIL SPACE (SQ FT)	RETAIL ADF / SQ FT (GPD)	RETAIL PEAKING FACTOR				
A-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
A-C	E	Condo/Town House	4 7	107	250	4 0			3 0			3 5	26,750	107,000		
<b>Total for Segment A-C</b>			<b>9 2</b>	<b>212</b>									<b>52,875</b>	<b>211,500</b>	<b>52,875</b>	<b>52,875</b>
B-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
<b>Total for Segment B-C</b>			<b>4 6</b>	<b>105</b>									<b>26,125</b>	<b>104,500</b>	<b>26,125</b>	<b>104,500</b>
C-D	E	Condo/Town House	9 3	214	250	4 0			3 0			3 5	53,500	214,000		
C-D	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment C-D</b>			<b>1 1 8</b>	<b>270</b>									<b>67,417</b>	<b>269,667</b>	<b>146,417</b>	<b>585,667</b>
D-E	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
D-E	D	Municipal	3 5			4 0			3 0			3 5				
<b>Total for Segment D-E</b>			<b>7 1</b>							<b>124,400</b>			<b>88,324</b>	<b>309,134</b>	<b>234,741</b>	<b>594,801</b>
F-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
<b>Total for Segment F-G</b>			<b>3 6</b>							<b>124,400</b>			<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
H-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment H-K</b>			<b>2 4</b>	<b>56</b>									<b>13,917</b>	<b>55,667</b>	<b>13,917</b>	<b>55,667</b>
I-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
I-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment I-K</b>			<b>10 3</b>	<b>237</b>									<b>59,167</b>	<b>236,667</b>	<b>59,167</b>	<b>236,667</b>
J-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment J-K</b>			<b>7 9</b>	<b>181</b>									<b>45,250</b>	<b>181,000</b>	<b>45,250</b>	<b>181,000</b>
K-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
K-G	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment K-G</b>			<b>15 6</b>	<b>277</b>						<b>124,400</b>			<b>157,657</b>	<b>586,467</b>	<b>275,991</b>	<b>1,059,801</b>
G-O	C	Office	8 6			4 0	225,100	0 100	3 0			3 5	22,510	67,530		
<b>Total for Segment G-O</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>386,825</b>	<b>1,436,465</b>
O-P	C	Office	8 6			4 0	225,100	0 100	3 0			3 5	22,510	67,530		
<b>Total for Segment O-P</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>409,335</b>	<b>1,503,995</b>
M-N	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment M-N</b>			<b>12 1</b>	<b>277</b>									<b>69,333</b>	<b>277,333</b>	<b>69,333</b>	<b>277,333</b>
L-N	I	Condo/Town House	12 1	277 3	250	4 0			3 0			3 5	69,333	277,333		
<b>Total for Segment L-N</b>			<b>12 1</b>	<b>277</b>									<b>69,333</b>	<b>277,333</b>	<b>69,333</b>	<b>277,333</b>
N-P	C	Office	8 6			4 0	225,100	0 100	3 0			3 5	22,510	67,530		
<b>Total for Segment N-P</b>			<b>8 6</b>				<b>225,100</b>						<b>22,510</b>	<b>67,530</b>	<b>1,611,177</b>	<b>1,622,197</b>
Q-R	A	Retail/Comm	12 2			4 0			3 0	426,000	0 71	3 5	302,460	1,058,610		
<b>Total for Segment Q-R</b>			<b>12 2</b>							<b>426,000</b>			<b>302,460</b>	<b>1,058,610</b>	<b>302,460</b>	<b>1,058,610</b>
<b>Development Total</b>			<b>135</b>	<b>1,891</b>			<b>450,200</b>			<b>799,200</b>			<b>1,107,712</b>	<b>4,079,602</b>		

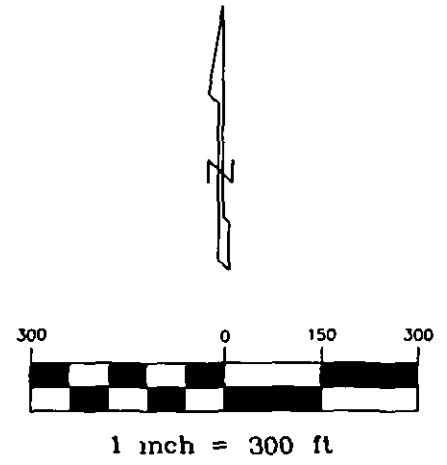
OPTION 2  
 CONCEPTUAL WASTEWATER SYSTEM  
 SEC PINNACLE PEAK AND SCOTTSDALE ROAD  
 160-ACRE MIXED USE PROJECT

PINNACLE PEAK ROAD



CONNECT TO SS  
 LINE IN  
 SCOTTSDALE ROAD

CONNECT TO SS  
 LINE IN  
 SCOTTSDALE ROAD



LEGEND

- 8" PROPOSED SANITARY SEWER
- 12" PROPOSED SANITARY SEWER
- 15" PROPOSED SANITARY SEWER
- 18" PROPOSED SANITARY SEWER
- - - 8" EXISTING SANITARY SEWER
- - - 15" EXISTING SANITARY SEWER
- PARCEL BOUNDARY
- PROJECT BOUNDARY

NOTE: THE LOCATION AND SIZES OF THESE  
 SEWER LINES ARE A CONCEPTUAL DESIGN AND  
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WOOD/PATEL  
 CIVIL ENGINEERS HYDROLOGISTS LAND SURVEYORS CONSTRUCTION MANAGERS  
 7051 West Northern, Suite 100 Phoenix, Arizona 85021 Phone (602) 115-8900

Project *SEC Pinnacle Peak and Scottsdale Road Mixed Land Use*  
 Location *City of Scottsdale, Arizona*  
 Date *2-May-05*  
 References *City of Scottsdale Design Standards and Policy Manual*  
 Project Number *042309 02*  
 Project Engineer *Darrel Wood, P E ,R L S*

SEGMENT	PIPE SIZE (IN)	PEAK FLOW (GPD)	MINIMUM PIPE SLOPE (FT / FT)	FULL FLOW VELOCITY, V <sub>0</sub> (FPS)	PARTIAL FLOW VELOCITY, V <sub>1</sub> (FPS)	PIPE CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	d/D RATIO
Total for Segment A-C	8	52,875	0 0052	2 5	1 6	564,339	511,464	0 21
Total for Segment B-C	8	104,500	0 0052	2 5	1 9	564,339	459,839	0 29
Total for Segment C-D	12	585,667	0 0030	2 5	2 4	1,263,964	678,297	0 48
Total for Segment D-E	12	894,801	0 0030	2 5	2 7	1,263,964	369,163	0 62
Total for Segment F-G	8	309,134	0 0052	2 5	2 6	564,339	255,205	0 53
Total for Segment H-K	8	55,667	0 0052	2 5	1 6	564,339	508,673	0 21
Total for Segment I-K	8	236,667	0 0052	2 5	2 4	564,339	327,673	0 45
Total for Segment J-K	8	181,000	0 0052	2 5	2 2	564,339	383,339	0 39
Total for Segment K-G	12	990,467	0 0030	2 5	2 8	1,263,964	273,497	0 67
Total for Segment G-L	15	1,507,601	0 0022	2 5	2 7	1,962,657	455,056	0 66
Total for Segment M-N	8	208,000	0 0052	2 5	2 3	564,339	356,339	0 42
Total for Segment N-L	8	416,000	0 0052	2 5	2 7	564,339	148,339	0 64
Total for Segment L-P	18	2,024,896	0 0017	2 5	2 7	2,805,653	780,757	0 63
Total for Segment O-P	8	101,295	0 0052	2 5	1 9	564,339	463,044	0 29
Total for Segment Q-R	12	1,058,610	0 0030	2 5	2 8	1,263,964	205,354	0 70

Project SEC Pinnacle Peak and Scottsdale Road Mixed Land Use  
 Location City of Scottsdale, Arizona  
 Date 2-May-05  
 References City of Scottsdale Design Standards and Policy Manual

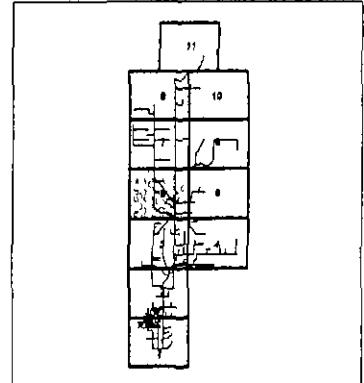
Project Number 042309 02  
 Project Engineer Darrel Wood, P.E., R.L.S

SEGMENT	PARCEL	LAND USE	AREA OF CONTRIBUTING PARCEL	RESIDENTIAL-MULTI-FAMILY			COMMERCIAL-OFFICE			COMMERCIAL-RETAIL			PARCEL ADF (GPD)	PARCEL PEAK FLOW (GPD)	CUMULATIVE ADF (GPD)	CUMULATIVE PEAK FLOW (GPD)
				NUMBER OF DWELLING UNITS	ADF / UNIT (GPD)	RESIDENTIAL PEAKING FACTOR	OFFICE SPACE (SQ FT)	OFFICE ADF / SQ FT (GPD)	OFFICE PEAKING FACTOR	RETAIL SPACE (SQ FT)	RETAIL ADF / SQ FT (GPD)	RETAIL PEAKING FACTOR				
A-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
A-C	E	Condo/Town House	4 7	107	250	4 0			3 0			3 5	26,750	107,000		
<b>Total for Segment A-C</b>				<b>9 2</b>	<b>212</b>				<b>6 0</b>			<b>7 0</b>	<b>52,875</b>	<b>211,500</b>	<b>52,875</b>	<b>52,875</b>
B-C	G	Condo/Town House	4 55	104 5	250	4 0			3 0			3 5	26,125	104,500		
<b>Total for Segment B-C</b>				<b>4 6</b>	<b>105</b>				<b>3 0</b>			<b>3 5</b>	<b>26,125</b>	<b>104,500</b>	<b>26,125</b>	<b>104,500</b>
C-D	E	Condo/Town House	9 3	214	250	4 0			3 0			3 5	53,500	214,000		
C-D	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment C-D</b>				<b>11 7</b>	<b>270</b>				<b>6 0</b>			<b>7 0</b>	<b>67,417</b>	<b>269,667</b>	<b>146,117</b>	<b>585,667</b>
D-E	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
D-E	D	Municipal	3 5			4 0			3 0			3 5				
<b>Total for Segment D-E</b>				<b>7 1</b>			<b>8 0</b>		<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>7 0</b>	<b>88,324</b>	<b>309,134</b>	<b>234,741</b>	<b>894,801</b>
F-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
<b>Total for Segment F-G</b>				<b>3 6</b>			<b>8 0</b>		<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>7 0</b>	<b>88,324</b>	<b>309,134</b>	<b>88,324</b>	<b>309,134</b>
H-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
<b>Total for Segment H-K</b>				<b>2 4</b>	<b>56</b>				<b>3 0</b>			<b>3 5</b>	<b>13,917</b>	<b>55,667</b>	<b>13,917</b>	<b>55,667</b>
I-K	F	Apt	2 4	55 7	250	4 0			3 0			3 5	13,917	55,667		
I-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment I-K</b>				<b>10 3</b>	<b>237</b>				<b>6 0</b>			<b>7 0</b>	<b>59,167</b>	<b>236,667</b>	<b>59,167</b>	<b>236,667</b>
J-K	H	Apt	7 9	181	250	4 0			3 0			3 5	45,250	181,000		
<b>Total for Segment J-K</b>				<b>7 9</b>	<b>181</b>				<b>6 0</b>			<b>7 0</b>	<b>45,250</b>	<b>181,000</b>	<b>45,250</b>	<b>181,000</b>
K-G	B	Retail/Comm	3 6			4 0			3 0	124,400	0 71	3 5	88,324	309,134		
K-G	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment K-G</b>				<b>12 6</b>	<b>208</b>		<b>8 0</b>		<b>6 0</b>	<b>124,400</b>	<b>0 71</b>	<b>7 0</b>	<b>140,324</b>	<b>517,134</b>	<b>258,657</b>	<b>990,467</b>
G-L	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment G-L</b>				<b>9 1</b>	<b>208</b>				<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>398,981</b>	<b>1,507,601</b>
M-N	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment M-N</b>				<b>9 1</b>	<b>208</b>				<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>52,000</b>	<b>208,000</b>
N-L	I	Condo/Town House	9 1	208	250	4 0			3 0			3 5	52,000	208,000		
<b>Total for Segment N-L</b>				<b>9 1</b>	<b>208</b>				<b>6 0</b>			<b>7 0</b>	<b>52,000</b>	<b>208,000</b>	<b>104,000</b>	<b>416,000</b>
L-P	C	Office	12 9			4 0	337,650	0 10	3 0			3 5	33,765	101,295		
<b>Total for Segment L-P</b>				<b>12 9</b>			<b>337,650</b>	<b>0 10</b>	<b>6 0</b>			<b>7 0</b>	<b>33,765</b>	<b>101,295</b>	<b>536,746</b>	<b>2,024,896</b>
O-P	C	Office	12 9			4 0	337,650	0 10	3 0			3 5	33,765	101,295		
<b>Total for Segment O-P</b>				<b>12 9</b>			<b>337,650</b>	<b>0 10</b>	<b>6 0</b>			<b>7 0</b>	<b>33,765</b>	<b>101,295</b>	<b>33,765</b>	<b>401,295</b>
Q-R	A	Retail/Comm	12 2			4 0			3 0	426,000	0 71	3 5	302,460	1,058,610		
<b>Total for Segment Q-R</b>				<b>12 2</b>					<b>6 0</b>	<b>426,000</b>	<b>0 71</b>	<b>7 0</b>	<b>302,460</b>	<b>1,058,610</b>	<b>302,460</b>	<b>1,058,610</b>
<b>Development Total</b>			<b>135</b>	<b>1,891</b>			<b>675,300</b>			<b>799,200</b>			<b>1,107,712</b>	<b>4,079,602</b>		

# City of Scottsdale Modeled Wastewater System

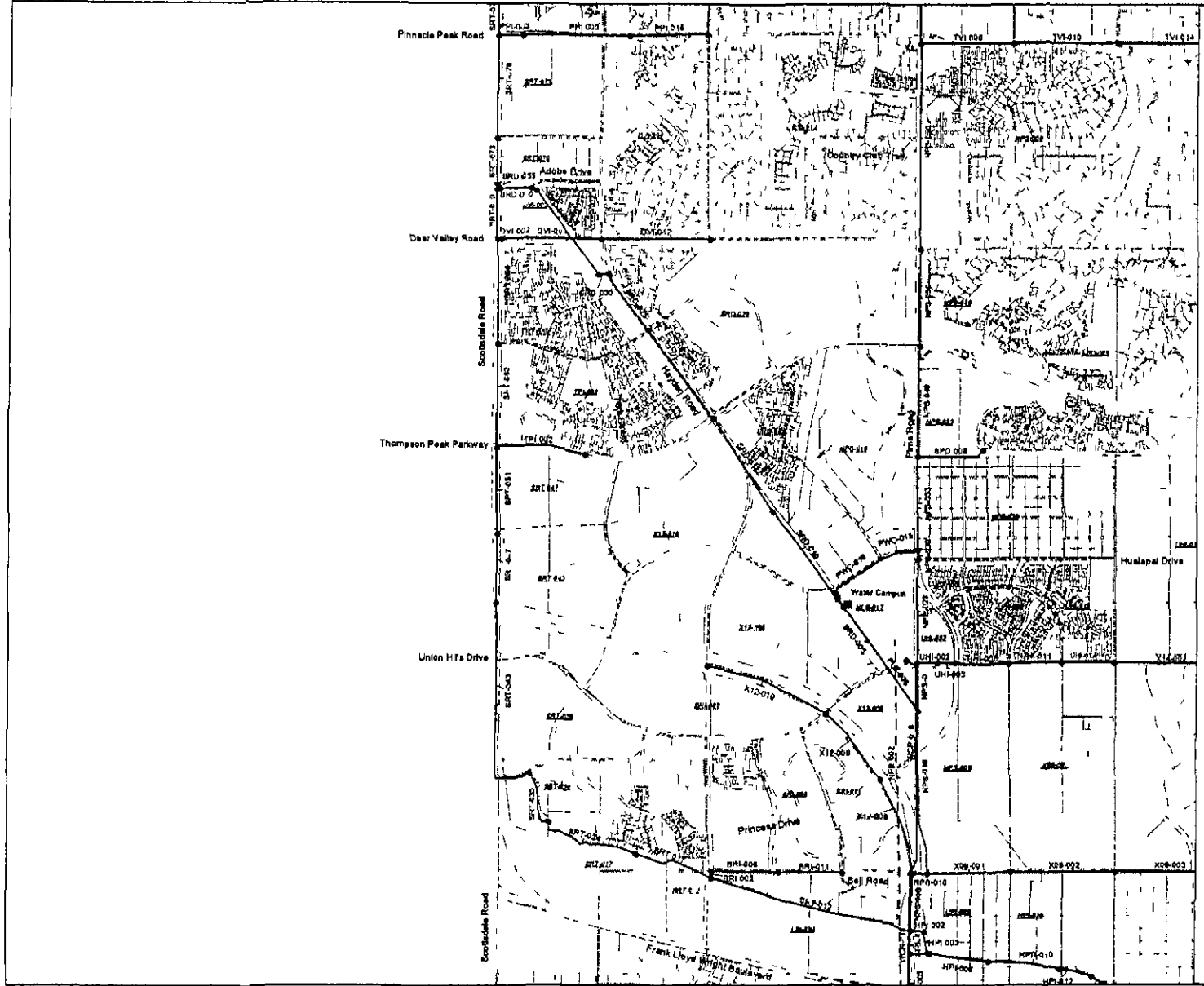


- Analysis Node
- Gravity Sewer
- - - Force Main
- Lift Station
- ▼ Diversion
- A00-025P Model ID
- Tributary Area
- A00-025P Tributary ID



Map Index

## Map 5



City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	Monit	Length (ft)	Slope (ft/ft)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (ft/s)	D/d	Size (in)	Flow	Vel (ft/s)	Size (in)	Flow	Vel (ft/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD 045P	EP	1.28	1.61	2.89		143	0034	24.0	21.0	013	8.58	5.60	3.2	5						
SRD 050P	EP	1.28	1.61	2.89		803	0027	24.0	14.0	013	7.64	4.67	3.0	5						
SRD 055P	EP	1.28	1.61	2.89		101	0031	24.0	7.0	013	8.10	5.14	3.1	5						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT-012P	EP	1.04	.59	1.63	1.63	5,239	0038	24.0	22.0	013	8.98	7.26	2.8	3						
SRT 017P	EP	.90	.63	1.53		2,050	0026	24.0	8.0	013	7.52	5.92	2.4	3						
SRT 024P	EP	.73	.63	1.36		2,572	0023	24.0	7.0	013	6.98	5.53	2.2	3						
SRT 030P	EP	.41	.63	1.04		1,479	0038	15.0	12.0	013	2.60	1.53	2.6	5						
SRT 043P	EP	.41	.63	1.04	1.04	5,308	0112	15.0	11.0	013	4.43	3.34	3.8	4						
SRT 047P	EP	.41		.41		1,765	0145	15.0	7.0	013	5.04	4.59	3.3	2						
SRT-051P	EP	.41		.41		2,204	0143	15.0	7.0	013	5.01	4.55	3.2	2						
SRT-060P	EP	.39		.39		2,649	0157	18.0	8.0	013	8.53	8.05	3.3	2						
SRT 064P	EP	.29		.29		2,683	0164	18.0	7.0	013	8.72	8.34	3.1	2						
SRT 070P	EP	.02		.02		1,288	0138	15.0	6.0	013	4.92	4.85	1.2	1						
SRT 072D	DI					0														
SRT 072P	EP	1.28	1.61	2.89		90	0118	15.0	7.0	013	4.54	1.61	5.3	7						
SRT-073P	EP	1.28	1.61	2.89		1,236	0206	15.0	6.0	013	6.00	3.06	6.4	6						
SRT-076P	EP	1.28	1.61	2.89		2,642	0187	15.0	6.0	013	5.72	2.78	6.2	6						
SRT 079P	EP	.92	1.61	2.53		1,264	0187	15.0	6.0	013	5.72	3.13	5.9	5						
SRT-081P	EP	.86	1.61	2.46		898	0164	15.0	7.0	013	5.38	2.85	5.6	5						
SRT 086P	EP	.83	1.61	2.44		3,146	0150	21.0	11.0	013	12.59	10.03	5.2	3						
SRT-094P	EP	.83	1.61	2.44		4,890	0175	18.0	13.0	013	9.01	6.48	5.6	4						
SRT 100P	EP	.78	1.61	2.39		2,766	0150	18.0	15.0	013	8.33	5.85	5.3	4						
SRT 103P	EP	.73	1.61	2.34		2,571	0186	18.0	12.0	013	9.28	6.84	5.7	4						
SRT 107P	EP	.72	1.61	2.33		2,678	0111	18.0	10.0	013	7.18	4.78	4.7	4						
SRT-111P	EP	.65	1.61	2.26	2.26	2,611	0100	18.0	11.0	013	6.82	4.49	4.5	5						
SRT 115P	EP	.57	.79	1.35		1,349	0134	18.0	12.0	013	7.87	6.44	4.3	3						
SRT-121P	EP	.53	.79	1.32		3,965	0097	18.0	14.0	013	6.71	5.33	3.8	3						
SRT-125P	EP	.53	.79	1.32		2,752	0057	18.0	13.0	013	5.13	3.76	3.2	4						
SRT 129P	EP	.23	.79	1.02		2,525	0076	18.0	12.0	013	5.93	4.85	3.2	3						

City of Scottsdale  
Wastewater Management System  
MODEL RESULTS ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	MonIt	Length (ft)	Slope (f/f)	Size (In)	Depth (ft)	Man N	QFull	QXcess	Vel (f/s)	D/d	Size (In)	Flow	Vel (f/s)	Size (In)	Flow	Vel (f/s)
<b>SRT SCOTSDALE ROAD INTERCEPT</b>																				
SRT-012P	EP	47	33	80	80	5,239	0038	24.0	22.0	013	8.98	8.09	2.3	2						
SRT 017P	EP	38	21	58		2,050	0028	24.0	8.0	013	7.52	6.88	1.9	2						
SRT 024P	EP	30	21	51		2,572	0023	24.0	7.0	013	6.98	6.38	1.7	2						
SRT 030P	EP	17	21	38		1,479	0038	15.0	12.0	013	2.80	2.19	1.9	3						
SRT-043P	EP	17	21	38	38	5,306	0112	15.0	11.0	013	4.43	4.00	2.9	2						
SRT-047P	EP	17		17		1,765	0145	15.0	7.0	013	5.04	4.82	2.8	2						
SRT-051P	EP	17		17		2,204	0143	15.0	7.0	013	5.01	4.78	2.6	2						
SRT-080P	EP	17		17		2,649	0157	18.0	8.0	013	8.53	8.28	2.6	1						
SRT-064P	EP	13		13		2,883	0164	18.0	7.0	013	8.72	8.51	2.5	1						
SRT 070P	EP	01		01		1,288	0138	15.0	6.0	013	4.92	4.86	7	0						
SRT 072D	DI					0														
SRT 072P	EP	52	43	95		90	0118	15.0	7.0	013	4.54	3.55	3.7	4						
SRT-073P	EP	52	43	95		1,238	0208	15.0	6.0	013	6.00	5.00	4.8	3						
SRT 076P	EP	52	43	95		2,842	0187	15.0	6.0	013	5.72	4.72	4.4	3						
SRT-079P	EP	37	43	80		1,284	0187	15.0	6.0	013	5.72	4.86	4.2	3						
SRT-081P	EP	34	43	77		898	0164	15.0	7.0	013	5.36	4.54	4.0	3						
SRT-086P	EP	33	43	76		3,146	0150	21.0	11.0	013	12.59	11.70	3.9	2						
SRT 094P	EP	33	43	76		4,890	0175	18.0	13.0	013	9.01	8.18	4.1	2						
SRT 100P	EP	31	43	74		2,786	0150	18.0	15.0	013	8.33	7.50	3.9	2						
SRT-103P	EP	29	43	72		2,571	0186	18.0	12.0	013	9.28	8.46	4.1	2						
SRT-107P	EP	29	43	72		2,678	0111	18.0	10.0	013	7.18	6.40	3.4	3						
SRT-111P	EP	28	43	69	69	2,611	0100	18.0	11.0	013	6.82	6.06	3.3	3						
SRT-115P	EP	23	40	63		1,349	0134	18.0	12.0	013	7.87	7.17	3.5	2						
SRT-121P	EP	21	40	61		3,985	0097	18.0	14.0	013	6.71	6.03	3.1	2						
SRT 125P	EP	21	40	61		2,752	0057	18.0	13.0	013	5.13	4.46	2.5	3						
SRT 129P	EP	09	40	49		2,525	0076	18.0	12.0	013	5.93	5.38	2.7	2						
SRT-135P	EP	09	40	49		2,638	0081	15.0	11.0	013	3.76	3.23	2.7	3						
<b>TPI THOMPSON PEAK INTERCEPTOR</b>																				
TPI 002P	EP	01		01		2,281	0013	12.0	9.0	013	8.2	6.80	5	1						

City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	Monit	Length (ft)	Slope (ft/ft)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (ft/s)	D/d	Size (in)	Flow	Vel (ft/s)	Size (in)	Flow	Vel (ft/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD 020P	EP	1.57	1.03	2.60		2,784	0.104	21.0	12.0	013	10.49	7.78	4.7	4						
SRD 025P	EP	1.35	1.03	2.37		1,755	0.108	21.0	12.0	013	10.67	8.19	4.6	4						
SRD 030P	EP	1.35	1.03	2.37		256	0.045	24.0	10.0	013	9.82	7.35	3.3	4						
SRD-040P	EP	1.35	1.03	2.37		2,644	0.027	24.0	15.0	013	7.66	5.21	2.8	4						
SRD 045P	EP	1.35	1.03	2.37		143	0.034	24.0	21.0	013	8.58	6.12	3.0	4						
SRD 050P	EP	1.35	1.03	2.37		803	0.027	24.0	14.0	013	7.64	5.19	2.8	4						
SRD 055P	EP	1.35	1.03	2.37		101	0.031	24.0	7.0	013	8.10	5.65	2.9	4						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT-012P	EP	1.63	33	1.95		5,239	0.038	24.0	22.0	013	8.98	6.93	2.9	4						
SRT 017P	EP	1.26	21	1.47		2,050	0.026	24.0	8.0	013	7.52	5.98	2.4	3						
SRT-024P	EP	1.08	21	1.28		2,572	0.023	24.0	7.0	013	6.96	5.63	2.1	3						
SRT-030P	EP	90	21	1.11		1,479	0.038	15.0	12.0	013	2.60	1.46	2.7	5						
SRT 043P	EP	72	21	92		5,308	0.112	15.0	11.0	013	4.43	3.48	3.8	4						
SRT-047P	EP	50		50		1,765	0.145	15.0	7.0	013	5.04	4.49	3.5	3						
SRT-051P	EP	44		44		2,204	0.143	15.0	7.0	013	5.01	4.52	3.3	2						
SRT-060P	EP	30		30		2,849	0.157	18.0	8.0	013	8.53	8.14	3.1	2						
SRT-084P	EP	21		21		2,683	0.164	18.0	7.0	013	8.72	8.42	2.8	1						
SRT 070P	EP	04		04		1,288	0.138	15.0	6.0	013	4.92	4.84	1.6	1						
SRT 072D	DI					0														
SRT 072P	EP					90	0.118	15.0	7.0	013	4.54	4.50	2							
SRT-073P	EP	1.35	1.03	2.37		1,236	0.206	15.0	6.0	013	6.00	3.57	6.0	5						
SRT 076P	EP	1.31	1.03	2.34		2,642	0.187	15.0	8.0	013	5.72	3.33	5.8	5						
SRT 079P	EP	1.13	1.03	2.16		1,284	0.187	15.0	6.0	013	5.72	3.50	5.7	5						
SRT-081P	EP	1.11	1.03	2.13		898	0.164	15.0	7.0	013	5.38	3.18	5.4	5						
SRT 086P	EP	1.10	1.03	2.12		3,146	0.150	21.0	11.0	013	12.59	10.34	5.0	3						
SRT 094P	EP	1.07	1.03	2.09		4,890	0.175	18.0	13.0	013	9.01	6.83	5.3	4						
SRT 100P	EP	1.04	1.03	2.07		2,786	0.150	18.0	15.0	013	8.33	6.17	5.1	4						
SRT 103P	EP	92	1.03	1.95		2,571	0.186	18.0	12.0	013	9.28	7.23	5.3	4						
SRT 107P	EP	89	1.03	1.92		2,678	0.111	18.0	10.0	013	7.18	5.20	4.5	4						
SRT 111P	EP	85	1.03	1.88		2,611	0.100	18.0	11.0	013	6.82	4.87	4.3	4						



City of Scottsdale  
Wastewater Management System  
MODEL RESULTS - ALL

ID	Type *	FLOW				EXISTING OR DESIGN								NEW			PARALLEL			
		San	Other	Total	Monit	Length (ft)	Slope (f/f)	Size (in)	Depth (ft)	Man N	QFull	QXcess	Vel (f/s)	D/d	Size (in)	Flow	Vel (f/s)	Size (in)	Flow	Vel (f/s)
<b>SRD SCOTTSDALE ROAD DIVERSION</b>																				
SRD 010P	EP	3.81	3.13	6.95		2,740	0.082	24.0	18.0	013	13.25	6.17	5.7	6						
SRD-015P	EP	3.81	2.79	6.60		2,786	0.122	21.0	10.0	013	11.35	4.63	6.5	6						
SRD-020P	EP	3.81	2.79	6.60		2,784	0.104	21.0	12.0	013	10.49	3.78	6.2	7						
SRD 025P	EP	3.25	2.79	6.04		1,755	0.108	21.0	12.0	013	10.87	4.53	6.1	6						
SRD-030P	EP	3.25	2.79	6.04		259	0.045	24.0	10.0	013	9.82	3.88	4.4	6						
SRD-040P	EP	3.25	2.79	6.04		2,644	0.027	24.0	15.0	013	7.66	1.54	3.7	8						
SRD 045P	EP	3.25	2.79	6.04		143	0.034	24.0	21.0	013	8.58	2.45	4.0	7						
SRD-050P	EP	3.25	2.79	6.04		803	0.027	24.0	14.0	013	7.64	1.52	3.7	8						
SRD-055P	EP	3.25	2.79	6.04		101	0.031	24.0	7.0	013	8.10	1.98	3.9	7						
<b>SRT SCOTTSDALE ROAD INTERCEPT</b>																				
SRT 012P	EP	3.54	62	4.16		5,239	0.038	24.0	22.0	013	8.98	4.73	3.7	5						
SRT 017P	EP	2.85	63	3.48		2,050	0.026	24.0	8.0	013	7.52	3.96	3.1	5						
SRT-024P	EP	2.36	63	3.00		2,572	0.023	24.0	7.0	013	6.96	3.89	2.8	5						
SRT 030P	EP	2.06	63	2.69		1,479	0.038	15.0	12.0	013	2.60	0.12	3.4	10	18.0	4.18	3.4	6.0	22	1.6
SRT 043P	EP	1.85	63	2.28		5,308	0.112	15.0	11.0	013	4.43	2.10	4.8	6						
SRT-047P	EP	1.11		1.11		1,785	0.145	15.0	7.0	013	5.04	3.88	4.2	4						
SRT 051P	EP	99		99		2,204	0.143	15.0	7.0	013	5.01	3.97	4.1	3						
SRT 060P	EP	68		68		2,649	0.157	18.0	8.0	013	8.53	7.76	3.8	2						
SRT 064P	EP	47		47		2,683	0.164	18.0	7.0	013	8.72	8.17	3.5	2						
SRT 070P	EP	07		07		1,288	0.138	15.0	6.0	013	4.92	4.81	2.0	1						
SRT 072D	DI					0														
SRT-072P	EP					90	0.118	15.0	7.0	013	4.54	4.50	2							
SRT 073P	EP	3.25	2.79	6.04		1,236	0.206	15.0	6.0	013	6.00	0.09	7.8	10	18.0	9.67	7.8	4.0	18	2.7
SRT 076P	EP	3.18	2.79	5.97		2,642	0.187	15.0	6.0	013	5.72	0.31	7.5	10	18.0	9.21	7.5	6.0	49	3.6
SRT 079P	EP	2.75	2.79	5.54		1,284	0.187	15.0	6.0	013	5.72	0.12	7.4	9						
SRT 081P	EP	2.69	2.79	5.48		898	0.164	15.0	7.0	013	5.36	0.17	6.9	10	18.0	8.64	7.0	6.0	46	2.8
SRT 086P	EP	2.66	2.79	5.45		3,146	0.150	21.0	11.0	013	12.59	7.02	6.6	5						
SRT 094P	EP	2.59	2.79	5.38		4,890	0.175	18.0	13.0	013	9.01	3.54	7.1	6						
SRT 100P	EP	2.53	2.79	5.32		2,786	0.150	18.0	15.0	013	8.33	2.93	6.7	7						
SRT-103P	EP	2.23	2.79	5.02		2,571	0.186	18.0	12.0	013	9.28	4.17	7.1	6						