CITY OF CLOVIS, CALIFORNIA

WASTEWATER MASTER PLAN UPDATE
PHASE 2

WASTEWATER COLLECTION SYSTEM MASTER PLAN

DRAFT FINAL REPORT
JUNE 30, 2008

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CLOVIS WASTEWATER COLLECTION SYSTEM
MASTER PLAN

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SECTION 1.
EXECUTIVE SUMMARY

1.1 GENERAL

Preparation of the Clovis Wastewater Collection System Master Plan (Master Plan) is the culmination of a multi-phase project commenced in 1995 to update the city's Wastewater Master Plan, a process designed to provide a course of action for the City of Clovis with respect to wastewater service needs through the year 2030, in conformance with the 1993 Clovis General Plan and its planning horizon. The Master Plan remains a living document, in that there is the need for a continued effort to modify and update the Master Plan in response to ongoing community planning and development activity.

The master planning process consisted generally of developing design criteria, defining wastewater service areas, developing wastewater flow projections, analyzing and designing collection system pipelines, and summarizing results.

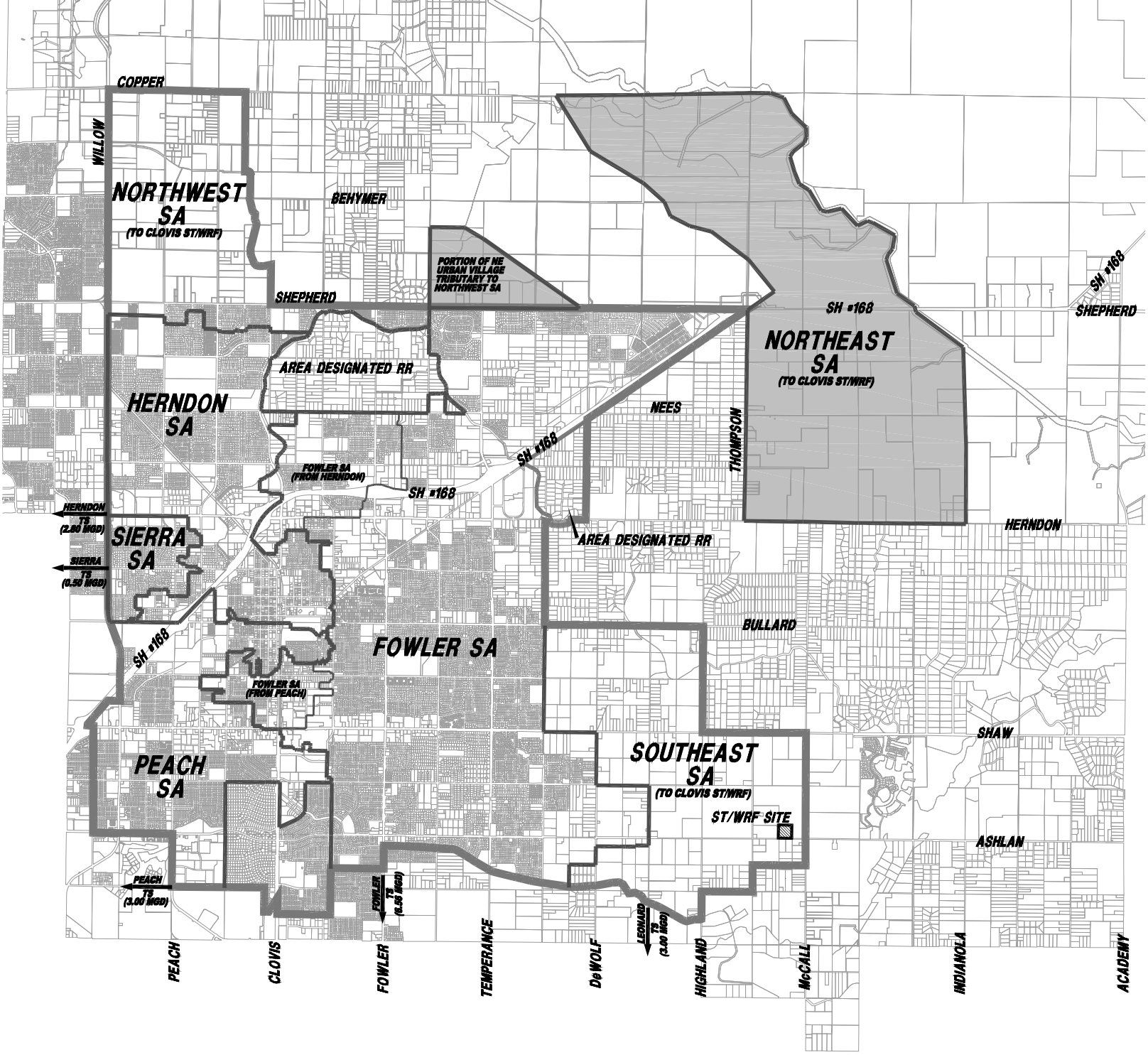
1.2 SERVICE AREAS

The Clovis Wastewater Collection System Master Plan contains seven major service areas encompassing a planning area of just over 23,500 acres (see Figure 1-1). Under the Master Plan, the core of the city will continue to discharge to regional trunk sewers and on to the Fresno-Clovis Regional Wastewater Treatment Plant (regional plant) in southwest Fresno. By agreement with the City of Fresno, additional treatment capacity can be purchased in the regional plant, as needed. The future growth areas of the city are to discharge to the Clovis Sewage Treatment – Water Reuse Facility (ST/WRF) in southeast Clovis.

The Clovis service areas are identified in Table 1-1, together with the planned disposition of their wastewater flows.

TABLE 1-1
MAJOR CLOVIS SERVICE AREAS

MAJOR CLOVIS SERVICE AREA	DISCHARGES TO
Herndon	Regional Herndon Trunk Sewer system leading to Regional Wastewater Treatment Plant
Fowler	Regional Fowler Trunk Sewer and North Avenue Trunk Sewer leading to Regional Wastewater Treatment Plant
Sierra	Regional sewer system leading to Regional Wastewater Treatment Plant
Peach	Regional Chestnut Trunk Sewer and North Avenue Trunk Sewer leading to Regional Wastewater Treatment Plant
Northwest	Clovis major sewers leading to Clovis Sewage Treatment – Water Reuse Facility
Northeast	Clovis major sewers leading to Clovis Sewage Treatment – Water Reuse Facility
Southeast	Clovis major sewers leading to Clovis Sewage Treatment – Water Reuse Facility



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE 1-1

WASTEWATER SERVICE AREAS

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Figure 1-2 depicts the Clovis service areas in a regional perspective, with the main existing regional trunk sewers leading to the regional plant graphically indicated.

1.3 WASTEWATER FLOW PROJECTIONS AND CAPACITIES

Wastewater flow projections, which are necessary to analyze the existing sewer collection system and plan new facilities to service planned growth, were determined for all areas within the boundaries of the Clovis Sphere of Influence, except for areas planned for rural residential development or agricultural uses.

Criteria for flow generation projections were developed, utilizing unit wastewater flow generation rates for the basic major land use categories. These were further developed into projected flow generation rates for the various land uses identified in the1993 Clovis General Plan and associated specific plans.

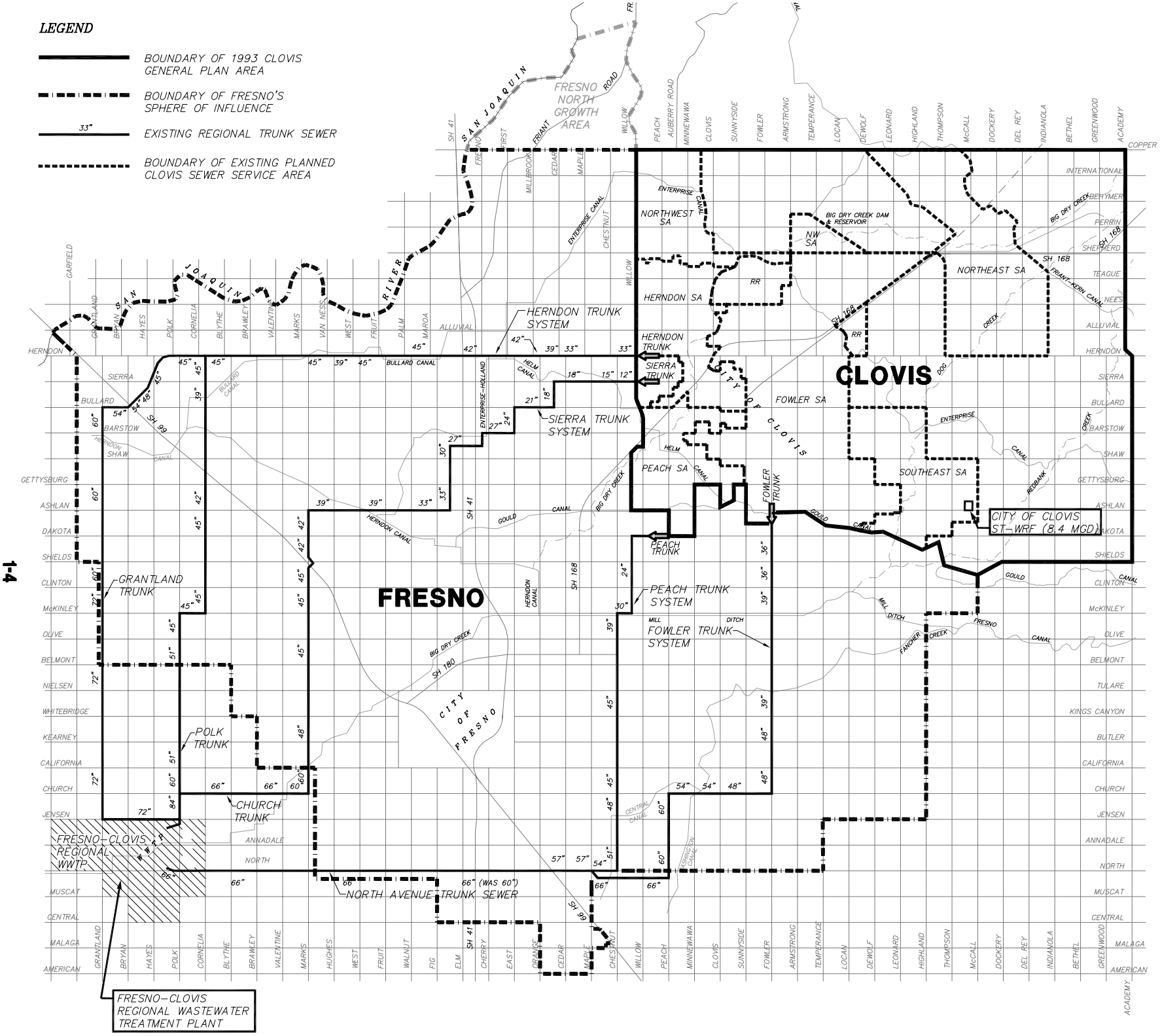
For the purposes of estimating wastewater flow generation, planned land uses were determined by an examination of the 1993 Clovis General Plan, applicable specific plans, existing zoning and existing development. Within each area analyzed, wastewater flow generation was divided into (1) flow from properties currently developed, and (2) projected flow from buildout of undeveloped or underdeveloped properties. For each service area discharging to the regional trunk sewer system, calculated flow from properties currently developed was calibrated to reasonably correspond with metered flow at the trunk sewer discharge point.

Table 1-2 indicates projected flow, currently acquired capacity and planned capacity for each major service area. The first phase of the Clovis ST/WRF, with Phase 1 average flow capacity of 2.80 million gallons per day (MGD), is included in the calculation of “Currently Acquired Capacity” along with previously acquired capacity in the regional system.

TABLE 1-2
FLOW AND CAPACITY SUMMARY – AFTER MASTER PLAN DIVERSIONS
(ALL FLOW AND CAPACITY VALUES ARE AVERAGE DAILY FLOW)

SEWER SERVICE AREA	PROJECTED FLOW			TOTAL CAPACITY	
	DEVELOPED FLOW (MGD)	UN-DEVELOPED FLOW (MGD)	TOTAL FLOW (MGD)	CURRENTLY ACQUIRED AMOUNT (MGD)	TOTAL PLANNED AMOUNT (MGD)
HERNDON	2.0251	0.7749	2.8000	2.8000	2.8000
FOWLER	3.1196	2.7783	5.8979	3.0000	5.8979
SIERRA	0.1945	0.0742	0.2687	0.5000	0.5000
PEACH	2.5064	0.4936	3.0000	3.0000	3.0000
NW	0.2363	1.9996	2.2359	0.2363	2.2359
NE	0.0000	2.6197	2.6197	0.0000	2.6197
SE	0.0000	3.5444	3.5444	2.5637	3.5444
TOTALS	8.0819	12.2847	20.3666	12.1000	20.5979

The Master Plan proposes diversion of flow from the Herndon and Peach Service Areas to the Fowler Service Area. Prior to these diversions, the Herndon and Peach Service Areas were projected to exceed their acquired capacity in the regional system. The Fowler Service Area is capable of acquiring additional capacity in the regional system for both its originally planned service area and the diversion areas. Such additional capacity, available by prior agreement with Fresno, is sufficient based upon current Clovis land use planning.



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE 1-2
REGIONAL PERSPECTIVE

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The additional capacity required to make up the difference between the City of Clovis' currently acquired capacity and total planned capacity is as follows:

Additional treatment capacity to be acquired in regional system …….	2.8979 MGD
Additional treatment capacity to be acquired in future phases of construction of the Clovis ST/WRF….	5.6000 MGD
Total additional treatment capacity ….	8.4979 MGD

Additional treatment capacity at the regional plant can be acquired in increments of about 1.0 MGD as needed by Clovis.

Additionally, Clovis has agreed to participate in the cost of construction of up to 3 MGD of additional capacity in the North Avenue Trunk Sewer, which receives flow from the Fowler Trunk Sewer and discharges into the regional plant. Clovis share of project costs is to reflect Clovis' proportional share of flow capacity in any new capacity enhancing project.

Clovis currently owns capacity in all other regional trunk sewers for Clovis' projected buildout flow per the Master Plan.

1.4 COLLECTION SYSTEM ANALYSIS AND DESIGN

Criteria for pipeline analysis and design were established, including hydraulic elements and pipeline depth limitations. A custom hydraulic computer model was developed to analyze the hydraulics of individual segments of the sewers, utilizing the established hydraulic criteria.

Existing sewers 10-inches in diameter and larger (and some 8-inches in diameter where necessary to assure adequacy of capacity) were analyzed. All proposed new major sewers were also analyzed and sized.

In those few segments where the standard analysis indicated apparent lack of capacity for planned buildout flow in the existing sewer system, additional more comprehensive analysis was performed. In most cases, calibration of the calculated existing flow to match the trunk sewer service area calibration was sufficient to indicate adequate capacity for buildout. In other cases, specific flow metering was performed at or near the site to confirm adequate capacity for buildout flow. If these analyses failed to indicate adequate design capacity, the segment was noted on the Master Plan as requiring upgrading.

1.5 MASTER PLAN PLATS

The basic graphic element of the Master Plan consists of a set of Master Plan plats. These plats extend over the entire area contained within the City of Clovis' current Sphere of Influence.

The plats, which are arranged for viewing and plotting as separate “paper space” tabs in the AutoCAD digital mapping file, are actually pieces of a single master digital model of the master planning area. The digital model includes layers from the Clovis Geographic Information System (GIS), and is created on the identical coordinate system.

The plats were developed in two distinct visibility formats, as follows:

- Wastewater Collection System Facility Elements. These sheets depict the physical elements of the wastewater collection system, including all existing wastewater pipelines, future planned pipelines, analysis nodes, service area boundaries and other information.

- Flow Generation Parameters. These sheets depict service area boundaries, and within each subarea boundary, planned land use, area in acres, number of lots in single family residential developments, and estimates of percentage developed. These drawings were rectified to be consistent with, and form a supporting background for, the Wastewater Collection System Facility Element plats.

The plats are imbedded in a 24-inch high by 36-inch sheet format for ease of handling. The scale of the mapping is 1-inch equals 600 feet, which provides a compromise between readability and number of sheets to handle. This combination of sheet size and graphic scale allowed the planning area to be conveniently divided into separate sheets from north to south at Shepherd Avenue, Herndon Avenue, and Shaw Avenue, and from west to east at Armstrong Avenue.

A cover sheet index map was created from the same digital model, displayed at a scale of one-inch equals 2,000 feet.

Reduced copies of these plats are bound into this report, while full size copies accompany the report as a separate package.

1.6 REGIONAL TRUNK SEWER SYSTEM ISSUES

Regional trunk sewer issues downstream of Clovis have been resolved and capacity acquired for the Herndon, Sierra and Peach Service Areas. Associated treatment capacity at the Regional Plant has also been acquired for these three service areas.

The regional Fowler Avenue Trunk Sewer and downstream interconnected North Avenue Trunk Sewer, which carry flow discharging from the Fowler Service Area, have outstanding issues yet to be finally resolved with the City of Fresno. Complicating these issues is another recently planned regional trunk sewer, the Leonard Trunk Sewer, which may also discharge to the regional North Avenue Trunk Sewer.

Section 7 examines these issues, including the effects of the 2002 joint powers agreement between the Cities of Clovis and Fresno “For Temporary Exchange of Sewer Capacity in the North Avenue and Fowler Avenue Trunk Sewer Mains”. This agreement also affects Clovis’ master planned connection to the regional Leonard Trunk Sewer, which would provide the benefits of backup capability, operational alternatives and redundancy to a major portion of Clovis’ wastewater system.

1.7 FLOW METERING OF CLOVIS TRUNK SEWERS

The four existing Clovis trunk sewers are metered by Fresno where they enter the regional system. The metering data over the past thirteen years indicate that the sum total flow of the four trunk sewers has not increased in direct proportion to the population increase in Clovis. This is likely largely the result of the utilization of water conserving fixtures in new construction and remodels. Other potential reasons may include changes in average household size over time, and/or metering errors.

The unit design flow generation rates for Clovis were established in 1995. Although the unit flow generation rates may have decreased somewhat over the past 13 years (based upon the apparent variation from population growth), they have not been reduced in the collection system master plan in predicting future flow from now undeveloped (or under-developed) properties. Calibration of flow in the master plan (based upon metered flow from existing properties) has, however, compensated for reduced flow generation rates in developed properties.

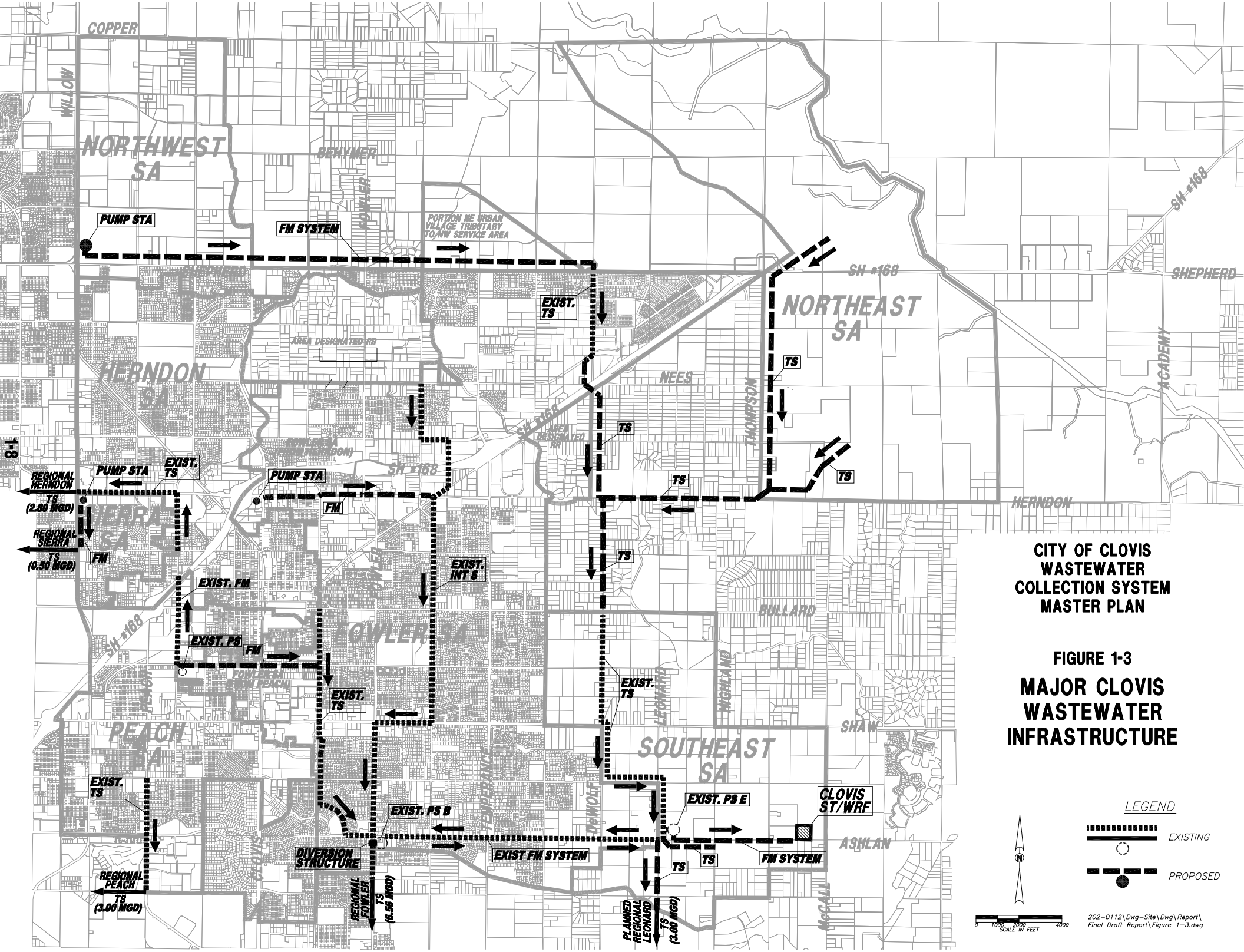
Reasons for retaining the original design unit flow generation rates for projections of flow from undeveloped properties in the collection system master plan are outlined in Section 8.

1.8 MAJOR ELEMENTS OF CLOVIS' WASTEWATER SYSTEM INFRASTRUCTURE

Major elements of the Clovis Wastewater Collection System Master Plan include existing and planned trunk sewers 24-inches and diameter or greater, existing major pump stations and force mains, and all planned pump stations and force mains. These are depicted on Figure 1-3.

Section 8 includes discussion of these facilities, including the specific planned function of major existing pump stations, and all planned pump stations and force mains.

Although much of the major Clovis wastewater infrastructure is in place, a number of key elements remain to be constructed in advance of new development, particularly in the outlying future growth areas.



CITY OF CLOVIS
WASTEWATER
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FIGURE 1-3

MAJOR CLOVIS
WASTEWATER
INFRASTRUCTURE

SECTION 2.
BACKGROUND

2.1 GENERAL

Preparation of the Clovis Wastewater Collection System Master Plan is the culmination of a multi-phase project commenced in 1995 to update the city's Wastewater Master Plan.

The Clovis Wastewater Master Plan Update has been a process designed to provide a course of action for the City of Clovis with respect to wastewater service needs through the year 2030, in conformance with the 1993 Clovis General Plan and its planning horizon.

2.2 PHASES OF THE MASTER PLAN UPDATE

Phases of the project have included the following:

- Phase 1-A
  Present Wastewater Flows, Projected Flows and Trunk Sewer Capacities for Existing Trunk Sewer Service Areas
  Date of Report: June, 1995

- Phase 1-B
  Wastewater Master Plan Update
  Date of Report: November, 1996

- Phase 2
  Wastewater Collection System Master Plan
  Date of Report: June 30, 2008

Phase 1-A concentrated on analyzing wastewater flow generation from various land uses within Clovis, together with preliminarily assessing current wastewater flows, existing trunk sewer capacities, projected buildout flow from existing trunk sewer service areas, and the general relationship of the quantity of flow to be generated by future growth areas to existing trunk sewer capacity.

Phase 1-B analyzed, evaluated and presented conceptual alternatives for wastewater service to Clovis, for the entire 1993 Clovis General Plan area. This included options for acquisition of new wastewater system treatment capacity, including potential Clovis satellite wastewater treatment facilities with associated water reclamation elements. Wastewater collection systems were incorporated into the Phase 1-B study only to the extent of concept level analysis of the various alternatives presented.

Phase 2 provides a more detailed analysis of existing and proposed elements of the Clovis wastewater collection system. It provides a collection system master plan for all areas within the current Clovis Sphere of Influence which are proposed for urbanization in the 1993 Clovis General Plan. The collection system master plan presented is based upon Modified Alternate 5 of the Phase 1-B study. The plan is designed to provide for the potential of interim temporary service to some areas where ultimate service may be infeasible for a number of years.

The Master Plan remains a living document, in that there is the need for a continued effort to modify and update the Master Plan in response to ongoing community planning and development activity.

SECTION 3.
BASE MAPS

3.1 GENERAL

A series of AutoCAD base maps were created which extended over the entire area contained within the City of Clovis' current Sphere of Influence. The maps, which are arranged for viewing and plotting as separate "paper space" tabs in the digital mapping file, are actually pieces of a single master digital model of the master planning area.

Base information for the master digital model was translated from the Clovis Geographic Information System (GIS) into AutoCAD. Translated layers include those for parcel, street, sewer main, sewer manhole, and general plan elements of the GIS.

The base maps, or plats, were imbedded in a 24-inch high by 36-inch sheet format for ease of handling. The scale of the mapping is 1-inch equals 600 feet, which provides a compromise between readability and number of sheets to handle. This combination of sheet size and graphic scale allowed the planning area to be conveniently divided into separate sheets from north to south at Shepherd Avenue, Herndon Avenue, and Shaw Avenue, and from west to east at Armstrong Avenue.

A cover sheet index map was created from the same digital model, displayed at a scale of one-inch equals 2,000 feet.

3.2 BASE MAP AUGMENTATION

The base mapping created by the Clovis GIS data was augmented to create useful plats for the master planning process.

The Fresno County GIS was utilized to provide parcel information in certain areas outside the limits of the Clovis GIS. The County GIS information was graphically adjusted, by rotating and stretching, to fit the Clovis GIS at the interface between the two mapping areas. The graphically rectified County information is not considered be at the level of accuracy of the Clovis GIS data, and only serves as a guide to parcelization outside the Clovis GIS.

For all existing sewers, the pipeline diameter and direction of flow were extracted from the GIS. This information was reflected on the base maps by flow direction arrow and text. This allows the use and interpretation of the maps in most cases without accessing the computer model.

Text was added to designate major street names and major landmarks, such as freeways and schools. Text size was selected to be readable on both the plat maps and the cover sheet index map.

Where information was available from Fresno Metropolitan Flood Control District topographic mapping, existing ground contours, at a 2-foot contour interval, were added in undeveloped areas. Contour lines on existing hard copy topographic maps were digitized and rectified into the base mapping, allowing approximations of depth to be made for the design of proposed sewers.

SECTION 4.
DEVELOPMENT OF WASTEWATER FLOW PROJECTIONS

4.1 GENERAL

Wastewater flow projections, which are necessary to analyze the existing sewer collection system and plan new facilities to service planned growth, were determined for all areas within the boundaries of the Clovis Sphere of Influence, except for areas planned for rural residential development or agricultural uses.

Major wastewater collection system service area boundaries were established and documented. Within each major service area, nodes were established at key locations on existing and proposed sewers, and boundaries of areas tributary to each node were located. Within each node tributary area, boundaries of differing planned land uses were determined. The gross area, in acres, of each land use was calculated. In single family residential subdivisions, the number of individual lots within each subarea boundary was enumerated. The percentage of development within each subarea of differing planned land use was also estimated. The information so developed was documented and plotted on plats that depict the described flow generation parameters.

Criteria for flow generation projections were developed, utilizing unit wastewater flow generation rates for the basic major land use categories from the 1995 Phase 1-A study. These were further developed into projected flow generation rates for the various land uses identified in the1993 Clovis General Plan and associated specific plans.

A computer model was developed which would process the input parameters utilizing the flow generation criteria, and output projected wastewater flow. The output was formatted to report total area, projected residential flow, projected non-residential flow, flow from developed properties, flow anticipated from undeveloped properties, and total projected flow at buildout.

4.2 CRITERIA FOR FLOW GENERATION PROJECTIONS

4.2.1 UNIT FLOW GENERATION RATES

Design unit wastewater flow generation rates for major categories of land use type in Clovis were developed in the Phase 1-A study. Table 4-1 presents the design values for average daily wastewater flow estimated to be generated in Clovis by the various major land use categories.

TABLE 4-1
CLOVIS DESIGN UNIT FLOW GENERATION RATES

MAJOR LAND USE CATEGORY	DESIGN FLOW GENERATION RATE
Single-family residential	270 gallons per dwelling unit per day
Multi-family residential	220 gallons per dwelling unit per day
Industrial	1,000 gallons per gross acre per day
Commercial	1,400 gallons per gross acre per day
Professional office	1,200 gallons per gross acre per day

The design wastewater flow generation rates for the major categories of land use were further developed into projected flow generation rates for the various categories of land use identified in the 1993 Clovis General Plan and Southeast Urban Center Specific Plan

(adopted March, 2003). Categories were supplemented with additional land use entries where it was deemed to be a more accurate representation. The range of residential densities and projected densities utilized in the Phase 2 study for each residential land use designation are indicated in Table 4-2.

TABLE 4-2
CLOVIS RESIDENTIAL LAND USE DENSITIES

LAND USE DESIGNATION	RANGE OF RESIDENTIAL DENSITIES (Dwelling Units Per Acre)		
	LOW	MAXIMUM	PROJECTED
Agricultural	0.05	0.05	0.05
Rural	0.50	0.50	0.50
Very Low Residential	0.60	2.00	2.00
Low Residential	2.10	4.00	2.70
Low Residential (7,500)	2.40	3.50	3.20
Medium Residential	4.10	7.00	4.10
Residential Planned Community			4.90
Medium High Residential	7.10	15.00	10.20
High Residential	15.10	25.00	17.10
Very High Residential	25.00	43.00	35.00

4.2.2 DESIGN WASTEWATER FLOW GENERATION RATES

Table 4-3 contains the design projected flow generation rates used in this study for all of the various land use designations.

TABLE 4-3
DESIGN WASTEWATER FLOW GENERATION RATES

LAND USE DESIGNATION	PROJECTED FLOW GENERATION RATE (MGD=MILLION GALLONS PER DAY) ALL AREAS ARE IN GROSS ACRES
EXISTING SINGLE FAMILY RESIDENTIAL	0.000270 MGD/UNIT
AGRICULTURAL	0.000014 MGD/ACRE
RURAL	0.000135 MGD/ACRE
VERY LOW RESIDENTIAL	0.000540 MGD/ACRE
LOW RESIDENTIAL	0.000729 MGD/ACRE
LOW RESIDENTIAL (7,500)	0.000864 MGD/ACRE
MEDIUM RESIDENTIAL	0.001107 MGD/ACRE
RESIDENTIAL PLANNED COMMUNITY	0.001323 MGD/ACRE
MEDIUM HIGH RESIDENTIAL	0.002244 MGD/ACRE
HIGH RESIDENTIAL	0.003762 MGD/ACRE
VERY HIGH RESIDENTIAL	0.007700 MGD/ACRE
OFFICE	0.001200 MGD/ACRE
INDUSTRIAL, EMPLOYMENT CENTER	0.001000 MGD/ACRE
COMMERCIAL	0.001400 MGD/ACRE
COMMUNITY CENTER	0.004226 MGD/ACRE
OPEN SPACE (PARKS, BASIN, ETC.)	0.000000 MGD/ACRE
HOSPITAL	0.000300 MGD/BED
ELEMENTARY SCHOOL	0.000006 MGD/STUDENT
INTERMEDIATE SCHOOL	0.000014 MGD/STUDENT
HIGH SCOOL	0.000016 MGD/STUDENT

The Community Center land use designation includes residential (7 to 25 dwelling units per acre), commercial, office and open space/public uses. All non-residential uses include residential elements. Assumptions are that uses in the Community Center designation will be as follows:

- 10% of land area will be devoted to residential uses only
- 50% of land area will be devoted to commercial-retail uses
- 20% of land area will be devoted to office uses
- 20% of land area will be devoted to civic/parking/open space uses

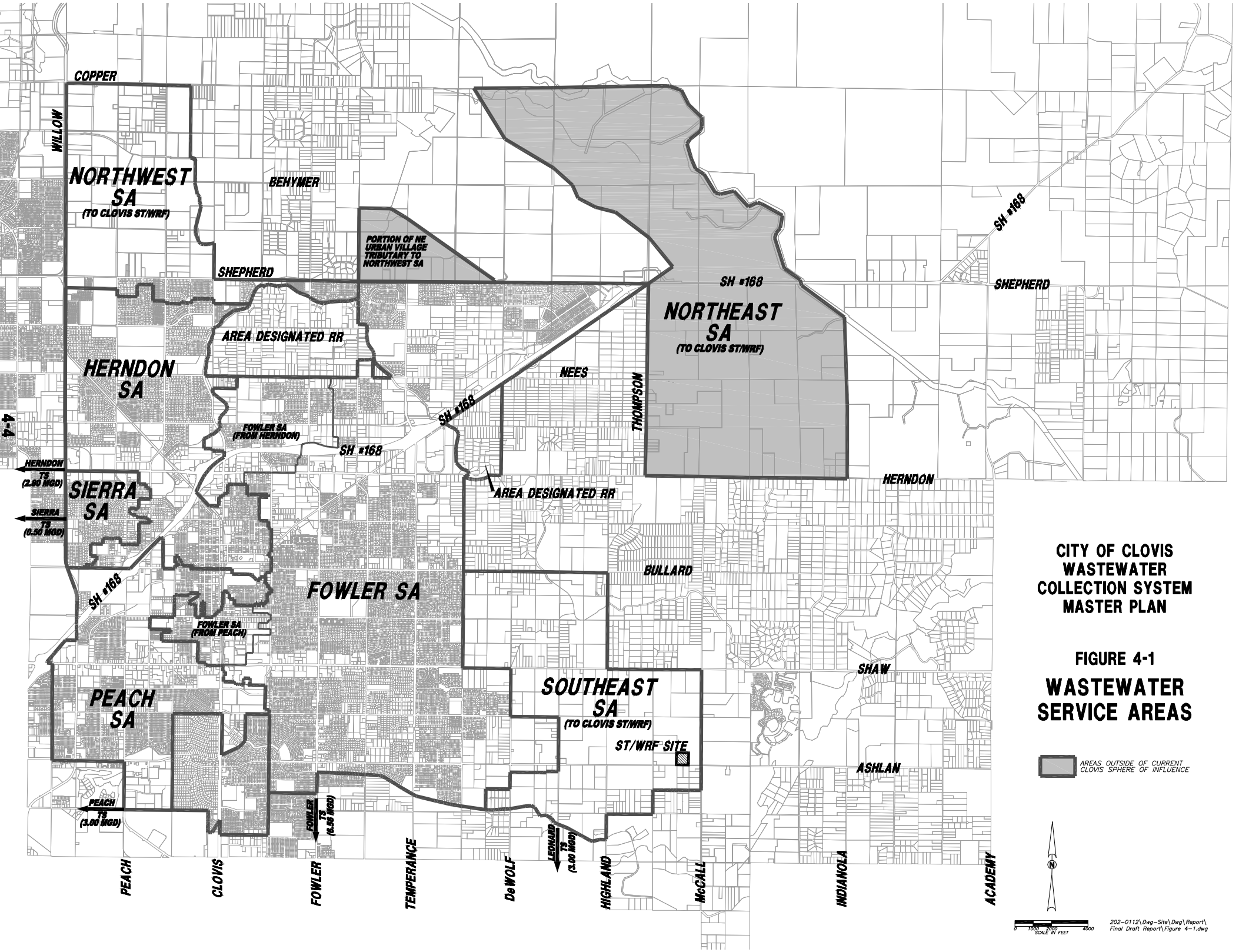
4.3 MAJOR SERVICE AREAS

The Clovis Wastewater Collection System Master Plan contains seven major service areas (see Figure 4-1), although the master plan for one of the service areas (Northeast) has been completed only with respect to downstream major sewer capacity. Four service areas are connected to existing regional trunk sewers, while three new service areas planned to serve future growth areas of the City will service to the Southeast Clovis Sewage Treatment/Water Reuse Facility (ST/WRF). Boundaries of the seven major service areas were determined by an examination of the existing sewer system together with ground contours, physical features and planned land uses (except for the Northeast Service Area, where the service area boundary was determined from the 1993 Clovis General Plan). Boundaries were then plotted on the Master Plan plats. The Clovis wastewater collection system service areas include the following:

Herndon Service Area:
The Herndon Service Area is that area which is ultimately planned to discharge to the regional Herndon Trunk Sewer. The regional Herndon Trunk Sewer extends westerly in Herndon Avenue from Willow Avenue, ultimately discharging to the Regional Wastewater Treatment Plant located southwesterly of the City of Fresno. The Wastewater Collection System Master Plan prescribes that a portion of the area which now discharges to the Herndon Trunk Sewer is to be diverted to the Fowler Service Area.

Fowler Service Area:
The Fowler Service Area is that area which is ultimately planned to discharge to the regional Fowler Trunk Sewer. The regional Fowler Trunk Sewer extends southerly in Fowler Avenue from an existing monitoring station located between Sussex and Griffith Avenue (about ¼ mile south of Ashlan Avenue), ultimately discharging to the Regional Wastewater Treatment Plant located southwesterly of the City of Fresno. The Wastewater Collection System Master Plan prescribes that portions of areas which now discharge to the Herndon and Peach Trunk Sewers are to be diverted to the Fowler Service Area.

Sierra Service Area:
The Sierra Service Area is that area which is ultimately planned to discharge to the regional Sierra Trunk Sewer. The regional Sierra Trunk Sewer extends westerly in Sierra Avenue from Willow Avenue, ultimately discharging to the Regional Wastewater Treatment Plant located southwesterly of the City of Fresno.



CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN

FIGURE 4-1

WASTEWATER
SERVICE AREAS

Peach Service Area:
The Peach Service Area is that area which is ultimately planned to discharge to the regional Peach Trunk Sewer. The regional Peach Trunk Sewer extends westerly in Dakota Avenue from Peach Avenue, ultimately discharging to the Regional Wastewater Treatment Plant located southwesterly of the City of Fresno. The Wastewater Collection System Master Plan prescribes that a portion of the area which now discharges to the Peach Trunk Sewer is to be diverted to the Fowler Service Area.

Northwest Service Area:
The Northwest Service Area is bounded generally by Willow Avenue on the west, the current Clovis Sphere of Influence line on the north and east, and by the northerly boundary of the Herndon Service Area on the south. There is also included in the master plan for the Northwest Service Area a trapezoidal shaped portion of the Northeast growth area lying north of Shepherd Avenue and westerly of the Big Dry Creek Reservoir. Under the Master Plan, flow from the Northwest Service Area is initially directed to a proposed pump station near the intersection of Willow and Shepherd Avenues, which will discharge to a force main leading east in Shepherd Avenue to the DeWolf Avenue Alignment. At this point flow will enter a gravity system discharging south into the Southeast Service Area system and ultimately to the Clovis Sewage Treatment/Water Reuse Facility (ST/WRF) located near the intersection of Ashlan and Thompson Avenues.

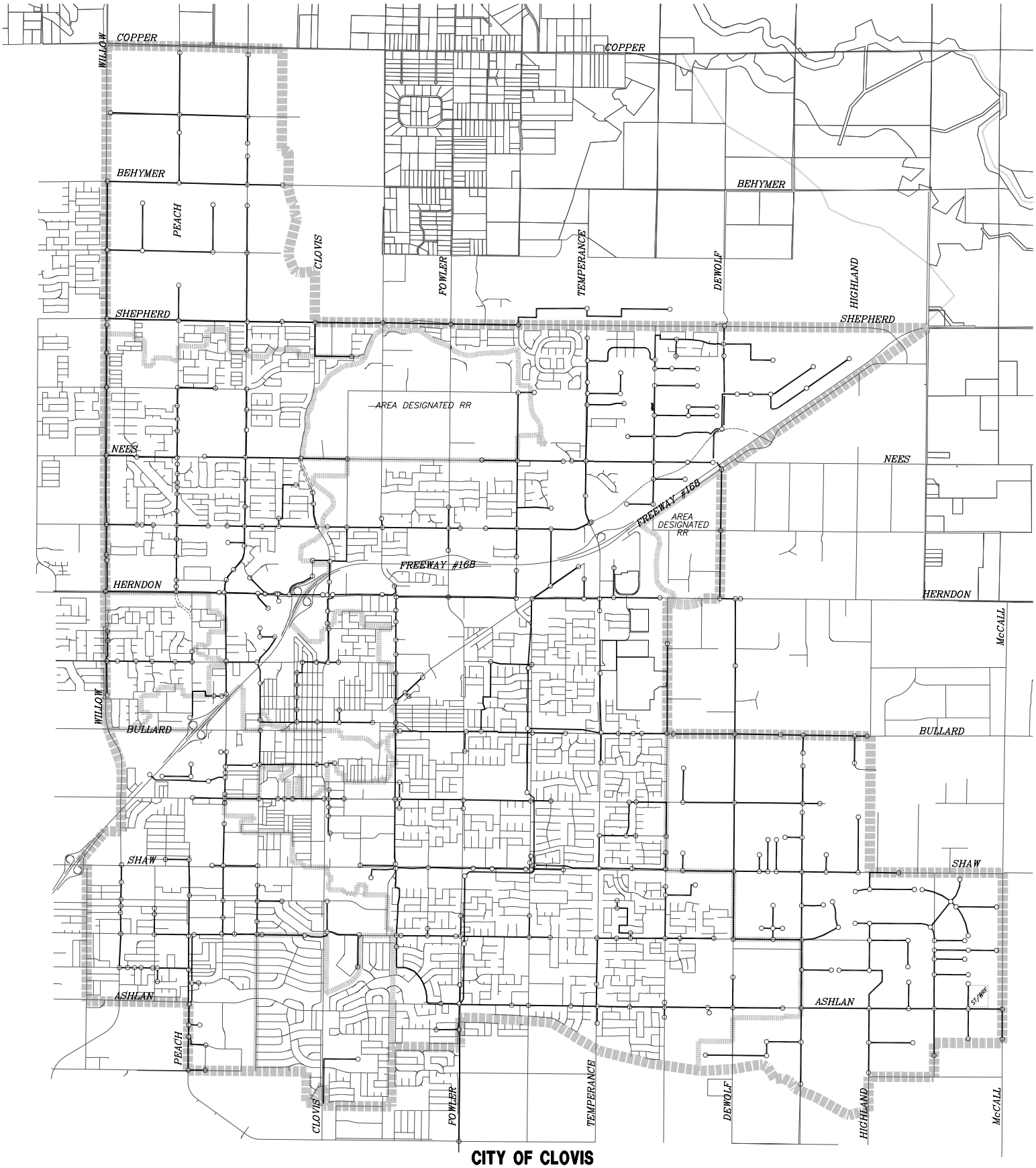
Southeast Service Area:
The Southeast Service Area is bounded generally by the current Clovis Sphere of Influence line on the north, east and south, and by the easterly boundary of the Fowler Service Area on the west. Under the Master Plan, wastewater flow from the Southeast Service Area, together with flow from the Northwest Service Area and Northeast Service Area, will discharge to the Clovis ST/WRF located near the intersection of Ashlan and Thompson Avenues.

Northeast Service Area:
The Northeast Service Area is bounded generally by Herndon Avenue on the south, Copper Avenue on the north, Thompson Avenue and the Big Dry Creek Reservoir on the west, and the Friant-Kern Canal and approximate Bethel Avenue Alignment on the east. Under the Master Plan, flow from this service area will discharge west and then south into the Southeast Service Area system and ultimately to the Clovis ST/WRF located near the intersection of Ashlan and Thompson Avenues. Because it lies outside the current Clovis Sphere of Influence, the wastewater collection system for the Northeast Service Area has not been master planned in any detail. Concept level major sewers for the area were indicated in the 1996 Phase 1-B Wastewater Master Plan Update.

4.4 NODES AND ASSOCIATED TRIBUTARY AREAS

Nodes were assigned at key points for analysis along existing and proposed sewers. All sewers 10-inches and larger in diameter were analyzed, together with some 8-inch diameter sewers where necessary to assure adequacy of capacity. At existing sewer manholes, the established Clovis manhole designation number was utilized for node identification, prefixed by the major service area identifier. For nodes on proposed sewers, a designation was assigned utilizing the Clovis plat number for the location together with a letter, also prefixed by the major service area identifier.

Nodes and modeled sewers are generally depicted on Figure 4-2, and defined detail on the Master Plan plats.



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE 4-2

MODELING NODES

LEGEND

- MODELING NODES
- MODELED SEWERS
- CLOVIS SPHERE OF INFLUENCE BOUNDARY

N

0 500 1500 3000
SCALE IN FEET

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Major service area identifiers were established as indicated in Table 4-4:

TABLE 4-4 MAJOR SERVICE AREA IDENTIFIERS	
MAJOR SERVICE AREA	IDENTIFIER
Herndon	H
Fowler	F
Sierra	S
Peach	P
Northwest	N
Southeast	E

The boundaries of the tributary areas of each node for existing sewers were established by an examination of the existing sewer system together with ground contours, physical features and planned land uses. A similar process was utilized for nodes on proposed sewers. For each node, a tributary service area identifier corresponding to the associated node, together with the boundary of the tributary area, were then plotted on the master plan plats. Tributary service boundaries throughout the planning area are depicted on Figure 4-3, and identified in detail on the Master Plan plats.

4.5 SUBAREAS OF DIFFERING PLANNED LAND USE

Within the boundary of each node's tributary area, subareas were established for each differing planned land use. For the purposes of estimating wastewater flow generation, planned land uses were determined by an examination of the 1993 Clovis General Plan, applicable specific plans, existing zoning and existing development.

The boundaries of differing land use subareas so determined were plotted on a specific mapping layer for later use. The gross area in acres within the boundary of each subarea was calculated and recorded. For existing single family residential developments, the number of lots within each subarea was counted and recorded.

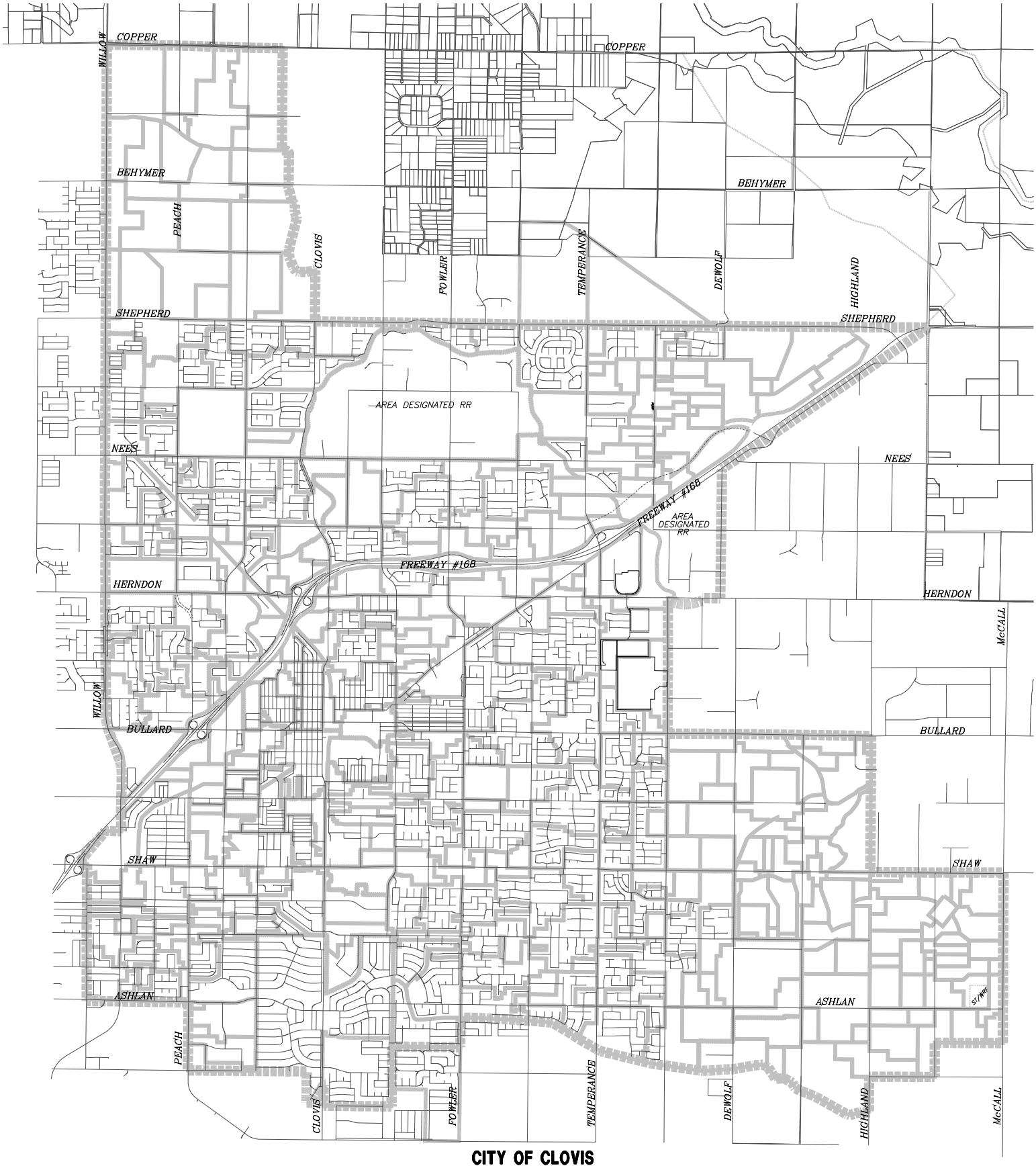
The percentage of development (as opposed to undeveloped land) within the boundary of each subarea of differing planned land use was estimated and recorded. This was accomplished by examination of aerial photography furnished by the City of Clovis (date of photography June, 2004), augmented by periodic visual field reconnaissance updates.

4.6 PLATS DEPICTING FLOW GENERATION PARAMETERS

Flow generation parameters including planned land use subarea boundaries, planned land use, area in acres, number of lots in single family residential developments, and estimates of percentage developed, were plotted and developed into a set of plats. The plats were rectified to be consistent with, and form a supporting background for, the Wastewater Collection System Master Plan System Facility Elements plats.

4.7 FLOW GENERATION COMPUTER MODEL

A custom computer model was developed which would process flow generation input parameters utilizing flow generation criteria, and output projected wastewater flow. The



CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN

LEGEND

MODELING NODE TRIBUTARY BOUNDARIES

CLOVIS SPHERE OF INFLUENCE BOUNDARY

N

0 500 1500 3000
SCALE IN FEET

FIGURE 4-3

TRIBUTARY BOUNDARIES FOR MODELING NODES

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Final Draft Report\Figure 4-3.dwg

model was developed utilizing Microsoft® Excel spreadsheet software, with each major service area contained in a single computer model file. The major service area file was divided into individual spreadsheets containing a logical progression of major sewers within the service area.

For each node in the collection system, the individual subareas of different land uses contained therein were listed. A land use code was assigned, together with the gross area of the particular land use and its estimated percentage developed. For single family residential subdivisions, the number of lots was listed. Also listed were any special units, such as number of hospital beds, and number of students, within a particular facility. Data input into the flow generation model for each node is listed in Table 4-5.

TABLE 4-5
FLOW GENERATION MODEL INPUT

DESCRIPTION	UNITS	COMMENT
Node Number	None	Manhole number manually extracted from GIS, with service area identifier added. Where manhole is not existing, use letter suffix.
Tributary Designation	None	Same as Node Number without identifier
Land Use Code	None	From Table of Wastewater Flow Generation Projection Criteria based on most critical land use (existing, General Plan, or specific plan)
Gross Area	Acres	Extracted from boundaries of subservice areas and land use areas
Actual Number of SFR Units	Units	From count of lots in subservice area
Projected Flow Per SFR Dwelling Unit	Gallons/Day	Constant design value of 270 for SFR
Special Units	Gallons/Unit	Insert special units, if any, such as hospital beds, students, etc.
Portion Developed	%	Insert % of subservice area (or land use) developed

This information is processed by the model and calculates, for each land use within a subarea, the total projected average daily flow at buildout (segregated into categories of residential, and non-residential uses), the projected average daily flow for the area now developed, and the projected average daily flow of the portion yet to be developed. The model calculates projected flow by linking the assigned land use code to the associated flow generation rate. All projected flows are reported in units of million gallons per day (mgd), average daily flow.

For each individual node and associated tributary area, the model calculates total area, projected residential flow, projected non-residential flow, total projected flow, projected flow from developed properties, and projected flow from properties yet to be developed. The model also calculates the accumulation of values for the sewershed upstream of, and including the node, reporting accumulated total area, accumulated total flow from developed properties, accumulated total flow from properties not yet developed, and total accumulated flow projected at buildout.

The flow generation model calculates and reports the information indicated in Table 4-6.

TABLE 4-6 FLOW GENERATION MODEL OUTPUT		
DESCRIPTION	**UNITS**	**COMMENT**
Land Use Designation	None	Linked to Table of Wastewater Flow Generation Projection Criteria
Accumulated Gross Area	Acres	Total of upstream subservice areas
Projected Flow Generation Rate (Residential)	MGD/Unit	Linked to Table of Wastewater Flow Generation Projection Criteria
Units (such as MGD/Acre)	Varies	Linked to Table of Wastewater Flow Generation Projection Criteria
Projected Average Daily Residential Flow	MGD	Automatically calculated
Projected Flow Generation Rate (Non-residential)	MGD/Unit	Linked to Table of Wastewater Flow Generation Projection Criteria
Units (such as MGD/Acre)	Varies	Linked to Table of Wastewater Flow Generation Projection Criteria
Projected Average Daily Non-residential Flow	MGD	Automatically calculated
Projected Average Daily Flow	MGD	Automatically calculated. This is sum of residential and non-residential flow for land use area and/or subservice area
Total Accumulated Projected Average Daily Flow	MGD	Automatically calculated. This is sum of residential and non-residential flow for subservice areas upstream of node
Projected Average Daily Flow for Developed Areas	MGD	Automatically calculated. This is sum of residential and non-residential flow for land use area and/or subservice area, for developed portions of properties
Total Accumulated Projected Average Daily Flow for Developed Areas	MGD	Automatically calculated. This is sum of residential and non-residential flow for subservice areas upstream of node, for developed portions of properties
Portion Undeveloped	%	Automatically calculated. (100% - % developed).
Projected Average Daily Flow for Undeveloped Areas	MGD	Automatically calculated. This is sum of residential and non-residential flow for land use area and/or subservice area, for undeveloped portions of properties
Total Accumulated Projected Average Daily Flow for Undeveloped Areas	MGD	Automatically calculated. This is sum of residential and non-residential flow for subservice areas upstream of node, for undeveloped portions of properties

A sample flow generation model spreadsheet with basic instructions is included at the rear of Appendix B.

4.8 AVERAGE DAY ANNUAL FLOW BASIS FOR FLOW GENERATION PROJECTIONS

In the Phase 1-B Wastewater Master Plan Update of November, 1996, the following parameters of wastewater flow were identified:

- **Average Day Annual Flow.** This is the average daily flow based on the calendar year.

- **Average Dry Weather Flow.** This is the average flow occurring over the three consecutive lowest flow months of the year. The Average Dry Weather Flow for Clovis typically occurs in April, May and June.

- **Average Day Maximum Month Flow.** This is the average daily flow occurring during the maximum flow month of the year. The Average Day Maximum Month Flow for Clovis has historically occurred during the month of September during the fruit processing season. The timing of this may change as operations at the fruit processing facility transform over time.

- **Peak Hour Wet Weather Flow.** This is the peak hour flow resulting from the design rainfall event. The Peak Hour Wet Weather Flow typically occurs during the wet weather period of December through March, and is ultimately limited by the hydraulic capacity of the trunk sewer system Because of the severity of the occurrence and the availability of hourly flow data, the storm of March 9, 10 and 11, 1995, was utilized as the design rainfall event.

All flow projections in the Clovis Wastewater Collection System Master Plan reflect the Average Day Annual Flow. This is used in the master plan design because it is most representative of the Clovis sewer system. Following are some of the factors which influence this:

- The average day maximum month flow is accounted for in master plan, inasmuch as the calculations for flow projections for the Clovis system include a year-round allocation for the major fruit processing facility.

- Calibration of current flow in the model for each major service area was based upon selection of metered flow considering the higher value metered months for comparison with projected flow, which lowers the calibration factor and largely compensates for the typically minimal inflow experienced in Clovis. All calibration reduced calculated flow to more closely reflect metered flow.

- No calibration of calculated projected flow from undeveloped properties was performed.

- Groundwater levels in Clovis are well below sewer depths, so infiltration is not a design factor that was included.

Use of the Average Day Annual Flow for all flow projections in the Collection System Master Plan, considering how it is calculated given the above factors, should result in a conservative design which is at the same time reflective of actual conditions.

SECTION 5.
SEWER PIPELINE ANALYSIS AND DESIGN

5.1 GENERAL

Existing sewers 10-inches in diameter and larger (and some 8-inches in diameter where necessary to assure adequacy of capacity) were analyzed. Criteria for pipeline analysis and design were established, including hydraulic elements and pipeline depth limitations.

Information relative to existing sewers to be analyzed was extracted from the City of Clovis' Geographic Information System (GIS). A computer model was created to analyze the hydraulics of individual segments of these sewers, utilizing linked information from the flow generation model for the associated sewershed. Similarly, design data for proposed sewers were entered into the hydraulic model, and also analyzed. The resulting model reports, for each analyzed pipeline segment, the hydraulic parameters of the sewer, as well as the projected capacity of the segment which will be utilized at buildout, and any remaining unused capacity at buildout.

5.2 CRITERIA FOR PIPELINE ANALYSIS AND DESIGN

Design criteria utilized for the analysis of existing sewers and for the design of proposed sewers were established, as outlined below. These criteria are nearly identical to those established in the 1996 Phase 1-B Wastewater Master Plan Update.

5.2.1 MANNING EQUATION

All gravity flow pipeline hydraulic design is to be based upon Manning's equation, using a roughness coefficient of 0.013.

5.2.2 MAXIMUM DEPTH OF FLOW

For analysis and design purposes, the maximum ratio of depth of peak design flow to diameter of pipeline (d/D) shall not exceed 0.82.

5.2.3 PEAKING FACTOR

For design purposes, the ratio of peak flow capacity to average daily flow capacity shall be no less than that indicated in Table 5-1. The designated peaking factors result in maximum design ratios of depth of average design flow to diameter of pipeline (d/D) as indicated in Table 5-1.

TABLE 5-1 DESIGN PEAKING FACTORS		
DIAMETER OF SEWER	**MINIMUM PEAKING FACTOR**	**MAXIMUM d/D**
6	2.50	0.44
8	2.00	0.50
10	2.00	0.50
12	2.00	0.50
15	1.71	0.55
18	1.71	0.55
21	1.71	0.55
24	1.71	0.55
27	1.71	0.55
30	1.71	0.55
33	1.71	0.55
36	1.71	0.55
39	1.71	0.55
42	1.71	0.55

5.2.4 PIPELINE SLOPE

For design purposes, gravity flow pipeline slope shall be as indicated in Table 5-2.

TABLE 5-2 DESIGN PIPELINE SLOPE		
DIAMETER OF SEWER	**STANDARD SLOPE**	**MINIMUM SLOPE**
6	0.0050	0.0040
8	0.0034	0.0024
10	0.0024	0.0020
12	0.0020	0.0014
15	0.0015	0.0012
18	0.0011	0.0010
21	0.0010	0.0010
24	0.0010	0.0010
27	0.0010	0.0010
30	0.0010	0.0010
33	0.0010	0.0010
36	0.0010	0.0010
39	0.0010	0.0010
42	0.0010	0.0010

Steeper pipeline slopes shall be used wherever feasible, subject to pipeline depth considerations.

5.2.5 PIPELINE DEPTH

The target minimum depth from existing ground surface to invert elevation of gravity sewers at shallowest locations shall be no less than 6 feet. This may not be possible in some locations where the depth of existing sewers, or the local topography, do not allow this minimum depth.

The target maximum depth from existing ground surface to invert elevation of gravity sewers shall be no greater than 20 feet, except where unavoidable because of service area topography. In no case shall sewers be designed for depths greater than 30 feet.

5.3 PIPELINE ANALYSIS

Existing sewers 10-inches in diameter and larger, and some 8-inches in diameter where necessary to assure adequacy of capacity, were analyzed. Pipeline segments between assigned nodes were individually analyzed. Modeling nodes, modeled pipelines and tributary boundaries over the planning area are depicted on Figure 5-1, and indicated in detail on the Master Plan plats.

A sample sub-service area tributary to a typical reach of collection system is depicted on Figure 5-2. To help simplify calculations while introducing conservatism in the design, all flow generated by a sub-service area is assumed to enter the analyzed segment at the upstream node.

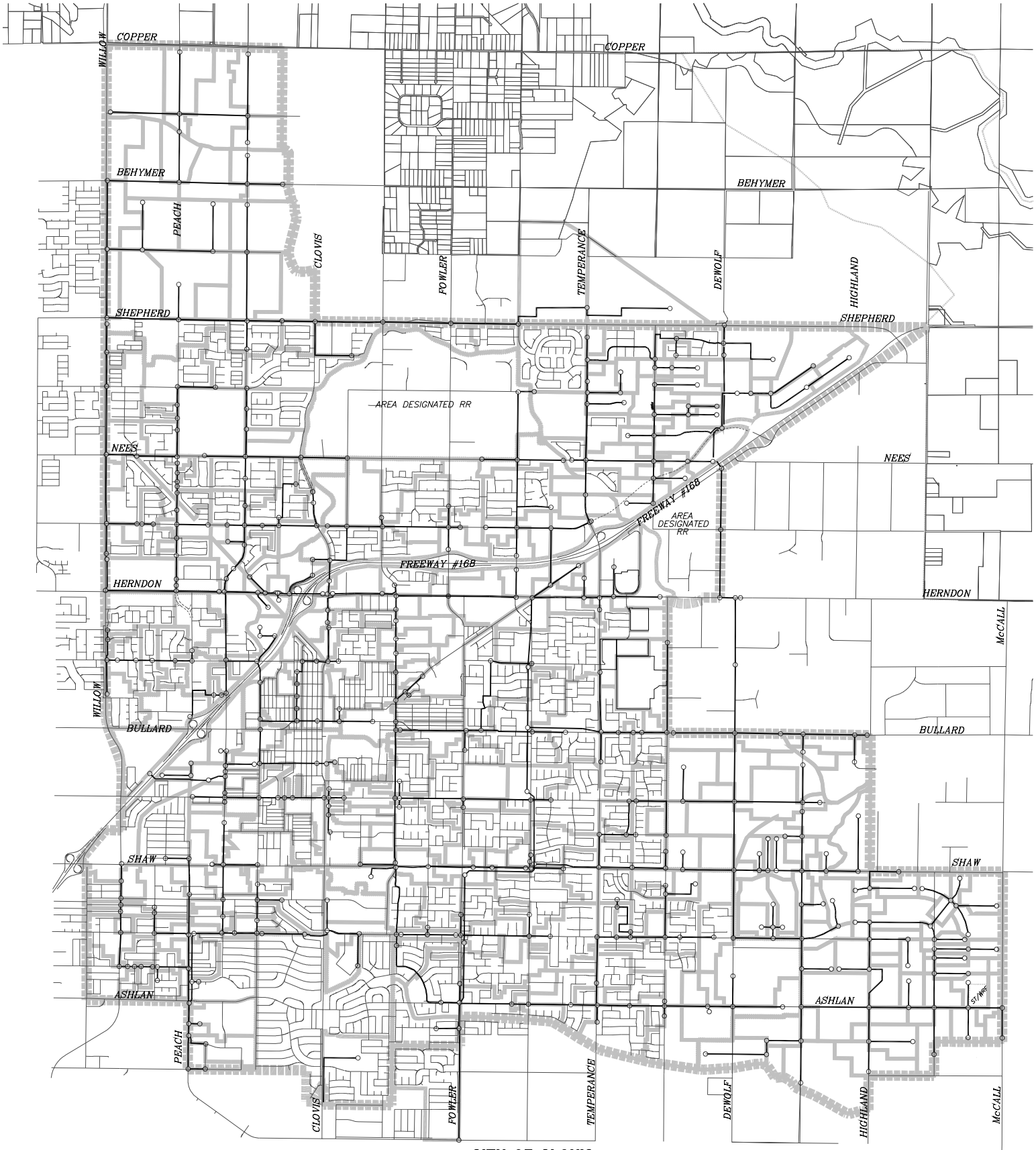
Information relative to existing sewers to be analyzed was extracted from the City of Clovis' Geographic Information System (GIS). This information included pipeline segment diameter, slope, and length.

Similar to the flow generation model, a custom hydraulic computer model was developed to analyze the hydraulics of individual segments of the sewers, utilizing the established hydraulic criteria and linked information from the flow generation model for the associated sewershed. The hydraulic model was also developed utilizing Microsoft® Excel spreadsheet software, with each major service area contained in a single computer model file. The major service area file was divided into individual spreadsheets containing a logical progression of major sewers within the service area. Data input into the hydraulic model for each analyzed pipeline segment is listed in Table 5-3.

TABLE 5-3
HYDRAULIC MODEL INPUT

DESCRIPTION	UNITS	COMMENT
Segment Upstream Node Designation	None	Linked to Flow Generation Model
Segment Downstream Node Designation	None	Linked to Flow Generation Model
Length	Feet	Manually extracted from GIS
Pipe Inside Diameter	Inches	Manually extracted from GIS
Pipe Slope	Feet/Foot	Manually extracted from GIS
Projected Average Daily Flow at Buildout	MGD	Linked to Flow Generation Model

For each analyzed segment, the hydraulic model calculates and reports the information indicated in Table 5-4.



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

LEGEND

- MODELED SEWERS
- MODELING NODES
- MODELING NODE TRIBUTARY BOUNDARIES
- CLOVIS SPHERE OF INFLUENCE BOUNDARY

N

0 500 1500 3000
SCALE IN FEET

FIGURE 5-1

MODELED SEWERS, NODES AND TRIBUTARY BOUNDARIES

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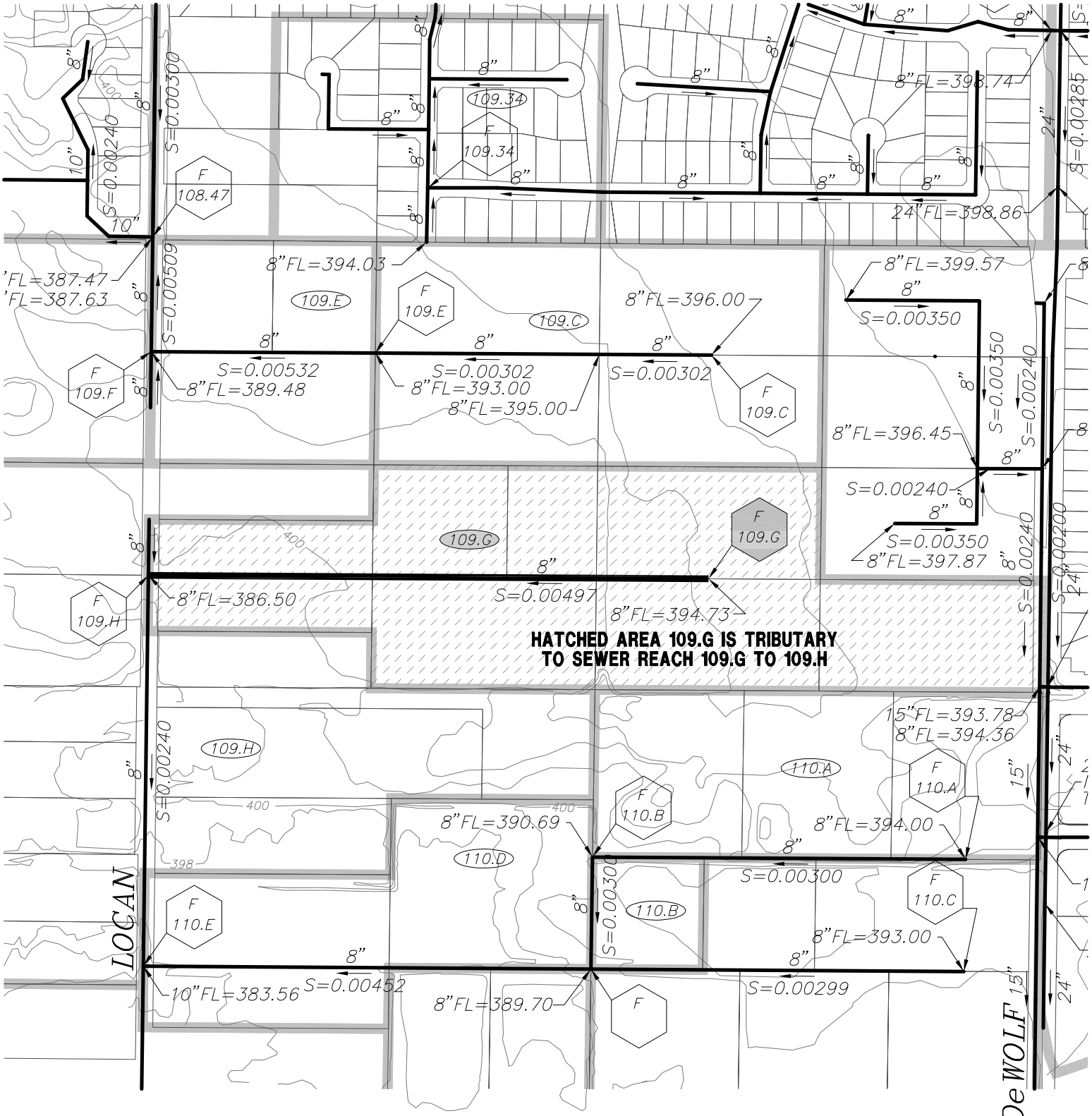

CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN

N

0 100 200 400
SCALE IN FEET

FIGURE 5-2

SAMPLE COLLECTION SYSTEM SUB-SERVICE AREA

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Final Draft Report\Figure 5-2.dwg

TABLE 5-4 HYDRAULIC MODEL OUPUT		
DESCRIPTION	**UNITS**	**COMMENT**
Design Peak Flow Capacity	MGD	Based Upon Established Criteria
Design Minimum Peaking Factor	None	Based Upon Established Criteria
Maximum Design Average Flow Depth, d/D	None	Based Upon Established Criteria
Design Average Flow Capacity	MGD	Based Upon Established Criteria
Projected Ultimate Unused Capacity, At Buildout	MGD	Average Daily Flow Capacity Unused
Percent Design Flow Capacity Unused, At Buildout	%	Unused Average Daily Flow Capacity

Design data for proposed future sewers were also entered into the hydraulic model, and similarly analyzed.

Future sewers were located wherever possible in existing or planned street alignments, and were extended to provide a point of potential service to all existing properties.

A sample hydraulic model spreadsheet with basic instructions is included at the rear of Appendix B.

5.4 SPECIAL PIPELINE CAPACITY ANALYSES

In those few segments of the existing sewer collection system where the standard analysis indicated apparent lack of capacity for planned buildout flow, additional more comprehensive analysis was performed. Figure 5-3 indicates the general locations where these analyses were conducted.

In most cases, calibration of the calculated existing flow to match the service area calibration was sufficient to indicate adequate capacity for buildout. In other cases, specific flow metering was performed at the site to confirm adequate capacity for buildout flow. If these analyses failed to indicate adequate design capacity, the segment was noted on the Master Plan as requiring upgrading.

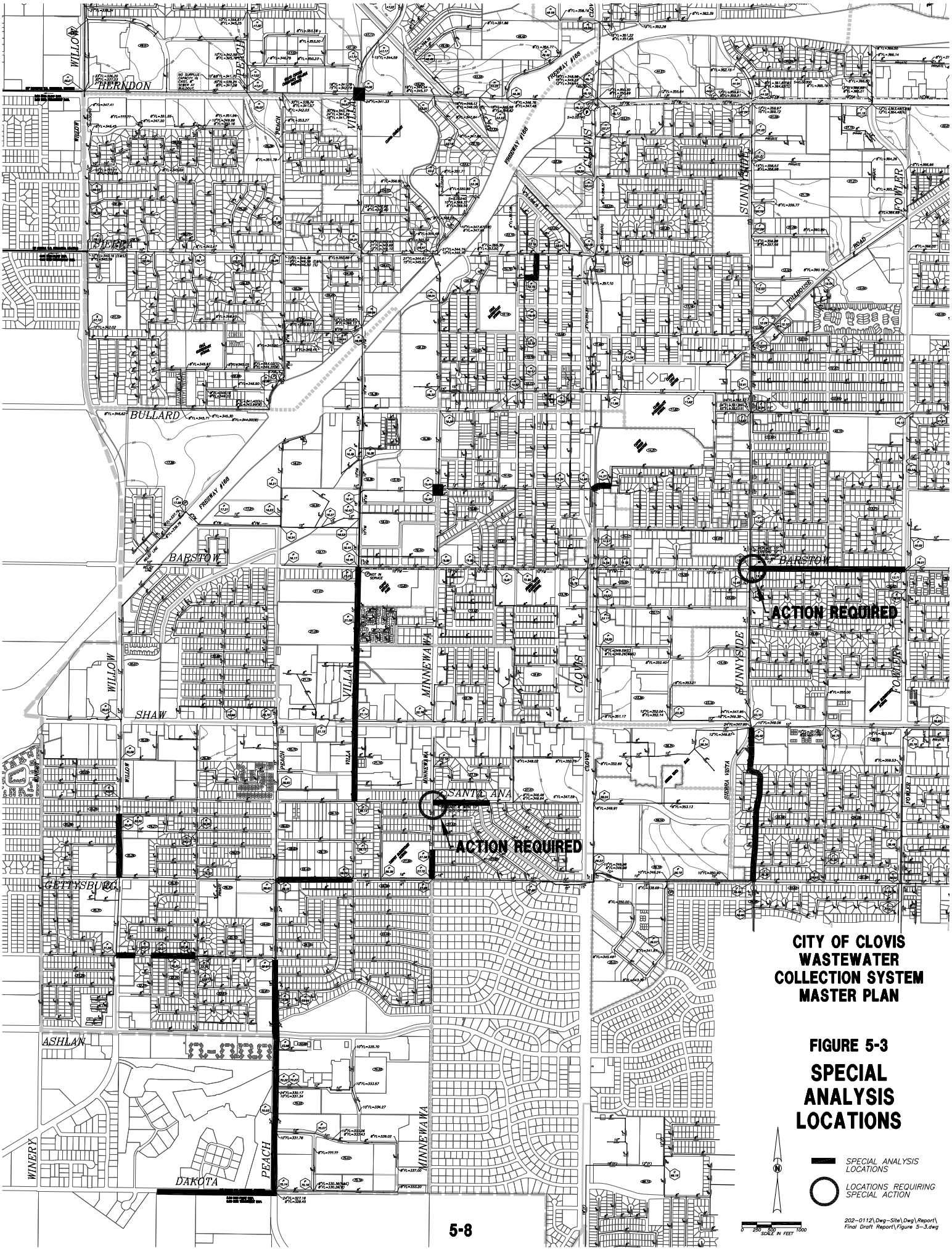
The following locations require action prior to buildout of their tributary areas:

- Within Intersection of Barstow and Sunnyside Avenues. Between Manhole 13-78 and Manhole 14-49, replace 15 lineal feet of existing 12-inch diameter sewer with new 15-inch diameter sewer.

- Within Intersection of Santa Ana and Minnewawa Avenues. On south side of Manhole 27-53, it appears that 10-inch diameter sewer was connected to an 8-inch diameter pipe stub at the manhole. Replace 8-inch diameter pipe with 10-inch diameter pipe at this location.

Appendix C contains more detailed diagrams of the special locations studied, together with associated calculations.

These special analysis locations, in particular, should be carefully reviewed when significant land use changes are considered in upstream tributary areas.



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE 5-3

SPECIAL ANALYSIS LOCATIONS

SPECIAL ANALYSIS LOCATIONS

LOCATIONS REQUIRING SPECIAL ACTION

N

0 250 500 1000
SCALE IN FEET

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Final Draft Report\Figure 5-3.dwg

SECTION 6.

FLOW SUMMARIES AND MODEL CALIBRATION

6.1 GENERAL

Summaries of projected flow were prepared for six of the seven major service areas, and a master summary prepared combining all service areas. Projected flow for the Northeast Service Area was calculated as the capacity remaining in the planned 8.40 mgd Clovis ST/WRF, after subtracting projected flow for the Northwest Service Area and Southeast Service Area.

The individual service area summaries, which are separate tabs in each of the major service area computer models, are linked to the flow projections developed by the models.

For each major service area, the summary reports total area, total projected average daily flow at buildout segregated by residential and non-residential development, estimated average daily flow from developed properties, and projected average daily flow at buildout from properties not yet developed.

6.2 MODEL CALIBRATION

The four existing trunk sewers exiting Clovis and leading to the regional system are individually metered by the City of Fresno. The raw flow data for developed properties reported by each major service area model were compared to available metering data for that service area, and a separate calibration of the total developed flow was made. This calibration was performed on the models for the Herndon, Fowler and Peach Sewer Service Areas. The metering readings on the Sierra Trunk Sewer are very low, are inconsistent month to month, differ greatly from calculated projections, and are thus not considered valid enough to use for calibration purposes. Instead, the Sierra Trunk Sewer developed flow was adjusted by a factor commensurate with that of the other three trunk sewer service areas.

All four major trunk sewer service area calibrations were downward adjustments in the model estimates for total average daily flow from developed properties, with adjustments varying from about 25 to 30 percent.

The magnitude of the calibration adjustments indicate that the unit flow generation rates utilized in the models are conservative, producing estimates of anticipated flow which are somewhat higher than actually being produced. This is not a surprise, inasmuch as the design unit flow generation rates were purposely conservatively selected. Accordingly, projections for flow from properties yet undeveloped were not adjusted.

There are several reasons why the projected flow from undeveloped properties has been estimated conservatively:

- Flow projections for undeveloped properties are used to size sewer mains and trunk facilities. The marginal cost of installing a slightly larger pipeline is relatively inexpensive, compared to the very high expense and disruption of replacing an undersized sewer later with a new larger pipeline.

- Conservative flow projection estimates tend to provide a measure of surplus capacity in sewer system designed to accommodate the flow so estimated. In some cases, the surplus capacity is needed when conditions change. Surplus capacity helps to keep options open to the City.

- Conditions can change over time. For instance, economic conditions can create situations where more people occupy dwelling units than expected, increasing wastewater generation. What is a valid flow generation rate today is not guaranteed to extend into the future.

- Estimates of flow capacity in any sewer are approximate only, due to a number of factors. These include quality of pipe material, quality of construction, frequency of maintenance, potential disturbance of the pipeline by nearby construction, and other factors.

- There is not universal confidence in the accuracy of wastewater meters, including the meters measuring Clovis' flow into the regional system. It is not unusual for wastewater meters to report flow rates 10% or more, in error.

6.3 FLOW SUMMARIES

Table 6-1 and 6-2 contain flow summaries for all of the major sewer service areas. The flow summaries include estimates of flow from properties currently developed, from properties currently undeveloped, and for total projected flow at buildout. All flows reported are average daily flows in millions of gallons per day (MGD).

Table 6-1 and 6-2 also contain flow capacity summaries for all of the major sewer service areas. Capacity is presented both as currently acquired, and as total planned.

Table 6-1 provides flow and capacity data as the sewer system is now configured, prior to any diversions proposed in the Master Plan. Table 6-1 includes capacity that will be provided by the Clovis Sewage Treatment/Water Reuse Facility.

TABLE 6-1 FLOW AND CAPACITY SUMMARY – PRIOR TO MASTER PLAN DIVERSIONS									
SEWER SERVICE AREA	PROJECTED FLOW					TOTAL CAPACITY			
	DEVELOPED		UNDEVELOPED		TOTAL	CURRENTLY ACQUIRED		TOTAL PLANNED	
	CAL. (%)	FLOW (MGD)	CAL. (%)	FLOW (MGD)	FLOW (MGD)	AMOUNT (MGD)	UNUSED (MGD)	AMOUNT (MGD)	UNUSED (MGD)
HERNDON (Note 1)	-30.26	2.2000	0.00	0.9618	3.1618	2.8000	-0.3618	2.8000	-0.3618
FOWLER	-29.03	3.0000	0.00	2.7031	5.7031	3.0000	-2.7031	5.8979	0.1948
SIERRA	-30.00	0.1945	0.00	0.0742	0.2687	0.5000	0.2313	0.5000	0.2313
PEACH	-26.13	2.6202	0.00	0.5132	3.1334	3.0000	-0.1334	3.0000	-0.1334
NW	0.00	0.2363	0.00	1.9996	2.2359	0.0000	-2.2359	2.2359	0.0000
NE	0.00	0.0000	0.00	2.6197	2.6197	0.0000	-2.6197	2.6197	0.0000
SE	0.00	0.0000	0.00	3.5444	3.5444	2.8000	-0.7444	3.5444	0.0000
SUBTOTALS	-26.50	8.2510	0.00	12.4160	20.6670	12.1000	-8.5670	20.5979	-0.0691
ADJUST. (Note 2)		-0.2363		-0.1313	-0.3676		0.3676		0.3676
ADJUST. (Note 3)		0.0715		0.0000	0.0715		-0.0715		-0.0715
TOTALS (Note 4)	-26.50	8.0862	0.00	12.2847	20.3709	12.1000	-8.2709	20.5979	0.2270

Note 1. In addition to the average daily flow capacity of 2.80 mgd, the Herndon Service Area is limited to a maximum peak flow of 4.00 mgd.

Note 2. Adjustment for potential interim flow from portion of NW Service Area included in totals for Herndon and Fowler Service Areas.

Note 3. Adjustment for calibration of developed flow from NW Service Area in Herndon and Fowler Service Area models (not calibrated in NW Service Area model).

Note 4. Differentials in totals between “Prior” and “After” are due to differences in calibration adjustments between areas diverted.

Table 6-2 provides flow and capacity data as the sewer system would be configured after the diversions proposed in the Master Plan. Table 6-2 includes capacity that will be provided by the Clovis Sewage Treatment/Water Reuse Facility.

TABLE 6-2 FLOW AND CAPACITY SUMMARY – AFTER MASTER PLAN DIVERSIONS									
SEWER SERVICE AREA	PROJECTED FLOW					TOTAL CAPACITY			
	DEVELOPED		UNDEVELOPED		TOTAL	CURRENTLY ACQUIRED		TOTAL PLANNED	
	CAL. (%)	FLOW (MGD)	CAL. (%)	FLOW (MGD)	FLOW (MGD)	AMOUNT (MGD)	UNUSED (MGD)	AMOUNT (MGD)	UNUSED (MGD)
HERNDON (Note 1)	-30.26	2.0251	0.00	0.7749	2.8000	2.8000	0.0000	2.8000	0.0000
FOWLER	-29.03	3.1196	0.00	2.7783	5.8979	3.0000	-2.8979	5.8979	0.0000
SIERRA	-30.00	0.1945	0.00	0.0742	0.2687	0.5000	0.2313	0.5000	0.2313
PEACH	-26.13	2.5064	0.00	0.4936	3.0000	3.0000	0.0000	3.0000	0.0000
NW	0.00	0.2363	0.00	1.9996	2.2359	0.2363	-1.9996	2.2359	0.0000
NE	0.00	0.0000	0.00	2.6197	2.6197	0.0000	-2.6197	2.6197	0.0000
SE	0.00	0.0000	0.00	3.5444	3.5444	2.5637	-0.9807	3.5444	0.0000
TOTALS (Note 2)	-26.46	8.0819	0.00	12.2847	20.3666	12.1000	-8.2666	20.5979	0.2313

Note 1. In addition to the average daily flow capacity of 2.80 mgd, the Herndon Service Area is limited to a maximum peak flow of 4.00 mgd.

Note 2. Differentials in totals between “Prior” and “After” are due to differences in calibration adjustments between areas diverted.

More detailed summary calculations are included in Appendix A.

Table 6-2 compares projected flow in each major service area with both currently acquired capacity and planned capacity. Table 6-3 provides a brief explanation for the balance of capacity shown in the "Unused" capacity columns of Table 6-2.

TABLE 6-3 EXPLANATION OF CAPACITY BALANCE – AFTER MASTER PLAN DIVERSIONS	
SEWER SERVICE AREA	EXPLANATION (References to acquired capacity include the combination of trunk sewer capacity and treatment capacity)
HERNDON	Clovis previously acquired 2.80 mgd of capacity in the Regional System, and no additional capacity is available in the regional Herndon Trunk Sewer. A planned flow diversion from a portion of the Herndon Service Area to the Fowler Service Area will be designed to balance use at buildout of acquired capacity in the Herndon Trunk Sewer. There is a potential that this diversion will not be necessary if actual flow at buildout from areas now undeveloped is less than projected.
FOWLER	Clovis previously acquired 3.00 mgd of capacity in the Regional System. The indicated current shortage of 2.8979 mgd in acquired capacity at buildout must be augmented by the planned purchase of additional treatment capacity at the Regional Plant. Clovis must also share with the City of Fresno in the cost of a future second barrel of the North Avenue Trunk Sewer, to the extent of 3.00 mgd capacity exchanged with Fresno (Addendum No. 6 to Joint Powers Agreement). If some minor overage in buildout flow occurs, up to 0.1021 mgd (3.0000 – 2.8979 = 0.1021 mgd) of additional treatment capacity is available for purchase at the Regional Plant per current agreement with the City of Fresno.
SIERRA	Clovis previously acquired 0.50 mgd of capacity in the Regional System, which is more than adequate for the projected buildout flow from the Sierra Service Area. The indicated 0.2313 mgd of surplus capacity at buildout can stand available for some potential overage in the Herndon Service Area, which could be pumped to the Sierra Trunk Sewer with the construction of a new pump station and force main.
PEACH	Clovis previously acquired 3.00 mgd of capacity in the Regional System, and no additional capacity is available in the regional Peach Trunk Sewer. A planned flow diversion from a portion of the Peach Service Area to the Fowler Service Area will be designed to eliminate any shortage of capacity in the Peach Trunk Sewer. There is a potential that this diversion will not be necessary if actual flow at buildout from areas now undeveloped is less than projected.
NW	All of the flow from the NW Service Area is to discharge to the Clovis SE ST/WRF. Projected flow from the NW Service Area is based upon land uses indicated in the 1993 Clovis General Plan, augmented by actual development which has occurred south of Shepherd Avenue.
NE	All of the flow from the NE Service Area is to discharge to the Clovis SE ST/WRF. Inasmuch as the NE Service area is outside of the current boundaries of the City of Clovis Sphere of Influence, this service area receives the balance of unallocated planned capacity in the Clovis SE ST/WRF. This balance of unallocated capacity is less than the projected flow from the NE Service Area based upon the 1993 Clovis General Plan. Specific planning for the NE Service Area will need to consider available unallocated capacity in the Clovis SE ST/WRF, or additional treatment capacity will need to be somehow developed.
SE	All of the flow from the SE Service Area is to discharge to the Clovis SE ST/WRF. Projected flow from the SE Service Area is based upon land uses indicated in the Southeast Urban Center Specific Plan.
TOTAL	Clovis' capacity needs will be met by the completion of all three phases of the SE Clovis ST/WRF, together with the acquisition of up to 3.00 mgd additional treatment capacity at the Regional plant (with associated participation in the second barrel of the North Avenue Trunk Sewer).

SECTION 7.
REGIONAL SYSTEM TRUNK SEWER ISSUES

7.1 GENERAL

Regional trunk sewer issues downstream of Clovis have been resolved and capacity acquired for the Herndon, Sierra and Peach Service Areas. Associated treatment capacity at the Regional Plant has also been acquired for these three service areas.

The regional Fowler Avenue Trunk Sewer and downstream interconnected North Avenue Trunk Sewer, which carry flow discharging from the Fowler Service Area, have outstanding issues yet to be finally resolved with the City of Fresno. Complicating these issues is another recently planned regional trunk sewer, the Leonard Trunk Sewer, which may also discharge to the regional North Avenue Trunk Sewer.

Figure 7-1 graphically illustrates the major features of the regional system affecting Clovis.

7.2 FOWLER AVENUE TRUNK SEWER AND NORTH AVENUE TRUNK SEWER

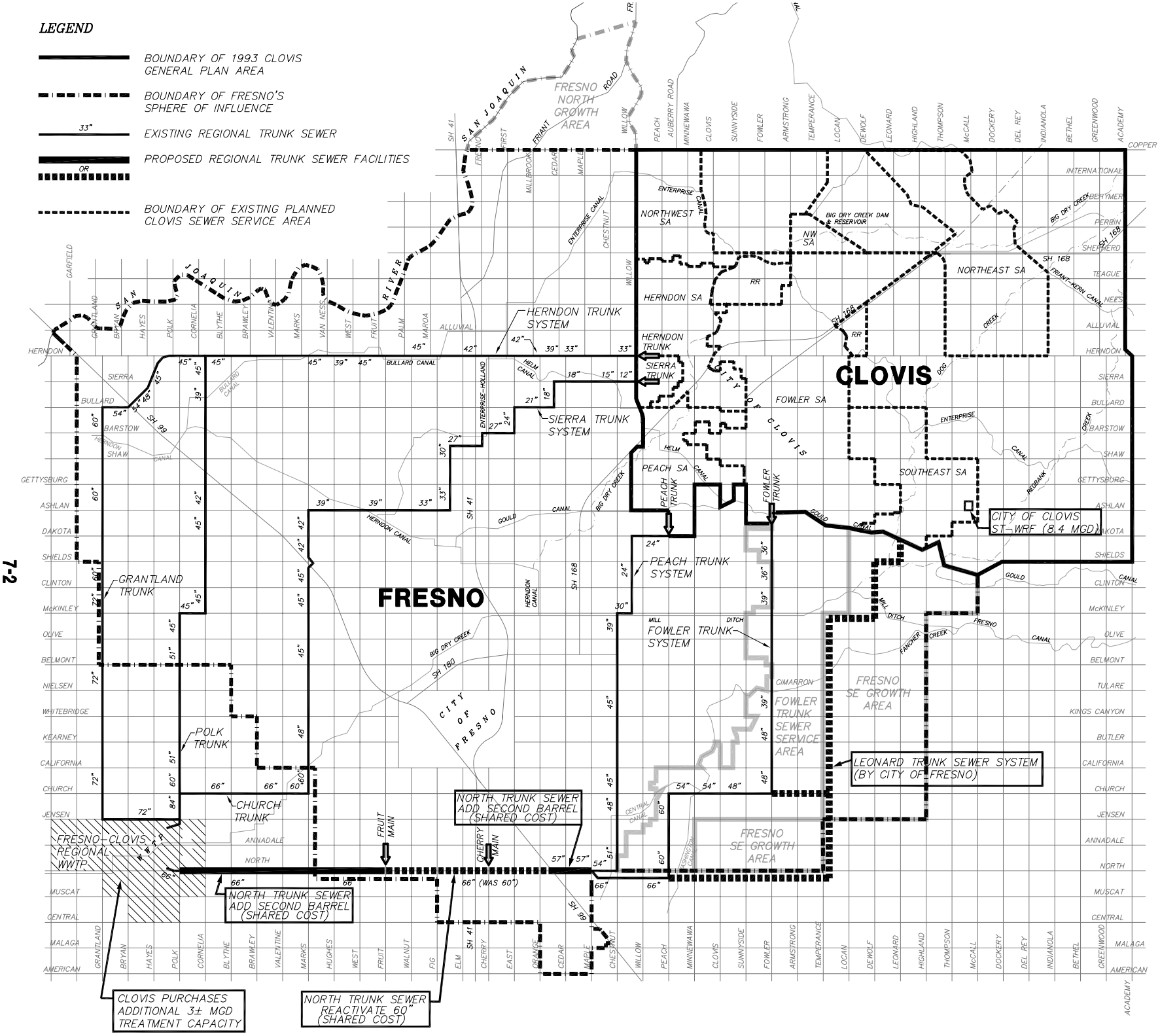
The Fowler Avenue Trunk Sewer extends southerly and westerly from Clovis to join the North Avenue Trunk Sewer at the intersection of North and Maple Avenues. When the Fowler Avenue Trunk Sewer was originally constructed, Clovis purchased all of the design capacity (9.79 MGD average design flow) in the trunk sewer downstream from the City of Clovis to Cimarron Avenue (just south of Belmont Avenue), inasmuch as Fresno's planning at the time called for no urban development along that reach. Downstream of that point, Clovis purchased 9.79 MGD design capacity in the pipeline shared with Fresno. As a result of a 1986 agreement with Fresno to exchange minor service areas (see Figure 7-2), the net capacity available to Clovis in the Fowler Avenue Trunk Sewer became 9.56 MGD.

The North Avenue Trunk Sewer extends in North Avenue from Maple Avenue to the Regional Plant west of Cornelia Avenue. Clovis originally acquired 6.00 MGD average daily flow capacity in the North Avenue Trunk Sewer; 3.00 MGD for the Peach Service Area and 3.00 MGD for the Fowler Service Area. Physical capacity limitations in the North Avenue Trunk Sewer precluded Clovis from purchasing additional capacity without joining with Fresno in constructing additional pipeline capacity, and/or in participating in a new potential regional satellite wastewater plant in southeast Fresno.

In 2002, Clovis and Fresno entered into a joint powers agreement "For Temporary Exchange of Sewer Capacity in the North Avenue and Fowler Avenue Trunk Sewer Mains". The key elements of the agreement are summarized as follows:

- Clovis gained access to an additional 3.00 MGD of average daily flow capacity in the North Avenue Trunk Sewer for the Fowler Service Area, for a total capacity of 6.00 MGD for the Fowler Service Area.

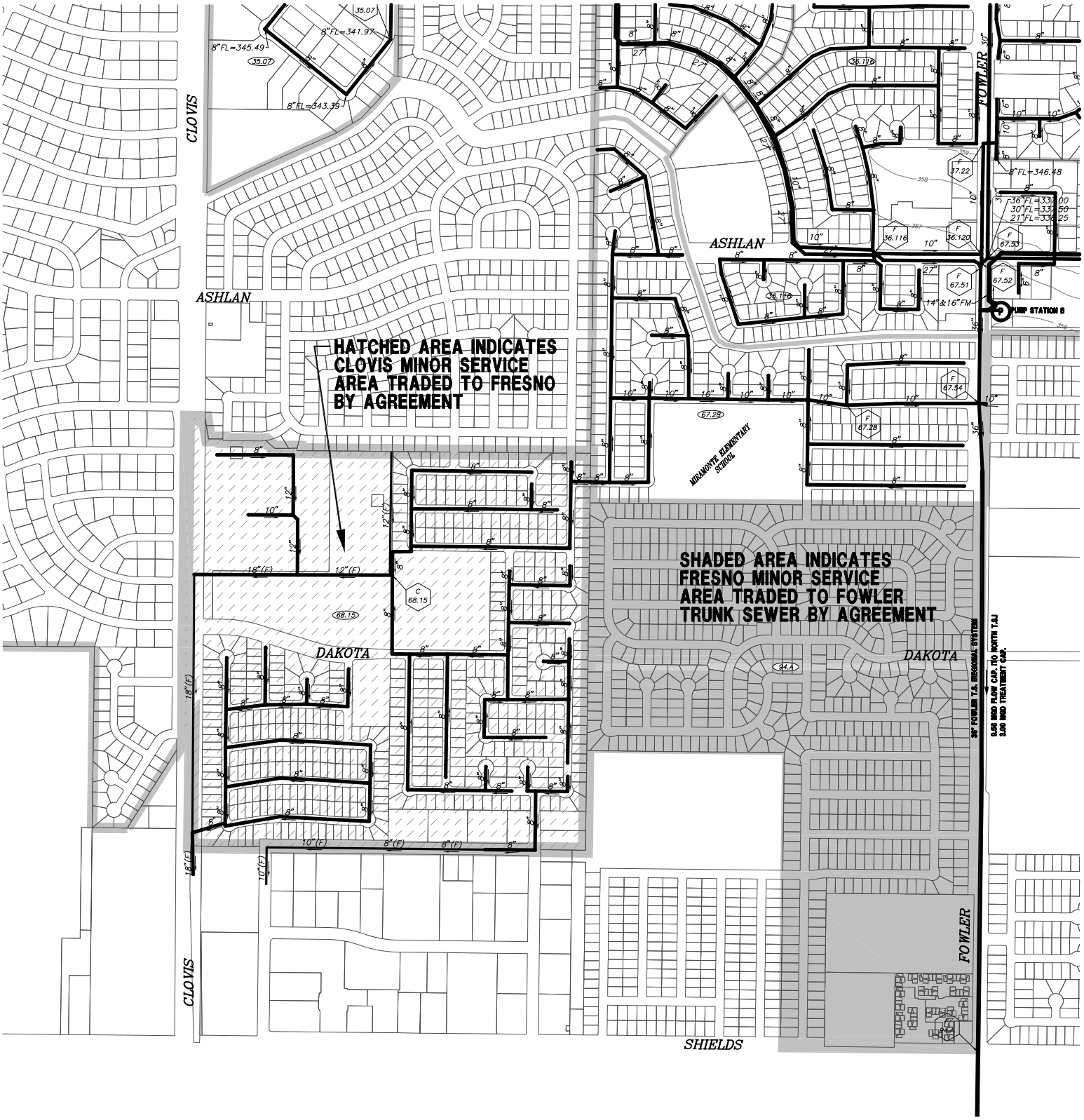
- Fresno gained access to 3.00 MGD of average daily flow capacity in the Fowler Avenue Trunk Sewer north of Cimarron Avenue (Fresno needed this capacity to service an area newly planned for urbanization).



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE 7-1

REGIONAL SYSTEM FACILITIES



CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN

FIGURE 7-2

MINOR SERVICE AREAS EXCHANGED BETWEEN CITIES OF CLOVIS AND FRESNO

0 200 500 900
SCALE IN FEET

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Final Draft Report\Figure 7-2.dwg

- Clovis agreed to participate in future project(s) that would replace the additional 3.00 MGD of flow capacity in the North Avenue Trunk Sewer with flow capacity in a future second barrel in North Avenue, or other suitable project. Potential elements of capacity enhancing projects (based upon very preliminary analysis) are indicated on Figure 7-1.

- Fresno agreed to participate in future project(s) that would replace the additional 3.00 MGD of flow capacity in the Fowler Avenue Trunk Sewer with flow capacity in a future Leonard Avenue Trunk Sewer, or other suitable replacement project. It appears that Fresno plans to provide the replacement capacity in the future Leonard Avenue Trunk Sewer.

- Fresno agreed that by virtue of previous joint powers agreements, Clovis will be allowed to purchase an additional 3.00 MGD of treatment capacity at the regional plant to accommodate additional flows from the Fowler Trunk Sewer, and that said additional capacity may be purchased as needed in about 1 MGD increments, as Clovis deems advisable.

- Both agencies agreed that inasmuch as the agreement may be terminated after 5 years by either party, both parties must then actively participate in replacement capacity projects which must be commissioned before termination of the exchanged flow capacity.

Considering the provisions of the above agreement, Clovis' resulting capacity in the regional system for discharge to the Fowler Avenue Trunk Sewer, together with Clovis' projected capacity needs within it, are as tabulated in Table 7-1.

TABLE 7-1 CAPACITY SUMMARY FOWLER TRUNK SEWER/NORTH AVENUE TRUNK SEWER	
CONVEYANCE CAPACITY	
Fowler Trunk Sewer (9.56 MGD – 3.00 MGD exchanged)	6.56 MGD
North Avenue Trunk Sewer (3.00 MGD + 3.00 MGD exchanged)	6.00 MGD
Clovis' Projected Required Capacity at Buildout of Fowler Service Area	5.90 MGD
TREATMENT CAPACITY	
Previously Acquired Treatment Capacity	3.00 MGD
Additional Treatment Capacity Available for Purchase by Agreement	3.00 MGD
Clovis' Total Available Potential Capacity (3.00 MGD + 3.00 MGD)	6.00 MGD
Clovis' Projected Required Capacity at Buildout of Fowler Service Area	5.90 MGD

It is not likely that the 2002 agreement will be terminated, inasmuch as replacement projects would be very difficult to execute.

7.3 LEONARD AVENUE TRUNK SEWER

With the updating of the City of Fresno's 2025 General Plan in February, 2002, areas southeasterly of Fresno were re-planned for urbanization. In order to provide wastewater service to this new area, Fresno planned a new Leonard Avenue Trunk Sewer (see Figure 7-1). This trunk sewer would discharge to either:

- an enlarged North Avenue Trunk Sewer (which discharges to the existing Regional Wastewater Treatment Plant), or

- a new Regional Satellite Wastewater Treatment Plant in southeast Fresno.

Fresno plans to provide capacity for Clovis in the Leonard Avenue Trunk Sewer to replace the 3.00 MGD of capacity exchanged in the Fowler Avenue Trunk Sewer per the 2002 agreement. Although this replacement capacity is not needed for the projected buildout flows in the Fowler Service Area (and is also not physically located where it can service the Fowler Service Area by gravity), it is located in a strategic location with respect to other Clovis wastewater infrastructure.

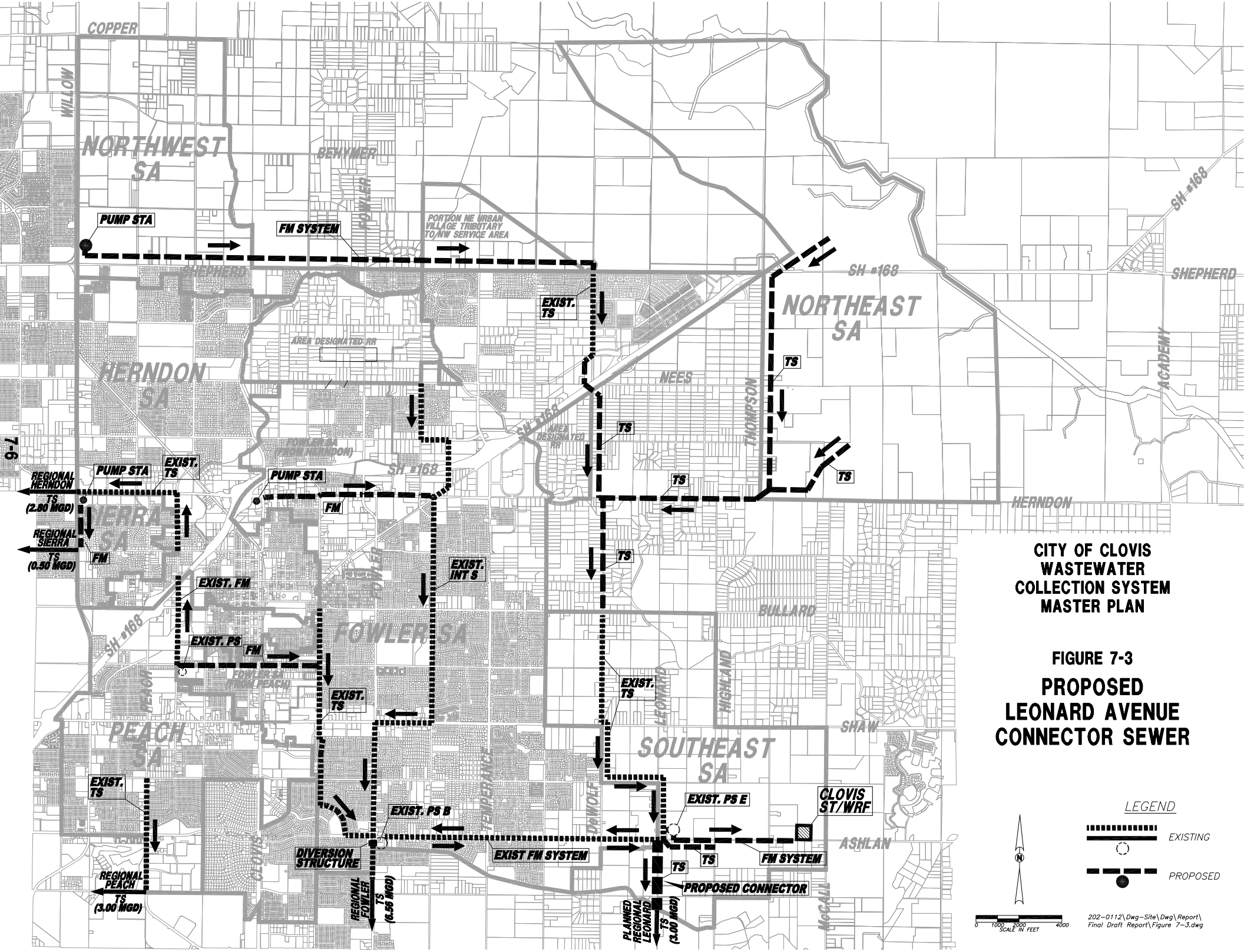
Figure 7-3 graphically indicates the proposed regional Leonard Avenue Trunk Sewer at its proposed connection point to Clovis, together with its geographical relationship with Clovis' major wastewater infrastructure. With the future construction of minor piping in the Ashlan-Leonard Avenue intersection and a proposed connector sewer in Leonard Avenue between Ashlan Avenue and the terminus of the Clovis system just south of the Gould Canal, Clovis gains another major connection point to the regional system. This connection would provide the following options if needed because of unanticipated occurrences or planned maintenance operations:

- Up to 3.0 MGD of flow entering Pump Station E from its gravity fed tributary service areas could be diverted from discharging to the Clovis ST/WRF, and instead be pumped to the regional system via the Leonard Avenue Trunk Sewer.

- If operation of Pump Station E were interrupted for some reason, upstream gravity flow from its tributary areas would eventually build to a below-ground-surface emergency spillover gravity connection point and into the regional system via the Leonard Avenue Trunk Sewer.

- Up to 3.0 MGD of flow from the Fowler Service Area could be diverted through Pump Station B at Fowler Avenue just south of Ashlan Avenue by force main to the Ashlan-Leonard Avenue intersection for discharge to the Leonard Avenue Trunk Sewer and thus to the regional system.

These options provide the benefits of backup capability, operational alternatives and redundancy to a major portion of Clovis' wastewater system.


COPPER
WILLOW
NORTHWEST SA
BEHYMER
FRANKLIN
PORTION NE URBAN VILLAGE TRIBUTARY TO NW SERVICE AREA
PUMP STA
FM SYSTEM
SHEPHERD
SH #168
NORTHEAST SA
EXIST. TS
AREA DESIGNATED RR
HERNDON SA
NEES
THOMPSON
ACADEMY
TS
AREA DESIGNATED RR
PORTION NE URBAN VILLAGE (NW HERNDON)
SH #168
REGIONAL HERNDON TS (2.80 MGD)
PUMP STA
EXIST. TS
PUMP STA
FM
HERNDON
SIERRA SA
REGIONAL SIERRA TS (0.30 MGD)
FM
EXIST. INT S
EXIST. FM
BULLARD
FOWLER SA
EXIST. PS
FM
FOWLER
PORTION NE URBAN VILLAGE
EXIST. TS
LEONARD
HIGHLAND
SHAW
PEACH SA
SOUTHEAST SA
EXIST. TS
EXIST. PS B
EXIST. PS E
CLOVIS ST/WRF
DIVERSION STRUCTURE
EXIST FM SYSTEM
FM SYSTEM
ASHLAN
REGIONAL PEACH TS (3.00 MGD)
REGIONAL FOWLER TS (0.56 MGD)
PROPOSED CONNECTOR
PLANNED REGIONAL LEONARD TS (3.00 MGD)
McCALL
9-7
CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN
FIGURE 7-3
PROPOSED
LEONARD AVENUE
CONNECTOR SEWER
LEGEND
EXISTING
PROPOSED
N
0 1000 2000 4000
SCALE IN FEET
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Final Draft Report\Figure 7-3.dwg

SECTION 8.

FLOW METERING OF CLOVIS TRUNK SEWERS

8.1 GENERAL

The four existing Clovis trunk sewers are metered by Fresno where they enter the regional system. The metering data indicate that the sum total flow of the four trunk sewers has not increased in direct proportion to the population increase in Clovis.

8.2 TRUNK SEWER FLOW METERS

The types of meters which measure the flow from Clovis' trunk sewers, and the location of the meters, are indicated in Table 8-1.

TABLE 8-1
CLOVIS TRUNK SEWER FLOW METERS

TRUNK SEWER	TYPE OF FLOW METER	LOCATION OF FLOW METER
Herndon	ADS Ultrasonic Flow Monitor	Herndon Avenue just west of Willow Avenue
Fowler	ADS Ultrasonic Flow Monitor	Fowler Avenue just south of Bellaire Avenue
Sierra	Parshall Flume	Intersection of Sierra and Willow Avenues
Peach	Parshall Flume	Peach Avenue 300'± north of Pontiac Way

Ultrasonic flow monitors measure flow depth and flow velocity, over time, from which flow rate is determined through calculations using the Manning equation, or continuity equation.

Parshall flumes are specially shaped structures from which flow rate is determined from measured depth of flow. Correlation data has been developed and is available for particular flume characteristics.

There is not universal confidence in the accuracy of wastewater meters, including the meters measuring Clovis' flow into the regional system. It is not unusual for wastewater meters to report flow rates 10% or more, in error. Under extreme conditions, errors can exceed 20%. The confidence rate for ultrasonic flow meters is generally considered higher than that for Parshall flumes, particularly under low flow conditions.

8.3 FLOW METERING DATA OVER TIME

Table 8-2 contains Clovis trunk sewer metering data for the period 1995 through 2007. The total average annual flow for the sum of all four existing trunk sewers is indicated, as well as the average Clovis population over each corresponding year. The average population was determined by averaging the January 1 annual population estimates for Clovis for succeeding years, as reported by the State of California. The average population values were then rounded to the nearest hundred persons.

TABLE 8-2 CLOVIS AVERAGE ANNUAL METERED FLOW AND POPULATION		
YEAR	AVERAGE DAILY FLOW (MGD)	AVERAGE POPULATION
1995	6.203	63,100
1996	6.526	64,300
1997	6.418	65,100
1998	6.326	65,900
1999	6.045	67,200
2000	6.456	69,300
2001	6.404	71,900
2002	6.553	74,900
2003	6.845	78,900
2004	6.976	83,500
2005	6.973	87,800
2006	7.318	90,800
2007	7.345	93,100

Figure 8-1 on page 8-3 is a graph of the data from Table 8-2.

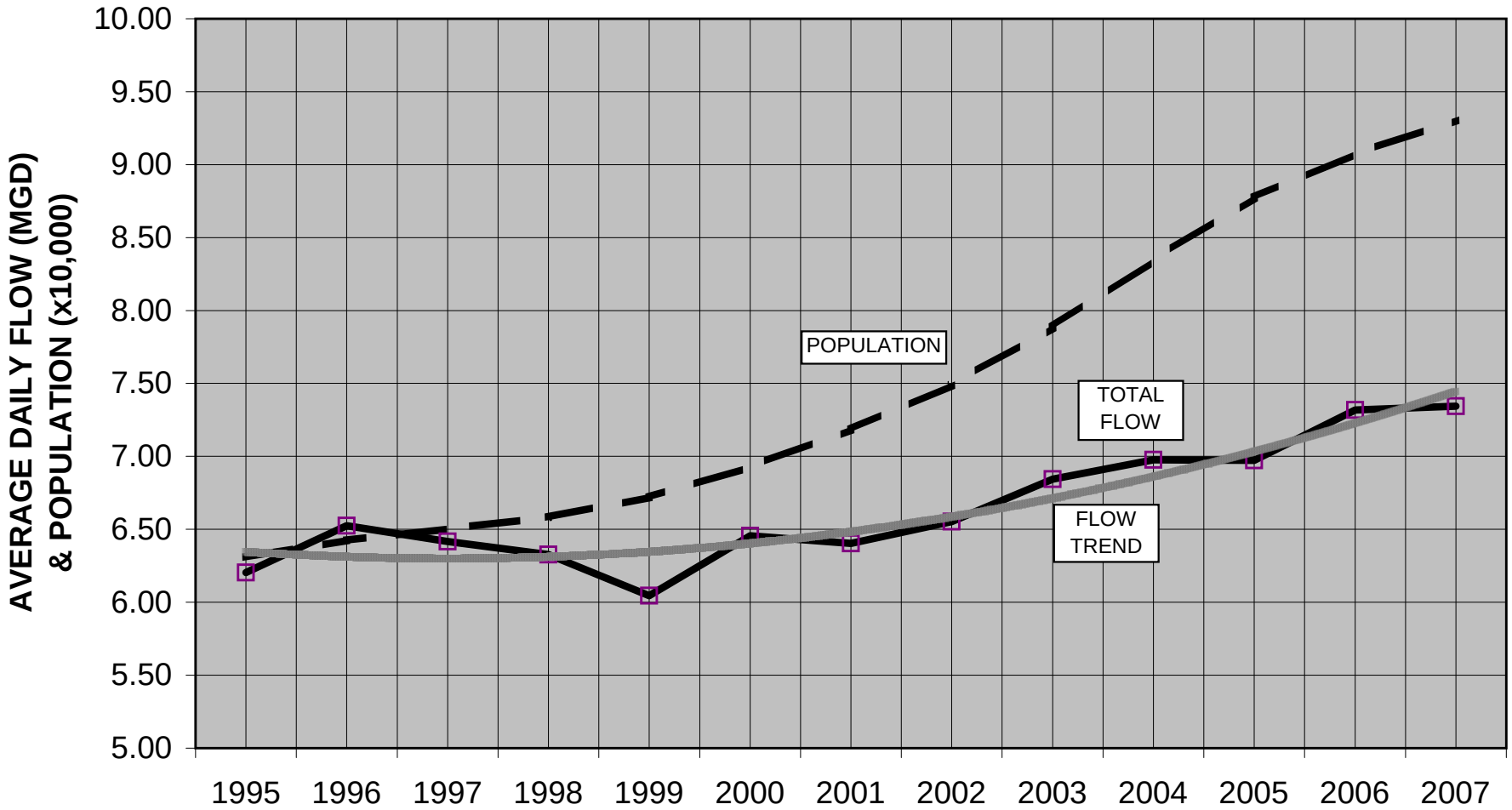
The flow trend for the sum total flow, as determined by flow metering, has not increased in direct proportion to the population increase. This is likely largely the result of the utilization of water conserving fixtures in new construction and remodels. Other potential reasons may include changes in average household size over time, and/or metering errors.

The unit design flow generation rates for Clovis were established in the Phase 1-A Report, “Present Wastewater Flows, Projected Flows and Trunk Sewer Capacities for Existing Trunk Sewer Service Areas”, dated June 1995. These were reaffirmed in the Phase 1-B “Wastewater Master Plan Update”, dated November, 1996. Although the unit flow generation rates may have decreased somewhat over the past 13 years (based upon the apparent variation from population growth), they have not been reduced in the collection system master plan in predicting future flow from now undeveloped (or under-developed) properties. Calibration of flow in the master plan (based upon metered flow from properties now developed) has, however, compensated for reduced flow generation rates in developed properties.

Reasons for retaining the original design unit flow generation rates for projections of flow from undeveloped properties in the collection system master plan are as follows:

- Flow projections for undeveloped properties (together with those from developed properties) are used to size new sewer mains and new trunk facilities. The marginal cost of installing a slightly larger pipeline is relatively inexpensive, compared to the very high expense and disruption of replacing an undersized sewer later with a new larger pipeline.

FIGURE 8-1
CLOVIS ANNUAL AVERAGE METERED FLOW



- Conservative flow projection estimates tend to provide a measure of surplus capacity in sewer system designed to accommodate the flow so estimated. In some cases, the surplus capacity is needed when conditions change. Surplus capacity helps to keep options open to the City.

- Conditions can change over time. For instance, economic conditions can create situations where more people occupy dwelling units than expected, increasing wastewater generation per unit. What is a valid flow generation rate today is not guaranteed to extend into the future.

- Estimates of flow capacity in any sewer are approximate only, due to a number of factors. These include quality of pipe material, quality of construction, frequency of maintenance, potential disturbance of the pipeline by nearby construction, and other factors.

- There is not a high level of confidence in the ongoing accuracy of the metering of Clovis' wastewater.

A conservative approach to analyzing and planning its wastewater infrastructure has served Clovis well, often providing useful options to the City when needed.

SECTION 9.

MAJOR ELEMENTS OF CLOVIS' WASTEWATER SYSTEM INFRASTRUCTURE

9.1 GENERAL

Figure 9-1 indicates schematically major infrastructure elements of the Clovis Wastewater Collection System Master Plan. Major elements shown include existing and planned trunk sewers 24-inches and diameter or greater, existing major pump stations and force mains, and all planned pump stations and force mains.

9.2 TRUNK SEWERS

Trunk sewers in Clovis are considered to be sewer mains 24-inches and greater in diameter.

Although much of the planned Clovis trunk sewer system has been constructed over the years, a number of large diameter sewers remain to be installed.

Trunk sewers master planned but yet to be constructed include the following:

- Trunk sewer between the intersection of Dewolf Avenue with the Alluvial Avenue Connector and the intersection of DeWolf Avenue at State Highway #168, to serve the Northwest Service Area.

- Trunk sewer in DeWolf Avenue from State Highway #168 to Herndon Avenue, to serve the Northwest Service Area.

- Trunk sewer in Herndon Avenue from Thompson Avenue to DeWolf Avenue, to serve the future Northeast Service Area.

- Trunk sewers northeasterly of the intersection of Herndon Avenue and Thompson Avenue, to serve the future Northeast Service Area.

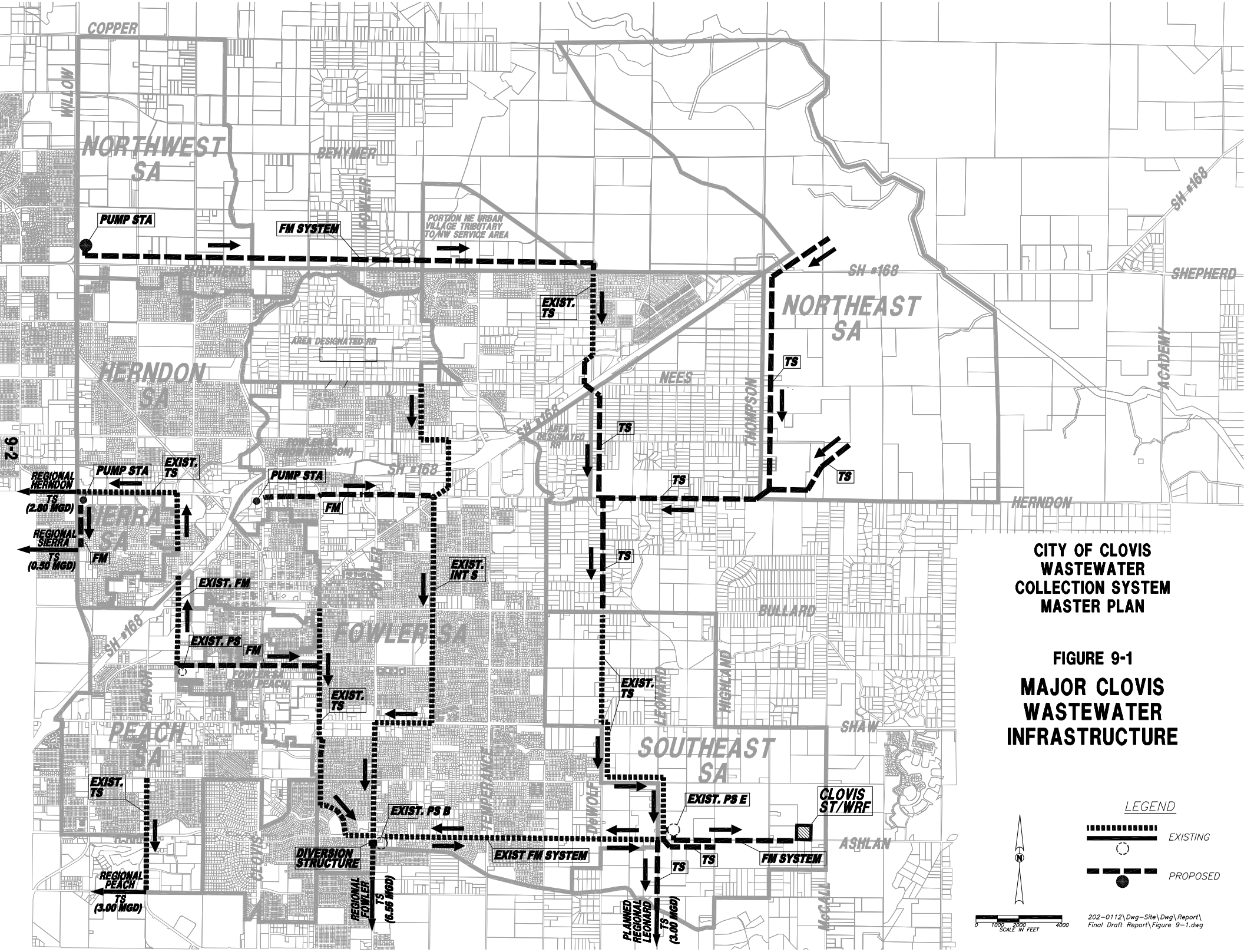
- Trunk sewer in DeWolf Avenue from Herndon Avenue to Bullard Avenue, to serve the Northwest Service Area and Northeast Service Area.

- Trunk sewer in Ashlan Avenue from Highland Avenue to Leonard Avenue, for service to a portion of the Southeast Service Area.

- Leonard Connector Sewer in Leonard Avenue from Ashlan Avenue to the Gould Canal, to provide the benefits of backup capability, operational alternatives and redundancy to a major portion of Clovis' wastewater system once the city of Fresno's portion of the Leonard Trunk Sewer is in place.

9.3 PLANNED PUMP STATIONS AND FORCE MAINS

Wastewater pump stations master planned but yet to be constructed include those listed in Table 9-1.



CITY OF CLOVIS
WASTEWATER
COLLECTION SYSTEM
MASTER PLAN

FIGURE 9-1

MAJOR CLOVIS
WASTEWATER
INFRASTRUCTURE

TABLE 9-1 WASTEWATER PUMP STATIONS YET TO BE CONSTRUCTED			
SERVICE AREA (SA)	PUMP STATION LOCATION	LOCATION OF ASSOCIATED FORCE MAIN SYSTEM	COMMENTS
Northwest SA	Northeast corner of intersection of Shepherd and Willow Avenues	In Shepherd Avenue from Willow Avenue to DeWolf Avenue	This pump station will serve the entire Northwest Service Area.
Portion Herndon SA diverted to Fowler SA	Southwest corner of intersection of Herndon and Clovis Avenue	In Herndon Avenue from just west of Clovis Avenue to the Armstrong Interceptor Sewer just east of Armstrong Avenue	Some flow which now discharges to the Herndon Trunk Sewer will be diverted by this pump station to the Fowler Trunk Sewer.
Portion Peach SA diverted to Fowler SA	Southeast corner of the intersection of Barstow and Villa Avenues	In Barstow Avenue from Villa Avenue to Sunnyside Avenue (or potential option of using existing force main system in Villa Avenue from Barstow Avenue to just north of Freeway 168 – see discussion below)	Some flow which now discharges to the Peach Trunk Sewer will be diverted by this pump station to the Fowler Trunk Sewer. There is an existing mothballed pump station here which may be recommissioned.
Portion Northwest SA diverted to Sierra SA	Near intersection of Herndon and Willow Avenues (location to be determined)	In Willow Avenue from Herndon Avenue to Sierra Avenue	This pump station is for contingency planning should capacity of the Herndon Trunk Sewer be approached prior to the availability of the Shepherd/Willow pump station and associated force main system.

The two pump stations proposed to divert flow into the Fowler Service Area system are geographically situated where their capacities can be adjusted (within certain limits) to attempt to achieve a balance in Clovis' use of available capacity in the regional system. Depending upon future land use decisions and water use patterns in the affected service areas, it is possible that one or more of these pump stations may ultimately not be required.

A less costly option may exist for the diversion of Peach Service Area flow as described in Table 9-1. The option would also involve the recommissioning of the existing mothballed pump station at the southeast corner of Barstow and Villa Avenues, however the flow would be diverted to an existing gravity sewer tributary to the Herndon Trunk Sewer by utilizing a force main system which exists in Villa Avenue from Barstow Avenue to just north of Freeway 168. The planned diversion of Herndon Service Area flow to the Fowler Service Area would then be increased by a corresponding amount. This option would only be feasible if the required diversion from the Peach Service Area can be accomplished within

the diversion capacity restraints of the pump station proposed for diverting flow from the Herndon Service Area to the Fowler Service Area (at the southwest corner of Herndon and Clovis Avenue). The maximum capacity of the Herndon Service Area to the Fowler Service Area diversion is approximately 0.64 MGD average daily flow, the projected buildout flow generation of the tributary area upstream of the proposed pump station. Current calculations indicate 0.16 MGD average daily flow to be diverted from the Herndon Service Area to the Fowler Service Area, and 0.17 MGD average daily flow to be diverted from the Peach Service Area to the Fowler Service Area, with sum total of diversions projected at 0.33 MGD average daily flow at buildout. This option should be considered before constructing a force main system in Barstow Avenue from Villa Avenue to Sunnyside Avenue, with careful examination of changes that may have occurred (or may yet occur in the future) in the affected tributaries. This option has the disadvantage of essentially requiring the pumping of the quantity of flow to be diverted from the Peach Service Area not only once (into the Herndon Service Area system), but also a second time (from the Herndon Service Area into the Fowler Service Area system).

9.4 EXISTING MAJOR PUMP STATIONS AND FORCE MAINS

Two major Clovis wastewater pump stations with associated force main systems currently exist or are under construction. They include the following:

9.4.1 Pump Station E

Pump Station E is an existing pump station located at the northeast corner of the intersection of Ashlan and Leonard Avenues. The ultimate primary function of Pump Station E is to receive the combined wastewater from the Northwest, Northeast and Southeast Service Areas and discharge it to the Clovis ST/WRF currently under construction on the north side of Ashlan Avenue between Thompson and McCall Avenues. The associated force main system is under construction in Ashlan Avenue between Pump Station E and the Clovis ST/WRF.

In the early years, when Pump Station E received only minor flow from early development in the Southeast Service Area, the discharge was directed to a gravity sewer main in Ashlan Avenue leading to the Fowler Trunk Sewer system.

Although the primary purpose of Pump Station E is to discharge wastewater to the Clovis ST/WRF, Pump Station E is capable of discharging large quantities of flow either to the Clovis ST/WRF or to the Fowler Trunk Sewer. Discharge to the Fowler Trunk Sewer of flows greater than can be safely handled by the gravity sewer in Ashlan Avenue between Leonard Avenue and Fowler Avenue can be transmitted through an existing force main system. This system is located within Ashlan Avenue and Fowler Avenue south of Ashlan Avenue and is plumbed to connect to the Fowler Trunk Sewer at an existing diversion structure south of Ashlan Avenue.

The Master Plan also provides for the future construction of the proposed connector sewer in Leonard Avenue between Ashlan Avenue and the terminus of the Clovis system just south of the Gould Canal, as described in Section 7.3.

Together, these options provide the benefits of backup capability, operational alternatives and redundancy to the Pump Station E system.

9.4.2 Pump Station B

Pump Station B is a pump station currently under construction located on the east side of Fowler Avenue south of Ashlan Avenue and just north of the Gould Canal. The primary function of Pump Station B is to divert wastewater from the Fowler Trunk Sewer to the Clovis ST/WRF in the early years of the ST/WRF when direct flows emanating from the service areas of the ST/WRF are minimal.

Flows enter Pump Station B by way of a diversion structure on the Fowler Trunk Sewer. Pump Station B discharges the diverted flow through the existing force main system between Pump Station E and Pump Station B. The diverted flows are then relayed by Pump Station E to the ST/WRF.

In later years when makeup wastewater flow from the Fowler Trunk Sewer is no longer needed at the ST/WRF, Pump Station B will remain available to provide backup capability, operational alternatives and redundancy for the Fowler Service Area.

APPENDIX A

MASTER FLOW PROJECTION AND CAPACITY SUMMARIES

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1A

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS BUT PRIOR TO MASTER PLAN DIVERSIONS
(INCLUDES POTENTIAL INTERIM FLOW FROM PORTION OF NW SERVICE AREA)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW)								
		RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
HERNDON SERVICE AREA										
RAW TOTALS	3,543.00	2.5390	65.11%	1.3603	34.89%	3.8993	2.9375	75.33%	0.9618	24.67%
CALIBRATION ADJUSTMENT							-30.26%		0.00%	
TOTALS AFTER ADJUSTMENT	3,543.00	2.0588	65.11%	1.1030	34.89%	3.1618	2.2000	69.58%	0.9618	30.42%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						2.8000	2.2000		0.6000	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.6000**	**0.0000**		**0.6000**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-0.3618**	**0.0000**		**-0.3618**	
FOWLER SERVICE AREA										
RAW TOTALS	7,189.51	5.4529	78.68%	1.4774	21.32%	6.9303	4.2272	61.00%	2.7031	39.00%
CALIBRATION ADJUSTMENT							-29.03%		0.00%	
TOTALS AFTER ADJUSTMENT	7,189.51	4.4873	78.68%	1.2158	21.32%	5.7031	3.0000	52.60%	2.7031	47.40%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						3.0000	3.0000		0.0000	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.0000**	**0.0000**		**0.0000**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-2.7031**	**0.0000**		**-2.7031**	
"PLANNED" CAPACITY IN REGIONAL SYSTEM						5.8979	3.0000		2.8979	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**+0.1948**	**+0.0000**		**+0.1948**	
SIERRA SERVICE AREA										
RAW TOTALS	412.74	0.2865	81.39%	0.0655	18.61%	0.3520	0.2779	78.93%	0.0742	21.08%
CALIBRATION ADJUSTMENT							-30.00%		0.00%	
TOTALS AFTER ADJUSTMENT	412.74	0.2187	81.39%	0.0500	18.61%	0.2687	0.1945	72.39%	0.0742	27.61%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						0.5000	0.1945		0.3055	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.3055**	**0.0000**		**0.3055**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**+0.2313**	**0.0000**		**+0.2313**	

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1A

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS BUT PRIOR TO MASTER PLAN DIVERSIONS
(INCLUDES POTENTIAL INTERIM FLOW FROM PORTION OF NW SERVICE AREA)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
PEACH SERVICE AREA										
RAW TOTALS	2,511.42	2.9679	73.10%	1.0922	26.90%	4.0601	3.5469	87.36%	0.5132	12.64%
CALIBRATION ADJUSTMENT							-26.13%		0.00%	
TOTALS AFTER ADJUSTMENT	2,511.42	2.2905	73.10%	0.8429	26.90%	3.1334	2.6202	83.62%	0.5132	16.38%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						3.0000	2.6202		0.3798	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.3798**	**0.0000**		**0.3798**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-0.1334**	**0.0000**		**-0.1334**	
NORTHWEST SERVICE AREA										
RAW TOTALS	2,544.07	1.9015	85.04%	0.3344	14.96%	2.2359	0.2363	10.57%	1.9996	89.43%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	2,544.07	1.9015	85.04%	0.3344	14.96%	2.2359	0.2363	10.57%	1.9996	89.43%
CURRENT CAPACITY IN CLOVIS ST/WRF						0.0000	0.0000		0.0000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**0.0000**	**0.0000**		**0.0000**	
PLANNED CAPACITY IN CLOVIS ST/WRF						2.2359	0.2363		1.9996	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	
NORTHEAST SERVICE AREA (FROM 1993 CLOVIS GENERAL PLAN)										
RAW TOTALS	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
ADJUSTMENT FOR CAPACITY LIMITATION IN CLOVIS ST/WRF						-0.4249	0.0000		-0.4249	
TOTALS AFTER ADJUSTMENT	5,014.00	2.0556	78.47%	0.5641	21.53%	2.6197	0.0000		2.6197	
CURRENT CAPACITY IN CLOVIS ST/WRF						0.0000	0.0000		0.0000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**0.0000**	**0.0000**		**0.0000**	
PLANNED CAPACITY IN CLOVIS ST/WRF						2.6197	0.0000		2.6197	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1A

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS BUT PRIOR TO MASTER PLAN DIVERSIONS
(INCLUDES POTENTIAL INTERIM FLOW FROM PORTION OF NW SERVICE AREA)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
SOUTHEAST SERVICE AREA										
RAW TOTALS	2,696.92	2.7553	77.74%	0.7891	22.26%	3.5444	0.0000	0.00%	3.5444	100.00%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	2,696.92	2.7553	77.74%	0.7891	22.26%	3.5444	0.0000	0.00%	3.5444	100.00%
CURRENT CAPACITY IN CLOVIS ST/WRF						2.8000	0.0000		2.8000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**2.8000**	**0.0000**		**2.8000**	
PLANNED CAPACITY IN CLOVIS ST/WRF						3.5444	0.0000		3.5444	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	0.0000		0.0000	
GRAND TOTALS										
RAW TOTALS	23,911.66	18.2921	76.01%	5.7745	23.99%	24.0666	11.2258	46.64%	12.8409	53.36%
CALIBRATION ADJUSTMENT							-26.50%		0.00%	
TOTALS AFTER ADJUSTMENT	23,911.66	15.7677	76.29%	4.8993	23.71%	20.6670	8.2510	39.92%	12.4160	60.08%
LESS POTENTIAL FOR INTERIM FLOW FROM PORTION OF NW SERVICE AREA INCLUDED IN HERNDON TRUNK SEWER CALCULATIONS	-266.55	-0.2815	100.00%	0.0000	0.00%	-0.2815	-0.1596	56.71%	-0.1219	43.29%
LESS POTENTIAL FOR INTERIM FLOW FROM PORTION OF NW SERVICE AREA INCLUDED IN FOWLER TRUNK SEWER CALCULATIONS	-94.15	-0.0803	93.26%	-0.0058	6.74%	-0.0861	-0.0766	89.01%	-0.0095	10.99%
CALIBRATION ADJUSTMENT						0.0715	0.0715		0.0000	
TOTALS AFTER ALL ADJUSTMENTS	**23,550.96**	**15.4059**	**75.63%**	**4.8935**	**24.02%**	**20.3709**	**8.0862**	**39.69%**	**12.2847**	**60.31%**

FLOW GENERATION CALCULATIONS
TABLE CLOVIS-SUMMARY-1A
SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS BUT PRIOR TO MASTER PLAN DIVERSIONS
(INCLUDES POTENTIAL INTERIM FLOW FROM PORTION OF NW SERVICE AREA)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
TOTALS TO REGIONAL SYSTEM										
TOTALS TO REGIONAL SYSTEM	**13,656.67**	**9.0553**	**73.39%**	**3.2117**	**26.03%**	**12.3385**	**8.0862**	**65.54%**	**4.2523**	**34.46%**
CURRENT ACQUIRED CAPACITY IN REGIONAL SYSTEM						9.3000	8.0147		1.2853	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**1.2138**	**0.0000**		**1.2138**	
CURRENT PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-3.0385**	**0.0000**		**-3.0385**	
"PLANNED" CAPACITY IN REGIONAL SYSTEM						12.1979	8.0862		4.1117	
PROJECTED UNUSED "PLANNED" CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-0.1406**	**0.0000**		**-0.1406**	
TOTALS TO CLOVIS ST/WRF										
TOTALS TO CLOVIS ST/WRF	**9,894.29**	**6.3506**	**79.06%**	**1.6818**	**20.94%**	**8.0324**	**0.0000**	**0.00%**	**8.0324**	**100.00%**
CURRENT ACQUIRED CAPACITY IN CLOVIS ST/WRF						2.8000	0.0000		2.8000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**2.8000**	**0.0000**		**2.8000**	
CURRENT PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**-5.2324**	**0.0000**		**-5.2324**	
"PLANNED" CAPACITY IN CLOVIS ST/WRF						8.4000	0.2363		8.1637	
PROJECTED UNUSED "PLANNED" CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.3676**	**0.2363**		**0.1313**	

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1B

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS AND AFTER MASTER PLAN DIVERSIONS
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
HERNDON SERVICE AREA										
RAW TOTALS	3,103.59	2.1459	61.99%	1.3158	38.01%	3.4616	2.6868	77.62%	0.7749	22.38%
CALIBRATION ADJUSTMENT							-30.26%		0.00%	
TOTALS AFTER ADJUSTMENT	3,103.59	1.7357	61.99%	1.0643	38.01%	2.8000	2.0251	72.33%	0.7749	27.68%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						2.8000	2.0251		0.7749	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.7749**	**0.0000**		**0.7749**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	
FOWLER SERVICE AREA										
RAW TOTALS	7,381.04	5.6151	78.27%	1.5588	21.73%	7.1740	4.3957	61.27%	2.7783	38.73%
CALIBRATION ADJUSTMENT							-29.03%		0.00%	
TOTALS AFTER ADJUSTMENT	7,381.04	4.6164	78.27%	1.2815	21.73%	5.8979	3.1196	52.89%	2.7783	47.11%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						3.0000	3.1196		-0.1196	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**-0.1196**	**0.0000**		**-0.1196**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-2.8979**	**0.0000**		**-2.8979**	
"PLANNED" CAPACITY IN REGIONAL SYSTEM						5.8979	3.1196		2.7783	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**+0.0000**	**+0.0000**		**+0.0000**	
SIERRA SERVICE AREA										
RAW TOTALS	412.74	0.2865	81.39%	0.0655	18.61%	0.3520	0.2779	78.93%	0.0742	21.07%
CALIBRATION ADJUSTMENT							-30.00%		0.00%	
TOTALS AFTER ADJUSTMENT	412.74	0.2187	81.39%	0.0500	18.61%	0.2687	0.1945	72.39%	0.0742	27.61%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						0.5000	0.1945		0.3055	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.3055**	**0.0000**		**0.3055**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**+0.2313**	**0.0000**		**+0.2313**	

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1B

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS AND AFTER MASTER PLAN DIVERSIONS
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
PEACH SERVICE AREA										
RAW TOTALS	2,398.60	2.8370	73.00%	1.0495	27.00%	3.8865	3.3929	87.30%	0.4936	12.70%
CALIBRATION ADJUSTMENT							-26.13%		0.00%	
TOTALS AFTER ADJUSTMENT	2,398.60	2.1899	73.00%	0.8101	27.00%	3.0000	2.5064	83.55%	0.4936	16.45%
ACQUIRED CAPACITY IN REGIONAL SYSTEM						3.0000	2.5064		0.4936	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**0.4936**	**0.0000**		**0.4936**	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	
NORTHWEST SERVICE AREA										
RAW TOTALS	2,544.07	1.9015	85.04%	0.3344	14.96%	2.2359	0.2363	10.57%	1.9996	89.43%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	2,544.07	1.9015	85.04%	0.3344	14.96%	2.2359	0.2363	10.57%	1.9996	89.43%
CURRENT CAPACITY IN CLOVIS ST/WRF						0.2363	0.2363		0.0000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**0.0000**	**0.0000**		**0.0000**	
PLANNED CAPACITY IN CLOVIS ST/WRF						2.2359	0.2363		1.9996	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1B

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS AND AFTER MASTER PLAN DIVERSIONS
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	AREA	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW)								
	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
NORTHEAST SERVICE AREA (FROM 1996 WWMP UPDATE)										
RAW TOTALS	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
ADJUSTMENT FOR CAPACITY LIMITATION IN CLOVIS ST/WRF						-0.4249	0.0000		-0.4249	
TOTALS AFTER ADJUSTMENT	5,014.00	2.0556	78.47%	0.5641	21.53%	2.6197	0.0000		2.6197	
CURRENT CAPACITY IN CLOVIS ST/WRF						0.0000	0.0000		0.0000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**0.0000**	**0.0000**		**0.0000**	
PLANNED CAPACITY IN CLOVIS ST/WRF						2.6197	0.0000		2.6197	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	
SOUTHEAST SERVICE AREA										
RAW TOTALS	2,696.92	2.7553	77.74%	0.7891	22.26%	3.5444	0.0000	0.00%	3.5444	100.00%
CALIBRATION ADJUSTMENT							0.00%		0.00%	
TOTALS AFTER ADJUSTMENT	2,696.92	2.7553	77.74%	0.7891	22.26%	3.5444	0.0000	0.00%	3.5444	100.00%
CURRENT CAPACITY IN CLOVIS ST/WRF						2.5637	0.0000		2.5637	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**2.5637**	**0.0000**		**2.5637**	
PLANNED CAPACITY IN CLOVIS ST/WRF						3.5444	0.0000		3.5444	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	0.0000		0.0000	
GRAND TOTALS										
RAW TOTALS	23,550.96	17.9303	75.66%	5.7687	24.34%	23.6990	10.9895	46.37%	12.7095	53.63%
CALIBRATION ADJUSTMENT							-26.46%		0.00%	
TOTALS AFTER ADJUSTMENT	**23,550.96**	**15.4731**	**75.97%**	**4.8935**	**24.03%**	**20.3666**	**8.0819**	**39.68%**	**12.2847**	**60.32%**

FLOW GENERATION CALCULATIONS

TABLE CLOVIS-SUMMARY-1B

SUMMARY OF MAJOR SERVICE AREAS

AFTER CALIBRATION OF DEVELOPED AREA FLOWS AND AFTER MASTER PLAN DIVERSIONS
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	AREA (ACRES)	PROJECTED FLOW GENERATION RATE (AVERAGE DAILY FLOW) RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
TOTALS TO REGIONAL SYSTEM										
TOTALS TO REGIONAL SYSTEM	**13,295.97**	**8.7607**	**73.21%**	**3.2059**	**26.79%**	**11.9666**	**7.8456**	**65.56%**	**4.1210**	**34.44%**
CURRENT ACQUIRED CAPACITY IN REGIONAL SYSTEM						9.3000	7.8456		1.4544	
CURRENT UNUSED CAPACITY IN REGIONAL SYSTEM						**1.4544**	**0.0000**		**1.4544**	
CURRENT PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**-2.6666**	**0.0000**		**-2.6666**	
"PLANNED" CAPACITY IN REGIONAL SYSTEM						12.1979	7.8456		4.3523	
PROJECTED UNUSED "PLANNED" CAPACITY IN REGIONAL SYSTEM AT BUILDOUT						**0.2313**	**0.0000**		**0.2313**	
TOTALS TO CLOVIS ST/WRF										
TOTALS TO CLOVIS ST/WRF	**10,254.99**	**6.7124**	**79.91%**	**1.6876**	**20.09%**	**8.4000**	**0.2363**		**8.1637**	
CURRENT ACQUIRED CAPACITY IN CLOVIS ST/WRF						2.8000	0.2363		2.5637	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF						**2.5637**	**0.0000**		**2.5637**	
CURRENT PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**-5.6000**	**0.0000**		**-5.6000**	
"PLANNED" CAPACITY IN CLOVIS ST/WRF						8.4000	0.2363		8.1637	
PROJECTED UNUSED "PLANNED" CAPACITY IN CLOVIS ST/WRF AT BUILDOUT						**0.0000**	**0.0000**		**0.0000**	

APPENDIX B

FLOW GENERATION AND HYDRAULIC CALCULATIONS

HERNDON SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE H-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

PRIOR TO DIVERSION OF PORTION OF SERVICE AREA TO FOWLER TRUNK SEWER SYSTEM
(INCLUDES INTERIM FLOW FROM PORTION OF NW SERVICE AREA W/O SUNNYSIDE AVE.)

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
TRIBUTARY AREA OF FUTURE PARTIAL DIVERSION TO FOWLER TRUNK SEWER FROM HERNDON AVE. SEWER AT CLOVIS AVE.	H45.12	H45.15	706.39	0.4562	71.48%	0.1820	28.52%	0.6382	0.3722	58.32%	0.2660	41.68%
INTERIM FLOW FROM NW SERVICE AREA	H101.A		266.55	0.2815	100.00%	0.0000	0.00%	0.2815	0.1596	56.71%	0.1219	43.29%
MINOR LINES DISCHARGING TO HERNDON AVE. SEWER W/O CLOVIS AVE. & E/O VILLA AVE.	H03.20		103.67	0.0000	0.00%	0.1076	100.00%	0.1076	0.0492	45.74%	0.0584	54.26%
MINNEWAWA AVE. SEWER N/O HERNDON AVE.	H04.06	H47.14	846.78	0.4580	41.55%	0.6442	58.45%	1.1022	0.9683	87.85%	0.1339	12.15%
VILLA SEWER S/O HERNDON	H04.07	H04.01	727.54	0.6138	74.67%	0.2082	25.33%	0.8220	0.6979	84.91%	0.1241	15.09%
PEACH SEWER N/O HERNDON	H05.02	H47.02	236.26	0.1581	68.77%	0.0718	31.23%	0.2299	0.1826	79.43%	0.0473	20.57%
WILLOW AVE. SEWER N/O HERNDON AVE.	H06.01	H48.51	655.81	0.5714	79.59%	0.1465	20.41%	0.7179	0.5076	70.71%	0.2103	29.29%
TOTAL	**HTS**	**H06.01**	**3,543.00**	**2.5390**	**65.11%**	**1.3603**	**34.89%**	**3.8993**	**2.9375**	**75.33%**	**0.9618**	**24.67%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
LESS WAWONA FROZEN FOODS ALLOCATION	H47.28			0.0000	0.00%	0.5000	100.00%	0.5000	0.5000	100.00%	0.0000	0.00%
NET TOTAL NOT INCLUDING WAWONA FROZEN FOODS ALLOCATION	**HTS**	**H06.01**		**2.5390**	**74.69%**	**0.8603**	**25.31%**	**3.3993**	**2.4375**	**71.71%**	**0.9618**	**28.29%**
2007 METERED FLOW LESS WAWONA METERED FLOW (ROUNDED)									1.7000			
DIFFERENCE									0.7375			
% VARIANCE FROM METERED FLOW									**+30.26%**	TO BE APPLIED TO TOTAL DEVELOPED FLOW LESS		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	HTS	H06.01							-30.26%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**HTS**	**H06.01**	**3,543.00**	**2.0588**	**65.11%**	**1.1030**	**34.89%**	**3.1618**	**2.2000**	**69.58%**	**0.9618**	**30.42%**
PURCHASED CAPACITY IN REGIONAL SYSTEM								2.8000	2.2000		0.6000	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**-0.3618**	0.0000		-0.3618	

FLOW GENERATION CALCULATIONS

TABLE H-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

AFTER DIVERSION OF PORTION OF SERVICE AREA TO FOWLER TRUNK SEWER SYSTEM
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
TRIBUTARY AREA OF FUTURE PARTIAL DIVERSION TO FOWLER TRUNK SEWER FROM HERNDON AVE. SEWER AT CLOVIS AVE.	H45.12	H45.15	706.39	0.4562	71.48%	0.1820	28.52%	0.6382	0.3722	58.32%	0.2660	41.68%
LESS FUTURE DIVERSION OF FLOW TO FOWLER TRUNK SEWER (USING HERNDON/CLOVIS PUMP STATION)	**PS**		**-172.86**	**-0.1116**	**71.48%**	**-0.0445**	**28.52%**	**-0.1562**	**-0.0911**	**58.32%**	**-0.0651**	**41.68%**
MINOR LINES DISCHARGING TO HERNDON AVE. SEWER W/O CLOVIS AVE. & E/O VILLA AVE.	H03.20		103.67	0.0000	0.00%	0.1076	100.00%	0.1076	0.0492	45.74%	0.0584	54.26%
MINNEWAWA AVE. SEWER N/O HERNDON AVE.	H04.06	H47.14	846.78	0.4580	41.55%	0.6442	58.45%	1.1022	0.9683	87.85%	0.1339	12.15%
VILLA SEWER S/O HERNDON	H04.07	H04.01	727.54	0.6138	74.67%	0.2082	25.33%	0.8220	0.6979	84.91%	0.1241	15.09%
PEACH SEWER N/O HERNDON	H05.02	H47.02	236.26	0.1581	68.77%	0.0718	31.23%	0.2299	0.1826	79.43%	0.0473	20.57%
WILLOW AVE. SEWER N/O HERNDON AVE.	H06.01	H48.51	655.81	0.5714	79.59%	0.1465	20.41%	0.7179	0.5076	70.71%	0.2103	29.29%
TOTAL	**HTS**	**H06.01**	**3,103.59**	**2.1459**	**61.99%**	**1.3158**	**38.01%**	**3.4616**	**2.6868**	**77.62%**	**0.7749**	**22.38%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
LESS WAWONA FROZEN FOODS ALLOCATION (DURING MONTHS WHEN THEIR DISCHARGE IS NEGLIGIBLE)	H47.28			0.0000	0.00%	0.5000	100.00%	0.5000	0.5000	100.00%	0.0000	0.00%
NET TOTAL DURING MONTHS WHEN DISCHARGE FROM WAWONA FROZEN FOODS IS NEGLIGIBLE	**HTS**	**H06.01**		**2.1459**	**72.46%**	**0.8158**	**27.54%**	**2.9616**	**2.1868**	**73.84%**	**0.7749**	**26.16%**
% VARIANCE FROM METERED FLOW									**+30.26%**	TO BE APPLIED TO TOTAL DEVELOPED FLOW LESS WAWONA ALLOCATION		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	HTS	H06.01							-30.26%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**HTS**	**H06.01**	**3,103.59**	**1.7357**	**61.99%**	**1.0643**	**38.01%**	**2.8000**	**2.0251**	**72.33%**	**0.7749**	**27.68%**
PURCHASED CAPACITY IN REGIONAL SYSTEM								2.8000	2.0251		0.7749	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**0.0000**	0.0000		0.0000	

FLOW GENERATION CALCULATIONS

TABLE H-FG-1

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE																				
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN N/O HERNDON AVENUE)																				
H55.55	55.55	107	R1-7500	7.18		0.000864 MGD/ACRE		270	0.0062		NA NA	0.0000	0.0062		0%	0.0000		100%	0.0062	
H55.55	55.55	150	COMM	3.62		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0051	0.0051		0%	0.0000		100%	0.0051	
H55.55	55.55	106	L-RES	3.98		0.000729 MGD/ACRE		270	0.0029		NA NA	0.0000	0.0029		0%	0.0000		100%	0.0029	
H55.55	55.55	99	EX-SFR	6.58		0.000270 MGD/UNIT	29	270	0.0078		NA NA	0.0000	0.0078		0%	0.0000		100%	0.0078	
H55.55	55.55	99	EX-SFR	19.97		0.000270 MGD/UNIT	71	270	0.0192		NA NA	0.0000	0.0192		100%	0.0192		0%	0.0000	
H55.55	55.55	99	EX-SFR	9.99		0.000270 MGD/UNIT	30	270	0.0081		NA NA	0.0000	0.0081		100%	0.0081		0%	0.0000	
H55.55	55.55	99	EX-SFR	11.81		0.000270 MGD/UNIT	39	270	0.0105		NA NA	0.0000	0.0105		100%	0.0105		0%	0.0000	
H55.55	55.55	106	L-RES	2.64		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H55.55	**NODE TOTAL**			**65.77**	**65.77**				**0.0566**			**0.0051**	**0.0617**	**0.0617**		**0.0378**	**0.0378**		**0.0239**	**0.0239**
H56.55	56.55	99	EX-SFR	6.20		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		100%	0.0046		0%	0.0000	
H56.55	56.55	106	L-RES	21.69		0.000729 MGD/ACRE		270	0.0158		NA NA	0.0000	0.0158		0%	0.0000		100%	0.0158	
H56.55	**NODE TOTAL**			**27.89**	**27.89**				**0.0204**			**0.0000**	**0.0204**	**0.0204**		**0.0046**	**0.0046**		**0.0158**	**0.0158**
H43.A	43.A	106	L-RES	3.40		0.000729 MGD/ACRE		270	0.0025		NA NA	0.0000	0.0025		100%	0.0025		0%	0.0000	
H43.A	43.A	121	MH-RES	13.91		0.002244 MGD/ACRE		270	0.0312		NA NA	0.0000	0.0312		90%	0.0281		10%	0.0031	
H43.A	43.A	170	OPEN	3.30		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H43.A	43.A	170	OPEN	11.56		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H43.A	43.A	106	L-RES	3.75		0.000729 MGD/ACRE		270	0.0027		NA NA	0.0000	0.0027		0%	0.0000		100%	0.0027	
H43.A	**NODE TOTAL**			**35.92**	**35.92**				**0.0364**			**0.0000**	**0.0364**	**0.0364**		**0.0306**	**0.0306**		**0.0058**	**0.0058**
H55.43	55.43	99	EX-SFR	73.48		0.000270 MGD/UNIT	231	270	0.0624		NA NA	0.0000	0.0624		100%	0.0624		0%	0.0000	
H55.43	55.43	170	OPEN	9.03		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H55.43	55.43	106	L-RES	2.73		0.000729 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		0%	0.0000		100%	0.0020	
H55.43	55.43	121	MH-RES	5.12		0.002244 MGD/ACRE		270	0.0115		NA NA	0.0000	0.0115		0%	0.0000		100%	0.0115	
H55.43	55.43	107	R1-7500	9.90		0.000864 MGD/ACRE		270	0.0086		NA NA	0.0000	0.0086		0%	0.0000		100%	0.0086	
H55.43	**NODE TOTAL**			**100.26**	**229.84**				**0.0845**			**0.0000**	**0.0845**	**0.2030**		**0.0624**	**0.1354**		**0.0221**	**0.0676**
H55.02	55.02	106	L-RES	14.67		0.000729 MGD/ACRE		270	0.0107		NA NA	0.0000	0.0107		0%	0.0000		100%	0.0107	
H55.02	55.02	99	EX-SFR	43.04		0.000270 MGD/UNIT	174	270	0.0470		NA NA	0.0000	0.0470		100%	0.0470		0%	0.0000	
H55.02	55.02	99	EX-SFR	3.86		0.000270 MGD/UNIT	11	270	0.0030		NA NA	0.0000	0.0030		0%	0.0000		100%	0.0030	
H55.02	55.02	99	EX-SFR	4.81		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		20%	0.0009		80%	0.0037	
H55.02	55.02	190	EL-SCH	13.08		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
H55.02	55.02	106	L-RES	2.38		0.000729 MGD/ACRE		270	0.0017		NA NA	0.0000	0.0017		0%	0.0000		100%	0.0017	
H55.02	**NODE TOTAL**			**81.84**	**81.84**				**0.0670**			**0.0041**	**0.0711**	**0.0711**		**0.0520**	**0.0520**		**0.0191**	**0.0191**
H55.01	55.01	170	OPEN	73.01		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H55.01	55.01	99	EX-SFR	25.41		0.000270 MGD/UNIT	94	270	0.0254		NA NA	0.0000	0.0254		100%	0.0254		0%	0.0000	
H55.01	55.01	107	R1-7500	14.63		0.000864 MGD/ACRE		270	0.0126		NA NA	0.0000	0.0126		0%	0.0000		100%	0.0126	
H55.01	**NODE TOTAL**			**113.05**	**424.73**				**0.0380**			**0.0000**	**0.0380**	**0.3121**		**0.0254**	**0.2128**		**0.0126**	**0.0993**
H45.05	45.05	170	OPEN	39.97		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H45.05																				
H45.05	**NODE TOTAL**			**39.97**	**39.97**				**0.0000**			**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**
H45.03	45.03	99	EX-SFR	2.43		0.000270 MGD/UNIT	7	270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H45.03	45.03	99	EX-SFR	62.11		0.000270 MGD/UNIT	218	270	0.0589		NA NA	0.0000	0.0589		100%	0.0589		0%	0.0000	
H45.03	45.03	106	L-RES	2.55		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H45.03	**NODE TOTAL**			**67.09**	**531.79**				**0.0627**			**0.0000**	**0.0627**	**0.3748**		**0.0589**	**0.2717**		**0.0038**	**0.1031**

FLOW GENERATION CALCULATIONS

TABLE H-FG-1

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE																				
H45.06	45.06	130	OFFICE	6.92		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0083	0.0083		0%	0.0000		100%	0.0083	
H45.06	45.06	121	MH-RES	12.18		0.002244 MGD/ACRE		270	0.0273		NA NA	0.0000	0.0273		100%	0.0273		0%	0.0000	
H45.06	45.06	130	OFFICE	2.22		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0027	0.0027		100%	0.0027		0%	0.0000	
H45.06	**NODE TOTAL**			**21.32**	**21.32**				**0.0273**			**0.0110**	**0.0383**	**0.0383**		**0.0300**	**0.0300**		**0.0083**	**0.0083**
H45.09	**NODE TOTAL**				**553.11**									**0.4131**			**0.3017**			**0.1114**
H45.16	45.16	150	COMM	7.88		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0110	0.0110		100%	0.0110		0%	0.0000	
H45.16																				
H45.16	**NODE TOTAL**			**7.88**	**560.99**				**0.0000**			**0.0110**	**0.0110**	**0.4241**		**0.0110**	**0.3127**		**0.0000**	**0.1114**
(AREAS TRIBUTARY TO HERNDON AVENUE SEWER MAIN E/O CLOVIS AVENUE)																				
H44.04	44.04	99	EX-SFR	28.70		0.000270 MGD/UNIT	110	270	0.0297		NA NA	0.0000	0.0297		100%	0.0297		0%	0.0000	
H44.04	44.04	150	COMM	20.48		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0287	0.0287		5%	0.0014		95%	0.0273	
H44.04	**NODE TOTAL**			**49.18**	**49.18**				**0.0297**			**0.0287**	**0.0584**	**0.0584**		**0.0311**	**0.0311**		**0.0273**	**0.0273**
H44.02	**NODE TOTAL**				**49.18**									**0.0584**			**0.0311**			**0.0273**
H44.01	44.01	150	COMM	43.80		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0613	0.0613		5%	0.0031		95%	0.0582	
H44.01																				
H44.01	**NODE TOTAL**			**43.80**	**92.98**				**0.0000**			**0.0613**	**0.0613**	**0.1197**		**0.0031**	**0.0342**		**0.0582**	**0.0855**
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN S/O HERNDON AVENUE)																				
H03.29	03.29	122	H-RES	8.94		0.003762 MGD/ACRE		270	0.0336		NA NA	0.0000	0.0336		0%	0.0000		100%	0.0336	
H03.29	03.29	150	COMM	20.60		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0288	0.0288		10%	0.0029		90%	0.0259	
H03.29	**NODE TOTAL**			**29.54**	**29.54**				**0.0336**			**0.0288**	**0.0624**	**0.0624**		**0.0029**	**0.0029**		**0.0595**	**0.0595**
H03.27	03.27	150	COMM	22.88		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0320	0.0320		70%	0.0224		30%	0.0096	
H03.27																				
H03.27	**NODE TOTAL**			**22.88**	**52.42**				**0.0000**			**0.0320**	**0.0320**	**0.0944**		**0.0224**	**0.0253**		**0.0096**	**0.0691**
(HERNDON AVENUE SEWER MAIN AT INTERSECTION WITH CLOVIS AVENUE)																				
H45.13	**NODE TOTAL**				**145.40**									**0.2141**			**0.0595**			**0.1546**
H45.15	**NODE TOTAL**				**706.39**									**0.6382**			**0.3722**			**0.2660**
H45.12	**NODE TOTAL**				**706.39**									**0.6382**			**0.3722**			**0.2660**
TOTALS THIS SHEET									**0.4562**			**0.1820**		**0.6382**			**0.3722**			**0.2660**
%									**71.48%**			**28.52%**		**100.00%**			**58.32%**			**41.68%**

FLOW GENERATION CALCULATIONS

TABLE H-FG-2

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO MINNEWAWA AVENUE SEWER MAIN NORTH OF HERNDON AVENUE																				
H103.06	103.06	99	EX-SFR	27.32		0.000270 MGD/UNIT	78	270	0.0211		NA NA	0.0000	0.0211		90%	0.0190		10%	0.0021	
H103.06	103.06	190	EL-SCH	18.62		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		100%	0.0045		0%	0.0000	
H103.06	103.06	99	EX-SFR	67.32		0.000270 MGD/UNIT	196	270	0.0529		NA NA	0.0000	0.0529		90%	0.0476		10%	0.0053	
H103.06	**NODE TOTAL**			**113.26**	**113.26**				**0.0740**			**0.0045**	**0.0785**	**0.0785**		**0.0711**	**0.0711**		**0.0074**	**0.0074**
H76.17	76.17	99	EX-SFR	90.67		0.000270 MGD/UNIT	246	270	0.0664		NA NA	0.0000	0.0664		100%	0.0664		0%	0.0000	
H76.17																				
H76.17	**NODE TOTAL**			**90.67**	**203.93**				**0.0664**			**0.0000**	**0.0664**	**0.1449**		**0.0664**	**0.1375**		**0.0000**	**0.0074**
H76.A	76.A	107	R1-7500	18.58		0.000864 MGD/ACRE		270	0.0161		NA NA	0.0000	0.0161		0%	0.0000		100%	0.0161	
H76.A																				
H76.A	**NODE TOTAL**			**18.58**	**222.51**				**0.0161**			**0.0000**	**0.0161**	**0.1610**		**0.0000**	**0.1375**		**0.0161**	**0.0235**
H54.A	54.A	107	R1-7500	28.61		0.000864 MGD/ACRE		270	0.0247		NA NA	0.0000	0.0247		0%	0.0000		100%	0.0247	
H54.A																				
H54.A	**NODE TOTAL**			**28.61**	**28.61**				**0.0247**			**0.0000**	**0.0247**	**0.0247**		**0.0000**	**0.0000**		**0.0247**	**0.0247**
H76.B	76.B	107	R1-7500	26.34		0.000864 MGD/ACRE		270	0.0228		NA NA	0.0000	0.0228		0%	0.0000		100%	0.0228	
H76.B	76.B	121	MH-RES	11.17		0.002244 MGD/ACRE		270	0.0251		NA NA	0.0000	0.0251		0%	0.0000		100%	0.0251	
H76.B	**NODE TOTAL**			**37.51**	**66.12**				**0.0479**			**0.0000**	**0.0479**	**0.0726**		**0.0000**	**0.0000**		**0.0479**	**0.0726**
H75.03	75.03	192	HI-SCH	54.00		NA NA		270	0.0000	2,950	0.000016 MGD/STUDENT	0.0472	0.0472		100%	0.0472		0%	0.0000	
H75.03	75.03	191	MI-SCH	54.00		NA NA		270	0.0000	1,700	0.000014 MGD/STUDENT	0.0238	0.0238		100%	0.0238		0%	0.0000	
H75.03	75.03	190	EL-SCH	52.76		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
H75.03	**NODE TOTAL**			**160.76**	**160.76**				**0.0000**			**0.0751**	**0.0751**	**0.0751**		**0.0751**	**0.0751**		**0.0000**	**0.0000**
H76.01	**NODE TOTAL**				**449.39**									**0.3087**			**0.2126**			**0.0961**
H53.61	53.61	99	EX-SFR	79.52		0.000270 MGD/UNIT	216	270	0.0583		NA NA	0.0000	0.0583		100%	0.0583		0%	0.0000	
H53.61																				
H53.61	**NODE TOTAL**			**79.52**	**528.91**				**0.0583**			**0.0000**	**0.0583**	**0.3670**		**0.0583**	**0.2709**		**0.0000**	**0.0961**
H53.44	53.44	99	EX-SFR	13.47		0.000270 MGD/UNIT	45	270	0.0122		NA NA	0.0000	0.0122		100%	0.0122		0%	0.0000	
H53.44																				
H53.44	**NODE TOTAL**			**13.47**	**542.38**				**0.0122**			**0.0000**	**0.0122**	**0.3792**		**0.0122**	**0.2831**		**0.0000**	**0.0961**
H53.15	**NODE TOTAL**				**0.00**									**0.0000**			**0.0000**			**0.0000**
H53.14	53.14	170	OPEN	19.39		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H53.14	53.14	99	EX-SFR	7.69		0.000270 MGD/UNIT	20	270	0.0054		NA NA	0.0000	0.0054		100%	0.0054		0%	0.0000	
H53.14	**NODE TOTAL**			**27.08**	**27.08**				**0.0054**			**0.0000**	**0.0054**	**0.0054**		**0.0054**	**0.0054**		**0.0000**	**0.0000**
H53.11	53.11	99	EX-SFR	5.81		0.000270 MGD/UNIT	10	270	0.0027		NA NA	0.0000	0.0027		100%	0.0027		0%	0.0000	
H53.11	53.11	170	OPEN	32.16		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H53.11	**NODE TOTAL**			**37.97**	**65.05**				**0.0027**			**0.0000**	**0.0027**	**0.0081**		**0.0027**	**0.0081**		**0.0000**	**0.0000**

FLOW GENERATION CALCULATIONS

TABLE H-FG-2

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO MINNEWAWA AVENUE SEWER MAIN NORTH OF HERNDON AVENUE																				
H53.36	53.36	99	EX-SFR	12.03		0.000270 MGD/UNIT	42	270	0.0113		NA NA	0.0000	0.0113		50%	0.0057		50%	0.0057	
H53.36																				
H53.36	**NODE TOTAL**			**12.03**	**12.03**				**0.0113**			**0.0000**	**0.0113**	**0.0113**		**0.0057**	**0.0057**		**0.0057**	**0.0057**
H53.22	53.22	99	EX-SFR	74.51		0.000270 MGD/UNIT	256	270	0.0691		NA NA	0.0000	0.0691		100%	0.0691		0%	0.0000	
H53.22																				
H53.22	**NODE TOTAL**			**74.51**	**86.54**				**0.0691**			**0.0000**	**0.0691**	**0.0804**		**0.0691**	**0.0748**		**0.0000**	**0.0057**
H53.08	**NODE TOTAL**				**151.59**									**0.0885**			**0.0829**			**0.0057**
H46.20	46.20	99	EX-SFR	18.71		0.000270 MGD/UNIT	56	270	0.0151		NA NA	0.0000	0.0151		100%	0.0151		0%	0.0000	
H46.20																				
H46.20	**NODE TOTAL**			**18.71**	**170.30**				**0.0151**			**0.0000**	**0.0151**	**0.1036**		**0.0151**	**0.0980**		**0.0000**	**0.0057**
H52.92	52.92	99	EX-SFR	40.79		0.000270 MGD/UNIT	132	270	0.0356		NA NA	0.0000	0.0356		100%	0.0356		0%	0.0000	
H52.92	52.92	140	INDUST	10.57		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0106	0.0106		0%	0.0000		100%	0.0106	
H52.92	**NODE TOTAL**			**51.36**	**51.36**				**0.0356**			**0.0106**	**0.0462**	**0.0462**		**0.0356**	**0.0356**		**0.0106**	**0.0106**
H47.25	**NODE TOTAL**				**764.04**									**0.5290**			**0.4167**			**0.1124**
H47.28	47.28	NA	FRUIT PR.	9.45		NA NA			0.0000		ALLOCATION →	0.5000	0.5000		100%	0.5000		0%	0.0000	
H47.28																				
H47.28	**NODE TOTAL**			**9.45**	**9.45**				**0.0000**			**0.5000**	**0.5000**	**0.5000**		**0.5000**	**0.5000**		**0.0000**	**0.0000**
H47.23	**NODE TOTAL**				**773.49**									**1.0290**			**0.9167**			**0.1124**
H46.27	46.27	99	EX-SFR	25.73		0.000270 MGD/UNIT	71	270	0.0192		NA NA	0.0000	0.0192		100%	0.0192		0%	0.0000	
H46.27																				
H46.27	**NODE TOTAL**			**25.73**	**799.22**				**0.0192**			**0.0000**	**0.0192**	**1.0482**		**0.0192**	**0.9359**		**0.0000**	**0.1124**
H47.22	47.22	150	COMM	12.83		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0180	0.0180		60%	0.0108		40%	0.0072	
H47.22																				
H47.22	**NODE TOTAL**			**12.83**	**812.05**				**0.0000**			**0.0180**	**0.0180**	**1.0662**		**0.0108**	**0.9467**		**0.0072**	**0.1196**
H47.17	47.17	140	INDUST	28.68		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0287	0.0287		50%	0.0144		50%	0.0144	
H47.17																				
H47.17	**NODE TOTAL**			**28.68**	**840.73**				**0.0000**			**0.0287**	**0.0287**	**1.0949**		**0.0144**	**0.9610**		**0.0144**	**0.1339**
H47.14	47.14	130	OFFICE	6.05		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0073	0.0073		100%	0.0073		0%	0.0000	
H47.14																				
H47.14	**NODE TOTAL**			**6.05**	**846.78**		**1,368**		**0.0000**			**0.0073**	**0.0073**	**1.1022**		**0.0073**	**0.9683**		**0.0000**	**0.1339**
TOTALS THIS SHEET									**0.4580**			**0.6442**		**1.1022**			**0.9683**			**0.1339**
%									**41.55%**			**58.45%**		**100.00%**			**87.85%**			**12.15%**

FLOW GENERATION CALCULATIONS

TABLE H-FG-3

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O HERNDON AVENUE																				
(AREAS TRIBUTARY TO 5TH STREET SEWER MAIN E/O WOODWORTH/DEWITT ALLEY)																				
H11.62	11.62	121	MH-RES	1.27		0.002244 MGD/ACRE		270	0.0028		NA NA	0.0000	0.0028		100%	0.0028		0%	0.0000	
H11.62	11.62	120	M-RES	0.56		0.001107 MGD/ACRE		270	0.0006		NA NA	0.0000	0.0006		100%	0.0006		0%	0.0000	
H11.62	11.62	130	OFFICE	20.02		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0240	0.0240		100%	0.0240		0%	0.0000	
H11.62	11.62	120	M-RES	3.06		0.001107 MGD/ACRE		270	0.0034		NA NA	0.0000	0.0034		75%	0.0026		25%	0.0009	
H11.62	11.62	99	EX-SFR	7.13		0.000270 MGD/UNIT	23	270	0.0062		NA NA	0.0000	0.0062		100%	0.0062		0%	0.0000	
H11.62	11.62	191	MI-SCH	24.02		NA NA		270	0.0000	1,200	0.000014 MGD/STUDENT	0.0168	0.0168		100%	0.0168		0%	0.0000	
H11.62	11.62	121	MH-RES	1.67		0.002244 MGD/ACRE		270	0.0037		NA NA	0.0000	0.0037		100%	0.0037		0%	0.0000	
H11.62	**NODE TOTAL**			**57.73**	**57.73**				**0.0167**			**0.0408**	**0.0575**	**0.0575**		**0.0567**	**0.0567**		**0.0009**	**0.0009**
H11.16	11.16	99	EX-SFR	68.82		0.000270 MGD/UNIT	244	270	0.0659		NA NA	0.0000	0.0659		100%	0.0659		0%	0.0000	
H11.16	11.16	150	COMM	0.72		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0010	0.0010		100%	0.0010		0%	0.0000	
H11.16	11.16	122	H-RES	1.99		0.003762 MGD/ACRE		270	0.0075		NA NA	0.0000	0.0075		100%	0.0075		0%	0.0000	
H11.16	11.16	121	MH-RES	4.12		0.002244 MGD/ACRE		270	0.0092		NA NA	0.0000	0.0092		5%	0.0005		95%	0.0087	
H11.16	11.16	122	H-RES	4.61		0.003762 MGD/ACRE		270	0.0173		NA NA	0.0000	0.0173		50%	0.0087		50%	0.0087	
H11.16	11.16	150	COMM	4.47		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0063	0.0063		5%	0.0003		95%	0.0060	
H11.16	11.16	122	H-RES	2.20		0.003762 MGD/ACRE		270	0.0083		NA NA	0.0000	0.0083		85%	0.0071		15%	0.0012	
H11.16	11.16	130	OFFICE	3.98		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0048	0.0048		100%	0.0048		0%	0.0000	
H11.16	**NODE TOTAL**			**90.91**	**90.91**				**0.1082**			**0.0121**	**0.1203**	**0.1203**		**0.0957**	**0.0957**		**0.0246**	**0.0246**
H11.66	11.66	150	COMM	15.07		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0211	0.0211		90%	0.0190		10%	0.0021	
H11.66	11.66	125	HOTEL	1.25		0.000150 MGD/ROOM	58	150	0.0087		NA NA	0.0000	0.0087		100%	0.0087		0%	0.0000	
H11.66	11.66	125	HOTEL	2.50		0.000150 MGD/ROOM	55	150	0.0083		NA NA	0.0000	0.0083		100%	0.0083		0%	0.0000	
H11.66	11.66	191	MI-SCH	2.63		NA NA		270	0.0000	150	0.000014 MGD/STUDENT	0.0021	0.0021		100%	0.0021		0%	0.0000	
H11.66	**NODE TOTAL**			**21.45**	**170.09**				**0.0170**			**0.0232**	**0.0402**	**0.2180**		**0.0381**	**0.1904**		**0.0021**	**0.0276**
H10.56	10.56	170	OPEN	2.26		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H10.56	10.56	120	M-RES	5.83		0.001107 MGD/ACRE		270	0.0065		NA NA	0.0000	0.0065		100%	0.0065		0%	0.0000	
H10.56	10.56	122	H-RES	2.19		0.003762 MGD/ACRE		270	0.0082		NA NA	0.0000	0.0082		100%	0.0082		0%	0.0000	
H10.56	10.56	120	M-RES	5.97		0.001107 MGD/ACRE		270	0.0066		NA NA	0.0000	0.0066		100%	0.0066		0%	0.0000	
H10.56	10.56	150	COMM	33.04		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0463	0.0463		100%	0.0463		0%	0.0000	
H10.56	**NODE TOTAL**			**49.29**	**219.38**				**0.0213**			**0.0463**	**0.0676**	**0.2856**		**0.0676**	**0.2580**		**0.0000**	**0.0276**
(AREAS TRIBUTARY TO SEWER MAIN IN WOODWORTH/DEWITT ALLEY)																				
H02.03	02.03	99	EX-SFR	19.38		0.000270 MGD/UNIT	80	270	0.0216		NA NA	0.0000	0.0216		100%	0.0216		0%	0.0000	
H02.03	02.03	130	OFFICE	2.59		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0031	0.0031		15%	0.0005		85%	0.0026	
H02.03	02.03	125	HOTEL	2.46		0.000150 MGD/ROOM	77	150	0.0116		NA NA	0.0000	0.0116		0%	0.0000		100%	0.0116	
H02.03	02.03	150	COMM	15.63		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0219	0.0219		15%	0.0033		85%	0.0186	
H02.03	**NODE TOTAL**			**40.06**	**40.06**				**0.0332**			**0.0250**	**0.0582**	**0.0582**		**0.0254**	**0.0254**		**0.0329**	**0.0329**
H02.31	02.31	99	EX-SFR	53.67		0.000270 MGD/UNIT	231	270	0.0624		NA NA	0.0000	0.0624		100%	0.0624		0%	0.0000	
H02.31	02.31	170	OPEN	8.46		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H02.31	02.31	150	COMM	3.40		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0048	0.0048		100%	0.0048		0%	0.0000	
H02.31	**NODE TOTAL**			**65.53**	**65.53**				**0.0624**			**0.0048**	**0.0672**	**0.0672**		**0.0672**	**0.0672**		**0.0000**	**0.0000**

FLOW GENERATION CALCULATIONS

TABLE H-FG-3

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O HERNDON AVENUE																				
(AREAS TRIBUTARY TO 5TH STREET SEWER MAIN E/O WOODWORTH/DEWITT ALLEY)																				
H02.06	02.06	150	COMM	2.27		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0032	0.0032		80%	0.0026		20%	0.0006	
H02.06																				
H02.06	**NODE TOTAL**			**2.27**	**107.86**				**0.0000**			**0.0032**	**0.0032**	**0.1286**		**0.0026**	**0.0951**		**0.0006**	**0.0335**
H03.04	03.04	99	EX-SFR	11.81		0.000270 MGD/UNIT	37	270	0.0100		NA NA	0.0000	0.0100		100%	0.0100		0%	0.0000	
H03.04	03.04	121	MH-RES	1.31		0.002244 MGD/ACRE		270	0.0029		NA NA	0.0000	0.0029		100%	0.0029		0%	0.0000	
H03.04	**NODE TOTAL**			**13.12**	**120.98**				**0.0129**			**0.0000**	**0.0129**	**0.1415**		**0.0129**	**0.1080**		**0.0000**	**0.0335**
H03.16	03.16	99	EX-SFR	6.43		0.000270 MGD/UNIT	24	270	0.0065		NA NA	0.0000	0.0065		100%	0.0065		0%	0.0000	
H03.16	03.16	121	MH-RES	1.45		0.002244 MGD/ACRE		270	0.0033		NA NA	0.0000	0.0033		100%	0.0033		0%	0.0000	
H03.16	03.16	130	OFFICE	9.34		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0112	0.0112		100%	0.0112		0%	0.0000	
H03.16	**NODE TOTAL**			**17.22**	**138.20**				**0.0098**			**0.0112**	**0.0210**	**0.1625**		**0.0210**	**0.1290**		**0.0000**	**0.0335**
H10.75	10.75	99	EX-SFR	10.84		0.000270 MGD/UNIT	30	270	0.0081		NA NA	0.0000	0.0081		95%	0.0077		5%	0.0004	
H10.75																				
H10.75	**NODE TOTAL**			**10.84**	**149.04**				**0.0081**			**0.0000**	**0.0081**	**0.1706**		**0.0077**	**0.1367**		**0.0004**	**0.0339**
H10.15	10.15	99	EX-SFR	3.45		0.000270 MGD/UNIT	12	270	0.0032		NA NA	0.0000	0.0032		100%	0.0032		0%	0.0000	
H10.15	10.15	190	EL-SCH	13.15		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
H10.15	**NODE TOTAL**			**16.60**	**165.64**				**0.0032**			**0.0041**	**0.0073**	**0.1779**		**0.0073**	**0.1440**		**0.0000**	**0.0339**
H10.16	10.16	99	EX-SFR	3.39		0.000270 MGD/UNIT	13	270	0.0035		NA NA	0.0000	0.0035		100%	0.0035		0%	0.0000	
H10.16																				
H10.16	**NODE TOTAL**			**3.39**	**169.03**				**0.0035**			**0.0000**	**0.0035**	**0.1814**		**0.0035**	**0.1475**		**0.0000**	**0.0339**
H10.17	10.17	99	EX-SFR	3.34		0.000270 MGD/UNIT	11	270	0.0030		NA NA	0.0000	0.0030		100%	0.0030		0%	0.0000	
H10.17																				
H10.17	**NODE TOTAL**			**3.34**	**172.37**				**0.0030**			**0.0000**	**0.0030**	**0.1844**		**0.0030**	**0.1505**		**0.0000**	**0.0339**
(AREAS TRIBUTARY TO SIERRA AVENUE SEWER MAIN E/O VILLA AVENUE)																				
H10.52	10.52	99	EX-SFR	38.55		0.000270 MGD/UNIT	156	270	0.0421		NA NA	0.0000	0.0421		95%	0.0400		5%	0.0021	
H10.52	10.52	121	MH-RES	0.55		0.002244 MGD/ACRE		270	0.0012		NA NA	0.0000	0.0012		100%	0.0012		0%	0.0000	
H10.52	10.52	150	COMM	0.47		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0007	0.0007		100%	0.0007		0%	0.0000	
H10.52	10.52	130	OFFICE	0.74		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0009	0.0009		100%	0.0009		0%	0.0000	
H10.52	10.52	150	COMM	3.91		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0055	0.0055		90%	0.0050		10%	0.0006	
H10.52	**NODE TOTAL**			**44.22**	**435.97**				**0.0433**			**0.0071**	**0.0504**	**0.5204**		**0.0477**	**0.4563**		**0.0027**	**0.0641**
H09.33	09.33	170	OPEN	7.48		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H09.33	09.33	122	H-RES	19.54		0.003762 MGD/ACRE		270	0.0735		NA NA	0.0000	0.0735		100%	0.0735		0%	0.0000	
H09.33	09.33	150	COMM	0.48		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0007	0.0007		100%	0.0007		0%	0.0000	
H09.33	**NODE TOTAL**			**27.50**	**463.47**				**0.0735**			**0.0007**	**0.0742**	**0.5946**		**0.0742**	**0.5305**		**0.0000**	**0.0641**
H09.04	09.04	99	EX-SFR	9.28		0.000270 MGD/UNIT	19	270	0.0051		NA NA	0.0000	0.0051		100%	0.0051		0%	0.0000	
H09.04	09.04	170	OPEN	8.48		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H09.04	**NODE TOTAL**			**17.76**	**481.23**				**0.0051**			**0.0000**	**0.0051**	**0.5997**		**0.0051**	**0.5356**		**0.0000**	**0.0641**
H03.A	03.A	140	INDUST	11.74		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0117	0.0117		0%	0.0000		100%	0.0117	
H03.A	03.A	99	EX-SFR	3.00		0.000270 MGD/UNIT	6	270	0.0016		NA NA	0.0000	0.0016		100%	0.0016		0%	0.0000	
H03.A	03.A	109	M-RES	14.54		0.001107 MGD/ACRE		270	0.0161		NA NA	0.0000	0.0161		0%	0.0000		100%	0.0161	
H03.A	**NODE TOTAL**			**29.28**	**29.28**				**0.0177**			**0.0117**	**0.0294**	**0.0294**		**0.0016**	**0.0016**		**0.0278**	**0.0278**
H03.39	**NODE TOTAL**				**29.28**									**0.0294**			**0.0016**			**0.0278**

FLOW GENERATION CALCULATIONS

TABLE H-FG-3

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O HERNDON AVENUE																						
(AREAS TRIBUTARY TO 5TH STREET SEWER MAIN E/O WOODWORTH/DEWITT ALLEY)																						
H09.57	09.57	99	EX-SFR	14.50		0.000270	MGD/UNIT	32	270	0.0086		NA	NA	0.0000	0.0086		100%	0.0086		0%	0.0000	
H09.57	09.57	170	OPEN	4.34		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H09.57	**NODE TOTAL**			**18.84**	**529.35**					**0.0086**				**0.0000**	**0.0086**	**0.6377**		**0.0086**	**0.5458**		**0.0000**	**0.0919**
(AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O SIERRA AVENUE)																						
H08.88	08.88	99	EX-SFR	2.20		0.000270	MGD/UNIT	9	270	0.0024		NA	NA	0.0000	0.0024		100%	0.0024		0%	0.0000	
H08.88	08.88	106	L-RES	10.52		0.000729	MGD/ACRE		270	0.0077		NA	NA	0.0000	0.0077		100%	0.0077		0%	0.0000	
H08.88	08.88	121	MH-RES	40.98		0.002244	MGD/ACRE		270	0.0920		NA	NA	0.0000	0.0920		90%	0.0828		10%	0.0092	
H08.88	08.88	106	L-RES	2.30		0.000729	MGD/ACRE		270	0.0017		NA	NA	0.0000	0.0017		0%	0.0000		100%	0.0017	
H08.88	08.88	190	EL-SCH	14.95		NA	NA		270	0.0000	675	0.000006	MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
H08.88	08.88	99	EX-SFR	3.61		0.000270	MGD/UNIT	23	270	0.0062		NA	NA	0.0000	0.0062		100%	0.0062		0%	0.0000	
H08.88	**NODE TOTAL**			**74.56**	**74.56**					**0.1100**				**0.0041**	**0.1141**	**0.1141**		**0.1032**	**0.1032**		**0.0109**	**0.0109**
H09.44	09.44	99	EX-SFR	9.52		0.000270	MGD/UNIT	30	270	0.0081		NA	NA	0.0000	0.0081		100%	0.0081		0%	0.0000	
H09.44																						
H09.44	**NODE TOTAL**			**9.52**	**9.52**					**0.0081**				**0.0000**	**0.0081**	**0.0081**		**0.0081**	**0.0081**		**0.0000**	**0.0000**
H09.58	**NODE TOTAL**				**84.08**											**0.1222**			**0.1113**			**0.0109**
H09.59	09.59	99	EX-SFR	9.94		0.000270	MGD/UNIT	26	270	0.0070		NA	NA	0.0000	0.0070		100%	0.0070		0%	0.0000	
H09.59	09.59	170	OPEN	4.42		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H09.59	09.59	106	L-RES	3.95		0.000729	MGD/ACRE		270	0.0029		NA	NA	0.0000	0.0029		75%	0.0022		25%	0.0007	
H09.59	**NODE TOTAL**			**18.31**	**102.39**					**0.0099**				**0.0000**	**0.0099**	**0.1321**		**0.0092**	**0.1205**		**0.0007**	**0.0116**
(AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN BETWEEN SIERRA AND HERNDON AVENUES)																						
H04.01	04.01	150	COMM	9.94		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0139	0.0139		0%	0.0000		100%	0.0139	
H04.01	04.01	120	M-RES	1.17		0.001107	MGD/ACRE		270	0.0013		NA	NA	0.0000	0.0013		100%	0.0013		0%	0.0000	
H04.01	04.01	170	OPEN	35.18		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H04.01	04.01	106	L-RES	10.08		0.000729	MGD/ACRE		270	0.0073		NA	NA	0.0000	0.0073		50%	0.0037		50%	0.0037	
H04.01	04.01	99	EX-SFR	39.43		0.000270	MGD/UNIT	110	270	0.0297		NA	NA	0.0000	0.0297		90%	0.0267		10%	0.0030	
H04.01	**NODE TOTAL**			**95.80**	**727.54**					**0.0383**				**0.0139**	**0.0522**	**0.8220**		**0.0317**	**0.6979**		**0.0205**	**0.1241**
TOTALS THIS SHEET										**0.6138**				**0.2082**		**0.8220**			**0.6979**			**0.1241**
%										**74.67%**				**25.33%**		**100.00%**			**84.91%**			**15.09%**

FLOW GENERATION CALCULATIONS

TABLE H-FG-4

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO PEACH AVENUE SEWER MAIN NORTH OF HERNDON AVENUE AND SOUTH OF NEES AVENUE																				
H51.76	51.76	106	L-RES	7.88		0.000729 MGD/ACRE		270	0.0057		NA NA	0.0000	0.0057		100%	0.0057		0%	0.0000	
H51.76																				
H51.76																				
H51.76	**NODE TOTAL**			**7.88**	**7.88**				**0.0057**			**0.0000**	**0.0057**	**0.0057**		**0.0057**	**0.0057**		**0.0000**	**0.0000**
H51.74	51.74	99	EX-SFR	6.38		0.000270 MGD/UNIT	15	270	0.0041		NA NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
H51.74	51.74	99	EX-SFR	1.51		0.000270 MGD/UNIT	3	270	0.0008		NA NA	0.0000	0.0008		65%	0.0005		35%	0.0003	
H51.74	**NODE TOTAL**			**7.89**	**15.77**				**0.0049**			**0.0000**	**0.0049**	**0.0106**		**0.0046**	**0.0103**		**0.0003**	**0.0003**
H52.19	52.19	99	EX-SFR	30.22		0.000270 MGD/UNIT	83	270	0.0224		NA NA	0.0000	0.0224		100%	0.0224		0%	0.0000	
H52.19																				
H52.19	**NODE TOTAL**			**30.22**	**45.99**				**0.0224**			**0.0000**	**0.0224**	**0.0330**		**0.0224**	**0.0327**		**0.0000**	**0.0003**
H52.18	52.18	99	EX-SFR	27.50		0.000270 MGD/UNIT	91	270	0.0246		NA NA	0.0000	0.0246		100%	0.0246		0%	0.0000	
H52.18																				
H52.18	**NODE TOTAL**			**27.50**	**73.49**				**0.0246**			**0.0000**	**0.0246**	**0.0576**		**0.0246**	**0.0573**		**0.0000**	**0.0003**
H52.20	52.2	99	EX-SFR	21.73		0.000270 MGD/UNIT	124	270	0.0335		NA NA	0.0000	0.0335		100%	0.0335		0%	0.0000	
H52.20																				
H52.20	**NODE TOTAL**			**21.73**	**95.22**				**0.0335**			**0.0000**	**0.0335**	**0.0911**		**0.0335**	**0.0908**		**0.0000**	**0.0003**
H51.29	51.29	99	EX-SFR	14.26		0.000270 MGD/UNIT	34	270	0.0092		NA NA	0.0000	0.0092		100%	0.0092		0%	0.0000	
H51.29																				
H51.29	**NODE TOTAL**			**14.26**	**109.48**				**0.0092**			**0.0000**	**0.0092**	**0.1003**		**0.0092**	**0.1000**		**0.0000**	**0.0003**
H52.42	52.42	99	EX-SFR	9.26		0.000270 MGD/UNIT	51	270	0.0138		NA NA	0.0000	0.0138		100%	0.0138		0%	0.0000	
H52.42	52.42	140	INDUST	10.82		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0108	0.0108		0%	0.0000		100%	0.0108	
H52.42	52.42	130	OFFICE	4.46		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0054	0.0054		80%	0.0043		20%	0.0011	
H52.42	52.42	170	OPEN	9.24		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H52.42	**NODE TOTAL**			**33.78**	**33.78**				**0.0138**			**0.0162**	**0.0300**	**0.0300**		**0.0181**	**0.0181**		**0.0119**	**0.0119**
H48.32	48.32	99	EX-SFR	7.45		0.000270 MGD/UNIT	12	270	0.0032		NA NA	0.0000	0.0032		95%	0.0030		5%	0.0002	
H48.32																				
H48.32	**NODE TOTAL**			**7.45**	**150.71**				**0.0032**			**0.0000**	**0.0032**	**0.1335**		**0.0030**	**0.1212**		**0.0002**	**0.0123**
H47.46	47.46	99	EX-SFR	5.76		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		30%	0.0014		70%	0.0032	
H47.46	47.46	99	EX-SFR	0.44		0.000270 MGD/UNIT	1	270	0.0003		NA NA	0.0000	0.0003		100%	0.0003		0%	0.0000	
H47.46	**NODE TOTAL**			**6.20**	**156.91**				**0.0049**			**0.0000**	**0.0049**	**0.1384**		**0.0017**	**0.1229**		**0.0032**	**0.0155**
H47.32	47.32	99	EX-SFR	29.97		0.000270 MGD/UNIT	133	270	0.0359		NA NA	0.0000	0.0359		100%	0.0359		0%	0.0000	
H47.32																				
H47.32	**NODE TOTAL**			**29.97**	**186.88**				**0.0359**			**0.0000**	**0.0359**	**0.1743**		**0.0359**	**0.1588**		**0.0000**	**0.0155**
H47.02	47.02	140	INDUST	13.08		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0131	0.0131		0%	0.0000		100%	0.0131	
H47.02	47.02	130	OFFICE	25.95		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0311	0.0311		60%	0.0187		40%	0.0124	
H47.02	47.02	130	OFFICE	5.14		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0062	0.0062		0%	0.0000		100%	0.0062	
H47.02	47.02	140	INDUST	5.21		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0052	0.0052		100%	0.0052		0%	0.0000	
H47.02	**NODE TOTAL**			**49.38**	**236.26**				**0.0000**			**0.0556**	**0.0556**	**0.2299**		**0.0239**	**0.1826**		**0.0317**	**0.0473**
TOTALS THIS SHEET									**0.1581**			**0.0718**		**0.2299**			**0.1826**			**0.0473**
%									**68.77%**			**31.23%**		**100.00%**			**79.43%**			**20.57%**

FLOW GENERATION CALCULATIONS

TABLE H-FG-5

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN NORTH OF HERNDON AVENUE																				
H102.33	102.33	99	EX-SFR	64.91		0.000270 MGD/UNIT	324	270	0.0875		NA NA	0.0000	0.0875		40%	0.0350		60%	0.0525	
H102.33																				
H102.33	**NODE TOTAL**			**64.91**	**64.91**				**0.0875**			**0.0000**	**0.0875**	**0.0875**		**0.0350**	**0.0350**		**0.0525**	**0.0525**
H102.01	102.01	99	EX-SFR	98.29		0.000270 MGD/UNIT	332	270	0.0896		NA NA	0.0000	0.0896		50%	0.0448		50%	0.0448	
H102.01																				
H102.01																				
H102.01																				
H102.01	**NODE TOTAL**			**98.29**	**163.20**				**0.0896**			**0.0000**	**0.0896**	**0.1771**		**0.0448**	**0.0798**		**0.0448**	**0.0973**
H74.38	74.38	99	EX-SFR	8.85		0.000270 MGD/UNIT	31	270	0.0084		NA NA	0.0000	0.0084		100%	0.0084		0%	0.0000	
H74.38																				
H74.38	**NODE TOTAL**			**8.85**	**172.05**				**0.0084**			**0.0000**	**0.0084**	**0.1855**		**0.0084**	**0.0882**		**0.0000**	**0.0973**
H74.22	74.22	99	EX-SFR	12.64		0.000270 MGD/UNIT	42	270	0.0113		NA NA	0.0000	0.0113		100%	0.0113		0%	0.0000	
H74.22																				
H74.22	**NODE TOTAL**			**12.64**	**184.69**				**0.0113**			**0.0000**	**0.0113**	**0.1968**		**0.0113**	**0.0995**		**0.0000**	**0.0973**
H74.03	74.03	99	EX-SFR	31.17		0.000270 MGD/UNIT	81	270	0.0219		NA NA	0.0000	0.0219		100%	0.0219		0%	0.0000	
H74.03	74.03	106	L-RES	5.46		0.000729 MGD/ACRE		270	0.0040		NA NA	0.0000	0.0040		0%	0.0000		100%	0.0040	
H74.03	74.03	106	L-RES	2.78		0.000729 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		100%	0.0020		0%	0.0000	
H74.03	**NODE TOTAL**			**39.41**	**224.10**				**0.0279**			**0.0000**	**0.0279**	**0.2247**		**0.0239**	**0.1234**		**0.0040**	**0.1013**
H74.86	**NODE TOTAL**				**224.10**									**0.2247**			**0.1234**			**0.1013**
H74.90	74.90	99	EX-SFR	26.78		0.000270 MGD/UNIT	67	270	0.0181		NA NA	0.0000	0.0181		100%	0.0181		0%	0.0000	
H74.90	74.90	106	L-RES	3.50		0.000729 MGD/ACRE		270	0.0026		NA NA	0.0000	0.0026		0%	0.0000		100%	0.0026	
H74.90	74.90	150	COMM	20.61		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0289	0.0289		85%	0.0246		15%	0.0043	
H74.90	**NODE TOTAL**			**50.89**	**274.99**				**0.0207**			**0.0289**	**0.0496**	**0.2743**		**0.0427**	**0.1661**		**0.0069**	**0.1082**
H101.A	101.A	121	MH-RES	1.64		0.002244 MGD/ACRE		270	0.0037		NA NA	0.0000	0.0037		0%	0.0000		100%	0.0037	
H101.A	101.A	99	EX-SFR	13.38		0.000270 MGD/UNIT	127	270	0.0343		NA NA	0.0000	0.0343		100%	0.0343		0%	0.0000	
H101.A	101.A	121	MH-RES	0.72		0.002244 MGD/ACRE		270	0.0016		NA NA	0.0000	0.0016		0%	0.0000		100%	0.0016	
H101.A	101.A	107	R1-7500	7.96		0.000864 MGD/ACRE		270	0.0069		NA NA	0.0000	0.0069		0%	0.0000		100%	0.0069	
H101.A	**NODE TOTAL**			**23.70**	**23.70**				**0.0465**			**0.0000**	**0.0465**	**0.0465**		**0.0343**	**0.0343**		**0.0122**	**0.0122**
H101.03	101.03	99	EX-SFR	9.83		0.000270 MGD/UNIT	76	270	0.0205		NA NA	0.0000	0.0205		100%	0.0205		0%	0.0000	
H101.03																				
H101.03	**NODE TOTAL**			**9.83**	**33.53**				**0.0205**			**0.0000**	**0.0205**	**0.0670**		**0.0205**	**0.0548**		**0.0000**	**0.0122**
H74.53	74.53	99	EX-SFR	55.68		0.000270 MGD/UNIT	209	270	0.0564		NA NA	0.0000	0.0564		100%	0.0564		0%	0.0000	
H74.53	74.53	170	OPEN	24.00		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H74.53	**NODE TOTAL**			**79.68**	**113.21**				**0.0564**			**0.0000**	**0.0564**	**0.1234**		**0.0564**	**0.1112**		**0.0000**	**0.0122**
H51.79	51.79	106	L-RES	0.85		0.000729 MGD/ACRE		270	0.0006		NA NA	0.0000	0.0006		100%	0.0006		0%	0.0000	
H51.79	51.79	150	COMM	16.16		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0226	0.0226		100%	0.0226		0%	0.0000	
H51.79	**NODE TOTAL**			**17.01**	**405.21**				**0.0006**			**0.0226**	**0.0232**	**0.4209**		**0.0232**	**0.3005**		**0.0000**	**0.1204**
H48.30	48.30	99	EX-SFR	27.09		0.000270 MGD/UNIT	82	270	0.0221		NA NA	0.0000	0.0221		100%	0.0221		0%	0.0000	
H48.30	48.30	99	EX-SFR	24.00		0.000270 MGD/UNIT	81	270	0.0219		NA NA	0.0000	0.0219		100%	0.0219		0%	0.0000	
H48.30	48.30	107	R1-7500	11.09		0.000864 MGD/ACRE		270	0.0096		NA NA	0.0000	0.0096		100%	0.0096		0%	0.0000	
H48.30	48.30	99	EX-SFR	48.87		0.000270 MGD/UNIT	186	270	0.0502		NA NA	0.0000	0.0502		100%	0.0502		0%	0.0000	
H48.30	48.30	107	R1-7500	4.73		0.000864 MGD/ACRE		270	0.0041		NA NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
H48.30	48.30	107	R1-7500	21.39		0.000864 MGD/ACRE		270	0.0185		NA NA	0.0000	0.0185		50%	0.0093		50%	0.0093	
H48.30	**NODE TOTAL**			**137.17**	**137.17**				**0.1264**			**0.0000**	**0.1264**	**0.1264**		**0.1172**	**0.1172**		**0.0093**	**0.0093**

FLOW GENERATION CALCULATIONS

TABLE H-FG-5

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN NORTH OF HERNDON AVENUE																				
H48.46	**NODE TOTAL**				**542.38**									**0.5473**			**0.4176**			**0.1297**
H48.49	48.49	99	EX-SFR	19.58		0.000270 MGD/UNIT	64	270	0.0173		NA NA	0.0000	0.0173		100%	0.0173		0%	0.0000	
H48.49	48.49	121	MH-RES	11.24		0.002244 MGD/ACRE		270	0.0252		NA NA	0.0000	0.0252		100%	0.0252		0%	0.0000	
H48.49	**NODE TOTAL**			**30.82**	**573.20**				**0.0425**			**0.0000**	**0.0425**	**0.5898**		**0.0425**	**0.4601**		**0.0000**	**0.1297**
H48.51	48.51	121	MH-RES	14.77		0.002244 MGD/ACRE		270	0.0331		NA NA	0.0000	0.0331		0%	0.0000		100%	0.0331	
H48.51	48.51	150	COMM	67.84		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0950	0.0950		50%	0.0475		50%	0.0475	
H48.51	**NODE TOTAL**			**82.61**	**655.81**				**0.0331**			**0.0950**	**0.1281**	**0.7179**		**0.0475**	**0.5076**		**0.0806**	**0.2103**
TOTALS THIS SHEET									**0.5714**			**0.1465**		**0.7179**			**0.5076**			**0.2103**
%									**79.59%**			**20.41%**		**100.00%**			**70.71%**			**29.29%**

FLOW GENERATION CALCULATIONS

TABLE H-FG-6

AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO HERNDON SEWER MAIN BETWEEN CLOVIS AVENUE & WILLOW AVENUE																				
(AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE)																				
H45.12	**NODE TOTAL**				**706.39**									**0.6382**			**0.3722**			**0.2660**
(AREAS TRIBUTARY TO HERNDON AVENUE SEWER MAIN BETWEEEN SH#168 AND VILLA AVENUE)																				
H46.42	46.42	130	OFFICE	29.25		NA	NA	270	0.0000		0.001200 MGD/ACRE	0.0351	0.0351		0%	0.0000		100%	0.0351	
H46.42	46.42	170	OPEN	4.72		NA	NA	270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H46.42	46.42	140	INDUST	0.85		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0009	0.0009		0%	0.0000		100%	0.0009	
H46.42	**NODE TOTAL**			**34.82**	**34.82**				**0.0000**			**0.0360**	**0.0360**	**0.0360**		**0.0000**	**0.0000**		**0.0360**	**0.0360**
H46.35	**NODE TOTAL**				**741.21**									**0.6742**			**0.3722**			**0.3020**
H03.23	03.23	150	COMM	6.59		NA	NA	270	0.0000		0.001400 MGD/ACRE	0.0092	0.0092		100%	0.0092		0%	0.0000	
H03.23	03.23	140	INDUST	3.55		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0036	0.0036		100%	0.0036		0%	0.0000	
H03.23	**NODE TOTAL**			**10.14**	**10.14**				**0.0000**			**0.0128**	**0.0128**	**0.0128**		**0.0128**	**0.0128**		**0.0000**	**0.0000**
H03.22	03.22	140	INDUST	12.22		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0122	0.0122		100%	0.0122		0%	0.0000	
H03.22																				
H03.22	**NODE TOTAL**			**12.22**	**763.57**				**0.0000**			**0.0122**	**0.0122**	**0.6992**		**0.0122**	**0.3972**		**0.0000**	**0.3020**
H46.48	46.48	140	INDUST	24.87		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0249	0.0249		60%	0.0149		40%	0.0100	
H46.48																				
H46.48	**NODE TOTAL**			**24.87**	**24.87**				**0.0000**			**0.0249**	**0.0249**	**0.0249**		**0.0149**	**0.0149**		**0.0100**	**0.0100**
H46.52	**NODE TOTAL**				**788.44**									**0.7241**			**0.4121**			**0.3120**
H03.18	03.18	140	INDUST	14.86		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0149	0.0149		60%	0.0089		40%	0.0060	
H03.18																				
H03.18	**NODE TOTAL**			**14.86**	**14.86**				**0.0000**			**0.0149**	**0.0149**	**0.0149**		**0.0089**	**0.0089**		**0.0060**	**0.0060**
H03.20	03.20	140	INDUST	6.76		NA	NA	270	0.0000		0.001000 MGD/ACRE	0.0068	0.0068		5%	0.0003		95%	0.0065	
H03.20																				
H03.20	**NODE TOTAL**			**6.76**	**810.06**				**0.0000**			**0.0068**	**0.0068**	**0.7458**		**0.0003**	**0.4214**		**0.0065**	**0.3244**
H04.06	**NODE TOTAL**				**1,656.84**									**1.8480**			**1.3897**			**0.4583**
H04.07	**NODE TOTAL**				**2,384.38**									**2.6700**			**2.0876**			**0.5824**
H05.02	**NODE TOTAL**				**2,620.64**									**2.8999**			**2.2702**			**0.6297**
H06.01	**NODE TOTAL**				**3,276.45**									**3.6178**			**2.7779**			**0.8399**
HTS	**NODE TOTAL INCL TEMP FTS**				**3,276.45**									**3.6178**			**2.7779**			**0.8399**
HTS	**NODE TOTAL NOT INCL TEMP FTS**				**2,570.06**									**2.9796**			**2.4057**			**0.5739**
TOTALS THIS SHEET									**0.0000**			**0.1076**		**0.1076**			**0.0492**			**0.0584**
GRAND TOTALS HTS					**2,570.06**				**2.2575**			**1.3603**		**3.6178**			**2.7779**			**0.8399**
%									**62.40%**			**37.60%**		**100.00%**			**76.78%**			**23.22%**

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-1
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE											
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN N/O HERNDON AVENUE)											
H55.55	H55.43	813	0.0617	8	0.00340	0.4556	2.00	0.50	0.2277	0.1660	27.1%
H56.55	H55.43	453	0.0204	8	0.00294	0.4237	2.00	0.50	0.2117	0.1913	9.6%
H43.A	H55.43	862	0.0364	8	0.00240	0.3828	2.00	0.50	0.1913	0.1549	19.0%
H55.43	H55.01	2,564	0.2030	10	0.00200	0.6335	2.00	0.50	0.3166	0.1136	64.1%
H55.02	H55.01	349	0.0711	10	0.00200	0.6335	2.00	0.50	0.3166	0.2455	22.5%
H55.01	H45.03	1,384	0.3121	12	0.00200	1.0302	2.00	0.50	0.5149	0.2028	60.6%
H45.05	H45.03	751	0.0000	8	0.00350	0.4622	2.00	0.50	0.2310	0.2310	0.0%
H45.03	H45.09	1,970	0.3748	15	0.00120	1.4469	1.71	0.55	0.8471	0.4723	44.2%
H45.06	H45.09	679	0.0383	8	0.00350	0.4622	2.00	0.50	0.2310	0.1927	16.6%
H45.09	H45.16	797	0.4131	15	0.00150	1.6177	1.71	0.55	0.9471	0.5340	43.6%
H45.16	H45.15	515	0.4241	15	0.00150	1.6177	1.71	0.55	0.9471	0.5230	44.8%
(AREAS TRIBUTARY TO HERNDON AVENUE SEWER MAIN E/O CLOVIS AVENUE)											
H44.04	H44.02	355	0.0584	8	0.00260	0.3984	2.00	0.50	0.1991	0.1407	29.3%
H44.02	H44.01	535	0.0584	12	0.00250	1.1518	2.00	0.50	0.5757	0.5173	10.1%
H44.01	H45.13	2,067	0.1197	12	0.00250	1.1518	2.00	0.50	0.5757	0.4560	20.8%
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN S/O HERNDON AVENUE)											
H03.29	H03.27	671	0.0624	8	0.00300	0.4280	2.00	0.50	0.2139	0.1515	29.2%
H03.27	H45.13	666	0.0944	8	0.00300	0.4280	2.00	0.50	0.2139	0.1195	44.1%
(HERNDON AVENUE SEWER MAIN AT INTERSECTION WITH CLOVIS AVENUE)											
H45.13	H45.15	39	0.2141	12	0.02205	3.4207	2.00	0.50	1.7097	1.4956	12.5%
H45.15	H45.12	29	0.6382	18	0.00140	2.5413	1.71	0.55	1.4879	0.8497	42.9%
H45.12	PUMP	NA	0.6382	18	0.00140	2.5413	1.71	0.55	1.4879	0.8497	42.9%

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-2
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO MINNEWAWA AVENUE SEWER NORTH OF HERNDON AVENUE											
H103.06	H76.17	786	0.0785	12	0.00140	0.8619	2.00	0.50	0.4308	0.3523	18.2%
H76.17	H76.A	792	0.1449	12	0.00140	0.8619	2.00	0.50	0.4308	0.2859	33.6%
H76.A	H76.01	1,070	0.1610	12	0.00154	0.9040	2.00	0.50	0.4518	0.2908	35.6%
H54.A	H76.B	1,804	0.0247	15	0.00120	1.4469	1.71	0.55	0.8471	0.8224	2.9%
H76.B	H76.01	2,157	0.0726	15	0.00120	1.4469	1.71	0.55	0.8471	0.7745	8.6%
H75.03	H76.01	1,590	0.0751	10	0.00210	0.6492	2.00	0.50	0.3245	0.2494	23.1%
H76.01	H53.61	848	0.3087	15	0.00140	1.5628	1.71	0.55	0.9150	0.6063	33.7%
H53.61	H53.44	1,057	0.3670	15	0.00140	1.5628	1.71	0.55	0.9150	0.5480	40.1%
H53.44	H47.25	764	0.3792	15	0.00140	1.5628	1.71	0.55	0.9150	0.5358	41.4%
H53.15	H53.14	429	0.0000	8	0.00300	0.4280	2.00	0.50	0.2139	0.2139	0.0%
H53.14	H53.11	912	0.0054	8	0.00300	0.4280	2.00	0.50	0.2139	0.2085	2.5%
H53.11	H53.08	1,472	0.0081	10	0.00210	0.6492	2.00	0.50	0.3245	0.3164	2.5%
H53.36	H53.35	153	0.0113	8	0.00290	0.4208	2.00	0.50	0.2103	0.1990	5.4%
H53.22	H53.08	312	0.0804	8	0.00340	0.4556	2.00	0.50	0.2277	0.1473	35.3%
H53.08	H46.20	644	0.0885	10	0.00210	0.6492	2.00	0.50	0.3245	0.2360	27.3%
H46.20	H47.25	688	0.1036	10	0.00210	0.6492	2.00	0.50	0.3245	0.2209	31.9%
H52.92	H47.25	672	0.0462	8	0.00310	0.4350	2.00	0.50	0.2174	0.1712	21.2%
H47.25	H47.23	641	0.5290	15	0.00240	2.0462	1.71	0.55	1.1980	0.6690	44.2%
H47.28	H47.23	640	0.5000	10	0.00360	0.8500	2.00	0.50	0.4248	-0.0752	117.7%
H47.23	H46.27	121	1.0290	15	0.00240	2.0462	1.71	0.55	1.1980	0.1690	85.9%
H46.27	H47.22	150	1.0482	15	0.00240	2.0462	1.71	0.55	1.1980	0.1498	87.5%
H47.22	H47.17	911	1.0662	15	0.00240	2.0462	1.71	0.55	1.1980	0.1318	89.0%
H47.17	H47.14	485	1.0949	15	0.00240	2.0462	1.71	0.55	1.1980	0.1031	*91.4%*
H47.14	H04.06	513	1.1022	15	0.00240	2.0462	1.71	0.55	1.1980	0.0958	*92.0%*

This is a private line. Since Lyons Magnus operates on extended daily schedule actual peaking factor is probably much less than 2.00.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-3
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O HERNDON AVENUE											
(AREAS TRIBUTARY TO 5TH STREET SEWER MAIN E/O WOODWORTH/DEWITT ALLEY)											
H11.62	H11.66	1,293	0.0575	15	0.00120	1.4469	1.71	0.55	0.8471	0.7896	6.8%
H11.16	H11.66	482	0.1203	10	0.00257	0.7182	2.00	0.50	0.3589	0.2386	33.5%
H11.66	H10.56	856	0.2180	15	0.00110	1.3853	1.71	0.55	0.8110	0.5930	26.9%
H10.56	H10.52	798	0.2856	15	0.00119	1.4408	1.71	0.55	0.8436	0.5580	33.9%
(AREAS TRIBUTARY TO SEWER MAIN IN WOODWORTH/DEWITT ALLEY)											
H02.03	H02.06	1,317	0.0582	8	0.00200	0.3494	2.00	0.50	0.1746	0.1164	33.3%
H02.31	H02.06	409	0.0672	8	0.00150	0.3026	2.00	0.50	0.1512	0.0840	44.4%
H02.06	H03.04	473	0.1286	8	0.00249	0.3899	2.00	0.50	0.1949	0.0663	66.0%
H03.04	H03.16	551	0.1415	8	0.00142	0.2944	2.00	0.50	0.1472	0.0057	96.2%
H03.16	H10.75	613	0.1625	8	0.00169	0.3212	2.00	0.50	0.1605	-0.0020	101.2%
H10.75	H10.15	472	0.1706	8	0.00223	0.3690	2.00	0.50	0.1844	0.0138	*92.5%*
H10.15	H10.16	479	0.1779	8	0.00226	0.3714	2.00	0.50	0.1856	0.0077	*95.8%*
H10.16	H10.17	480	0.1814	10	0.00226	0.6735	2.00	0.50	0.3366	0.1552	53.9%
H10.17	H10.52	477	0.1844	10	0.00155	0.5577	2.00	0.50	0.2788	0.0944	66.2%
(AREAS TRIBUTARY TO SIERRA AVENUE SEWER MAIN E/O VILLA AVENUE)											
H10.52	H09.33	1,506	0.5204	15	0.00110	1.3853	1.71	0.55	0.8110	0.2906	64.2%
H09.33	H09.04	1,418	0.5946	15	0.00080	1.1814	1.71	0.55	0.6917	0.0971	86.0%
H09.04	H09.57	851	0.5997	15	0.00081	1.1887	1.71	0.55	0.6960	0.0963	86.2%
H03.A	H03.39	906	0.0294	8	0.00240	0.3828	2.00	0.50	0.1913	0.1619	15.4%
H03.39	H09.57	1,217	0.0294	10	0.00250	0.7083	2.00	0.50	0.3540	0.3246	8.3%
H09.57	H04.01	1,217	0.6377	21	0.00080	2.8978	1.71	0.55	1.6966	1.0589	37.6%
(AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN S/O SIERRA AVENUE)											
H08.88	H09.44	2,009	0.1141	6	0.01500	0.4443	2.50	0.44	0.1778	0.0637	64.2%
H09.44	H09.58	301	0.0081	8	0.00980	0.7735	2.00	0.50	0.3866	0.3785	2.1%
H09.58	H09.59	197	0.1222	8	0.01208	0.8588	2.00	0.50	0.4292	0.3070	28.5%
H09.59	H04.01	1,286	0.1321	15	0.00077	1.1590	1.71	0.55	0.6786	0.5465	19.5%
(AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN BETWEEN SIERRA AND HERNDON AVENUES)											
H04.01	H04.07	2,686	0.8220	24	0.00080	4.1372	1.71	0.55	2.4222	1.6002	33.9%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-4
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO PEACH AVENUE SEWER NORTH OF HERNDON AVENUE AND SOUTH OF NEES AVENUE											
H51.76	H51.74	558	0.0057	10	0.00210	0.6492	2.00	0.50	0.3245	0.3188	1.8%
H51.74	H52.19	359	0.0106	10	0.00210	0.6492	2.00	0.50	0.3245	0.3139	3.3%
H52.19	H52.18	165	0.0330	10	0.00210	0.6492	2.00	0.50	0.3245	0.2915	10.2%
H52.18	H52.20	257	0.0576	10	0.00210	0.6492	2.00	0.50	0.3245	0.2669	17.8%
H52.20	H51.29	671	0.0911	10	0.00210	0.6492	2.00	0.50	0.3245	0.2334	28.1%
H51.29	H48.32	553	0.1003	10	0.00210	0.6492	2.00	0.50	0.3245	0.2242	30.9%
H52.42	H48.32	1,212	0.0300	8	0.00340	0.4556	2.00	0.50	0.2277	0.1977	13.2%
H48.32	H47.46	534	0.1335	10	0.00210	0.6492	2.00	0.50	0.3245	0.1910	41.1%
H47.46	H47.32	668	0.1384	10	0.00240	0.6940	2.00	0.50	0.3469	0.2085	39.9%
H47.32	H47.02	924	0.1743	10	0.00240	0.6940	2.00	0.50	0.3469	0.1726	50.2%
H47.02	H47.01	367	0.2299	10	0.00240	0.6940	2.00	0.50	0.3469	0.1170	66.3%
H47.01	H05.02	100	0.2299	8	0.00620	0.6152	2.00	0.50	0.3075	0.0776	74.8%

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-5
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO WILLOW AVENUE SEWER NORTH OF HERNDON AVENUE											
H102.33	H102.01	1,472	0.0875	8	0.00240	0.3828	2.00	0.50	0.1913	0.1038	45.7%
H102.01	H74.38	709	0.1771	10	0.00230	0.6794	2.00	0.50	0.3396	0.1625	52.2%
H74.38	H74.22	515	0.1855	10	0.00240	0.6940	2.00	0.50	0.3469	0.1614	53.5%
H74.22	H74.03	515	0.1968	10	0.00240	0.6940	2.00	0.50	0.3469	0.1501	56.7%
H74.03	H74.86	1,037	0.2247	10	0.00240	0.6940	2.00	0.50	0.3469	0.1222	64.8%
H74.86	H74.90	1,566	0.2247	18	0.00110	2.2526	1.71	0.55	1.3188	1.0941	17.0%
H74.90	H51.79	1,209	0.2743	18	0.00110	2.2526	1.71	0.55	1.3188	1.0445	20.8%
H101.A	H101.03	1,359	0.0465	21	0.00144	3.8877	1.71	0.55	2.2762	2.2297	2.0%
H101.03	H74.53	1,305	0.0670	21	0.00120	3.5490	1.71	0.55	2.0778	2.0108	3.2%
H74.53	H51.79	2,643	0.1234	21	0.00120	3.5490	1.71	0.55	2.0778	1.9544	5.9%
H51.79	H48.46	2,682	0.4209	21	0.00100	3.2398	1.71	0.55	1.8968	1.4759	22.2%
H48.30	H48.46	1,178	0.1264	8	0.00300	0.4280	2.00	0.50	0.2139	0.0875	59.1%
H48.46	H48.49	1,170	0.5473	21	0.00100	3.2398	1.71	0.55	1.8968	1.3495	28.9%
H48.49	H48.51	229	0.5898	21	0.00100	3.2398	1.71	0.55	1.8968	1.3070	31.1%
H48.51	H06.01	1,228	0.7179	21	0.00100	3.2398	1.71	0.55	1.8968	1.1789	37.8%

SEWER HYDRAULIC CALCULATIONS

TABLE H-HY-6
AREAS TRIBUTARY TO HERNDON TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO HERNDON AVENUE SEWER BETWEEN CLOVIS AVENUE AND WILLOW AVENUE											
H45.12	H46.35	1,473	0.6382	18	0.00140	2.5413	1.71	0.55	1.4879	0.8497	42.9%
H46.42	H46.35	1,248	0.0360	8	0.00500	0.5525	2.00	0.50	0.2761	0.2401	13.0%
H46.35	H03.22	454	0.6742	18	0.00140	2.5413	1.71	0.55	1.4879	0.8137	45.3%
H03.23	H03.22	278	0.0128	8	0.00330	0.4488	2.00	0.50	0.2243	0.2115	5.7%
H03.22	H46.52	480	0.6992	18	0.00180	2.8816	1.71	0.55	1.6871	0.9879	41.4%
H46.48	H46.52	877	0.0249	8	0.00270	0.4060	2.00	0.50	0.2029	0.1780	12.3%
H46.52	H03.20	287	0.7241	18	0.00180	2.8816	1.71	0.55	1.6871	0.9630	42.9%
H03.18	H03.20	725	0.0149	8	0.00330	0.4488	2.00	0.50	0.2243	0.2094	6.6%
H03.20	H04.06	1,291	0.7458	18	0.00200	3.0374	1.71	0.55	1.7783	1.0325	41.9%
H04.06	H04.07	25	1.8480	18	0.00200	3.0374	1.71	0.55	1.7783	-0.0697	103.9%
H04.07	H05.02	1,841	2.6700	30	0.00080	7.5012	1.71	0.55	4.3918	1.7218	60.8%
H05.02	H06.01	2,747	2.8999	30	0.00080	7.5012	1.71	0.55	4.3918	1.4919	66.0%
H06.01	HTS	NA	3.6178	33	0.00070	9.0473	1.71	0.55	5.2969	1.6791	68.3%
PURCHASED CAPACITY						4.0000	1.43		2.8000		

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

FOWLER SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE F-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM (CLOVIS FLOWS ONLY)

PRIOR TO DIVERSION OF PORTION OF HERNDON & PEACH SERVICE AREAS TO FOWLER TRUNK SEWER SYSTEM
(INCLUDES INTERIM FLOW FROM PORTION OF NW SERVICE AREA E/O SUNNYSIDE AVE.)

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
SUNNYSIDE-CLAREMONT-HOLLAND/STANFORD-ASHLAN AVE. SEWERS W/O FOWLER AVE. (INCLUDING FUTURE VILLA/BARSTOW DIVERSION)	F67.51	F36.48	2,921.39	2.3928	77.80%	0.6829	22.20%	3.0757	2.6034	84.64%	0.4724	15.36%
LESS FUTURE VILLA/BARSTOW DIVERSION	F14.49	PUMP	-112.82	-0.1309	75.41%	-0.0427	24.59%	-0.1736	-0.1540	88.71%	-0.0196	11.29%
ARMSTRONG INTERCEPTOR SEWER (INCLUDING FUTURE CLOVIS/HERNDON AVE. DIVERSION)	F67.53	F37.51	2,900.47	2.0954	74.59%	0.7137	25.41%	2.8092	0.9916	35.30%	1.8175	64.70%
LESS FUTURE CLOVIS/HERNDON AVE. DIVERSION	H45.12	H45.15	-172.86	-0.1116	71.48%	-0.0445	28.52%	-0.1562	-0.0911	58.33%	-0.0651	41.67%
INTERIM FLOW FROM NW SERVICE AREA	F107.03	N106.01	94.15	0.0803	93.26%	0.0058	6.74%	0.0861	0.0766	89.01%	0.0095	10.99%
ASHLAN AVE. SEWER E/O FOWLER AVE.	F67.53	F66.04	1,279.21	0.9092	87.21%	0.1334	12.79%	1.0426	0.5786	55.49%	0.4640	44.51%
MINOR SEWERS VICINITY ASHLAN AVE. W/O FOWLER AVE.	F36.120	F36.116	98.93	0.0751	75.25%	0.0247	24.75%	0.0998	0.0924	92.57%	0.0074	7.43%
MINOR SEWERS VICINITY FOWLER AVE. N/O ASHLAN AVE.	F36.120	F37.22	94.26	0.0713	100.00%	0.0000	0.00%	0.0713	0.0537	75.35%	0.0176	24.65%
MINOR SEWERS VICINITY BELLAIRE AVE. & FOWLER AVE.	F67.54	F67.28	86.78	0.0713	94.56%	0.0041	5.44%	0.0754	0.0760	100.82%	-0.0006	-0.82%
TOTAL	**FTS**		**7,189.51**	**5.4529**	**78.68%**	**1.4774**	**21.32%**	**6.9303**	**4.2272**	**61.00%**	**2.7031**	**39.00%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
NET TOTAL CURRENTLY DISCHARGING TO FOWLER TRUNK SEWER FROM CITY OF CLOVIS	**FTS**	**F67.54**	**7,189.51**	**5.4529**	**78.68%**	**1.4774**	**21.32%**	**6.9303**	**4.2272**	**61.00%**	**2.7031**	**39.00%**
2007 METERED FLOW (ROUNDED)									3.0000			
DIFFERENCE									1.2272			
% VARIANCE FROM METERED FLOW									**+29.03%**	TO BE APPLIED TO TOTAL DEVELOPED FLOW		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	FTS	F67.54							-29.03%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**FTS**	**F67.54**	**7,189.51**	**4.4873**	**78.68%**	**1.2158**	**21.32%**	**5.7031**	**3.0000**	**52.60%**	**2.7031**	**47.40%**
CAPACITY IN REGIONAL SYSTEM (CURRENT)								3.0000	3.0000		0.0000	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**-2.7031**	0.0000		-2.7031	
"PLANNED" CAPACITY IN REGIONAL SYSTEM								5.8979	3.0000		2.8979	
PROJECTED UNUSED CAPACITY IN FOWLER TRUNK SEWER AT BUILDOUT								**+0.1948**	+0.0000		+0.1948	

FLOW GENERATION CALCULATIONS

TABLE F-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM (CLOVIS FLOWS ONLY)

AFTER DIVERSION OF PORTION OF HERNDON & PEACH SERVICE AREAS TO FOWLER TRUNK SEWER SYSTEM
(ASSUMES INTERIM FLOW FROM NW SERVICE AREA HAS BEEN DISCONTINUED)

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
SUNNYSIDE-CLAREMONT-HOLLAND/STANFORD-ASHLAN AVE. SEWERS W/O FOWLER AVE. (INCLUDING FUTURE VILLA/BARSTOW DIVERSION)	F67.51	F36.48	2,921.39	2.3928	77.80%	0.6829	22.20%	3.0757	2.6034	84.64%	0.4724	15.36%
ARMSTRONG INTERCEPTOR SEWER (INCLUDING FUTURE CLOVIS/HERNDON AVE. DIVERSION)	F67.53	F37.51	2,900.47	2.0954	74.59%	0.7137	25.41%	2.8092	0.9916	35.30%	1.8175	64.70%
ASHLAN AVE. SEWER E/O FOWLER AVE.	F67.53	F66.04	1,279.21	0.9092	87.21%	0.1334	12.79%	1.0426	0.5786	55.49%	0.4640	44.51%
MINOR SEWERS VICINITY ASHLAN AVE. W/O FOWLER AVE.	F36.120	F36.116	98.93	0.0751	75.25%	0.0247	24.75%	0.0998	0.0924	92.57%	0.0074	7.43%
MINOR SEWERS VICINITY FOWLER AVE. N/O ASHLAN AVE.	F36.120	F37.22	94.26	0.0713	100.00%	0.0000	0.00%	0.0713	0.0537	75.35%	0.0176	24.65%
MINOR SEWERS VICINITY BELLAIRE AVE. & FOWLER AVE.	F67.54	F67.28	86.78	0.0713	94.56%	0.0041	5.44%	0.0754	0.0760	100.82%	-0.0006	-0.82%
TOTAL	**FTS**		**7,381.04**	**5.6151**	**78.27%**	**1.5588**	**21.73%**	**7.1740**	**4.3957**	**61.27%**	**2.7783**	**38.73%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
% VARIANCE FROM METERED FLOW									**+29.03%**	TO BE APPLIED TO TOTAL		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	FTS	F67.54							-29.03%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**FTS**	**F67.54**	**7,381.04**	**4.6164**	**78.27%**	**1.2815**	**21.73%**	**5.8979**	**3.1196**	**52.89%**	**2.7783**	**47.11%**
CAPACITY IN REGIONAL SYSTEM (CURRENT)								3.0000	3.0000		0.0000	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT (CURRENT)								**-2.8979**	-0.1196		-2.7783	
"PLANNED" CAPACITY IN REGIONAL SYSTEM								5.8979	3.1196		2.7783	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**+0.0000**	+0.0000		+0.0000	

FLOW GENERATION CALCULATIONS

TABLE F-FG-1

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE																				
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN N/O HERNDON AVENUE)																				
H55.55	55.55	107	R1-7500	7.18		0.000864 MGD/ACRE		270	0.0062		NA NA	0.0000	0.0062		0%	0.0000		100%	0.0062	
H55.55	55.55	150	COMM	3.62		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0051	0.0051		0%	0.0000		100%	0.0051	
H55.55	55.55	106	L-RES	3.98		0.000729 MGD/ACRE		270	0.0029		NA NA	0.0000	0.0029		0%	0.0000		100%	0.0029	
H55.55	55.55	99	EX-SFR	6.58		0.000270 MGD/UNIT	29	270	0.0078		NA NA	0.0000	0.0078		0%	0.0000		100%	0.0078	
H55.55	55.55	99	EX-SFR	19.97		0.000270 MGD/UNIT	71	270	0.0192		NA NA	0.0000	0.0192		100%	0.0192		0%	0.0000	
H55.55	55.55	99	EX-SFR	9.99		0.000270 MGD/UNIT	30	270	0.0081		NA NA	0.0000	0.0081		100%	0.0081		0%	0.0000	
H55.55	55.55	99	EX-SFR	11.81		0.000270 MGD/UNIT	39	270	0.0105		NA NA	0.0000	0.0105		100%	0.0105		0%	0.0000	
H55.55	55.55	106	L-RES	2.64		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H55.55	**NODE TOTAL**			**65.77**	**65.77**				**0.0566**			**0.0051**	**0.0617**	**0.0617**		**0.0378**	**0.0378**		**0.0239**	**0.0239**
H56.55	56.55	99	EX-SFR	6.20		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		100%	0.0046		0%	0.0000	
H56.55	56.55	106	L-RES	21.69		0.000729 MGD/ACRE		270	0.0158		NA NA	0.0000	0.0158		0%	0.0000		100%	0.0158	
H56.55	**NODE TOTAL**			**27.89**	**27.89**				**0.0204**			**0.0000**	**0.0204**	**0.0204**		**0.0046**	**0.0046**		**0.0158**	**0.0158**
H43.A	43.A	106	L-RES	3.40		0.000729 MGD/ACRE		270	0.0025		NA NA	0.0000	0.0025		100%	0.0025		0%	0.0000	
H43.A	43.A	121	MH-RES	13.91		0.002244 MGD/ACRE		270	0.0312		NA NA	0.0000	0.0312		90%	0.0281		10%	0.0031	
H43.A	43.A	170	OPEN	3.30		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H43.A	43.A	170	OPEN	11.56		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H43.A	43.A	106	L-RES	3.75		0.000729 MGD/ACRE		270	0.0027		NA NA	0.0000	0.0027		0%	0.0000		100%	0.0027	
H43.A	**NODE TOTAL**			**35.92**	**35.92**				**0.0364**			**0.0000**	**0.0364**	**0.0364**		**0.0306**	**0.0306**		**0.0058**	**0.0058**
H55.43	55.43	99	EX-SFR	73.48		0.000270 MGD/UNIT	231	270	0.0624		NA NA	0.0000	0.0624		100%	0.0624		0%	0.0000	
H55.43	55.43	170	OPEN	9.03		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H55.43	55.43	106	L-RES	2.73		0.000729 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		0%	0.0000		100%	0.0020	
H55.43	55.43	121	MH-RES	5.12		0.002244 MGD/ACRE		270	0.0115		NA NA	0.0000	0.0115		0%	0.0000		100%	0.0115	
H55.43	55.43	107	R1-7500	9.90		0.000864 MGD/ACRE		270	0.0086		NA NA	0.0000	0.0086		0%	0.0000		100%	0.0086	
H55.43	**NODE TOTAL**			**100.26**	**229.84**				**0.0845**			**0.0000**	**0.0845**	**0.2030**		**0.0624**	**0.1354**		**0.0221**	**0.0676**
H55.02	55.02	106	L-RES	14.67		0.000729 MGD/ACRE		270	0.0107		NA NA	0.0000	0.0107		0%	0.0000		100%	0.0107	
H55.02	55.02	99	EX-SFR	43.04		0.000270 MGD/UNIT	174	270	0.0470		NA NA	0.0000	0.0470		100%	0.0470		0%	0.0000	
H55.02	55.02	99	EX-SFR	3.86		0.000270 MGD/UNIT	11	270	0.0030		NA NA	0.0000	0.0030		0%	0.0000		0%	0.0000	
H55.02	55.02	99	EX-SFR	4.81		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		20%	0.0009		80%	0.0037	
H55.02	55.02	190	EL-SCH	13.08		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
H55.02	55.02	106	L-RES	2.38		0.000729 MGD/ACRE		270	0.0017		NA NA	0.0000	0.0017		0%	0.0000		100%	0.0017	
H55.02	**NODE TOTAL**			**81.84**	**81.84**				**0.0670**			**0.0041**	**0.0711**	**0.0711**		**0.0520**	**0.0520**		**0.0161**	**0.0161**
H55.01	55.01	170	OPEN	73.01		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H55.01	55.01	99	EX-SFR	25.41		0.000270 MGD/UNIT	94	270	0.0254		NA NA	0.0000	0.0254		100%	0.0254		0%	0.0000	
H55.01	55.01	107	R1-7500	14.63		0.000864 MGD/ACRE		270	0.0126		NA NA	0.0000	0.0126		0%	0.0000		100%	0.0126	
H55.01	**NODE TOTAL**			**113.05**	**424.73**				**0.0380**			**0.0000**	**0.0380**	**0.3121**		**0.0254**	**0.2128**		**0.0126**	**0.0963**
H45.05	45.05	170	OPEN	39.97		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
H45.05																				
H45.05	**NODE TOTAL**			**39.97**	**39.97**				**0.0000**			**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**
H45.03	45.03	99	EX-SFR	2.43		0.000270 MGD/UNIT	7	270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H45.03	45.03	99	EX-SFR	62.11		0.000270 MGD/UNIT	218	270	0.0589		NA NA	0.0000	0.0589		100%	0.0589		0%	0.0000	
H45.03	45.03	106	L-RES	2.55		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
H45.03	**NODE TOTAL**			**67.09**	**531.79**				**0.0627**			**0.0000**	**0.0627**	**0.3748**		**0.0589**	**0.2717**		**0.0038**	**0.1001**

FLOW GENERATION CALCULATIONS

TABLE F-FG-1

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE																				
H45.06	45.06	130	OFFICE	6.92		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0083	0.0083		0%	0.0000		100%	0.0083	
H45.06	45.06	121	MH-RES	12.18		0.002244 MGD/ACRE		270	0.0273		NA NA	0.0000	0.0273		100%	0.0273		0%	0.0000	
H45.06	45.06	130	OFFICE	2.22		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0027	0.0027		100%	0.0027		0%	0.0000	
H45.06	**NODE TOTAL**			**21.32**	**21.32**				**0.0273**			**0.0110**	**0.0383**	**0.0383**		**0.0300**	**0.0300**		**0.0083**	**0.0083**
H45.09	**NODE TOTAL**				**553.11**									**0.4131**			**0.3017**			**0.1084**
H45.16	45.16	150	COMM	7.88		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0110	0.0110		100%	0.0110		0%	0.0000	
H45.16																				
H45.16	**NODE TOTAL**			**7.88**	**560.99**				**0.0000**			**0.0110**	**0.0110**	**0.4241**		**0.0110**	**0.3127**		**0.0000**	**0.1084**
(AREAS TRIBUTARY TO HERNDON AVENUE SEWER MAIN E/O CLOVIS AVENUE)																				
H44.04	44.04	99	EX-SFR	28.70		0.000270 MGD/UNIT	110	270	0.0297		NA NA	0.0000	0.0297		100%	0.0297		0%	0.0000	
H44.04	44.04	150	COMM	20.48		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0287	0.0287		5%	0.0014		95%	0.0273	
H44.04	**NODE TOTAL**			**49.18**	**49.18**				**0.0297**			**0.0287**	**0.0584**	**0.0584**		**0.0311**	**0.0311**		**0.0273**	**0.0273**
H44.02	**NODE TOTAL**				**49.18**									**0.0584**			**0.0311**			**0.0273**
H44.01	44.01	150	COMM	43.80		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0613	0.0613		5%	0.0031		95%	0.0582	
H44.01																				
H44.01	**NODE TOTAL**			**43.80**	**92.98**				**0.0000**			**0.0613**	**0.0613**	**0.1197**		**0.0031**	**0.0342**		**0.0582**	**0.0855**
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN S/O HERNDON AVENUE)																				
H03.29	03.29	122	H-RES	8.94		0.003762 MGD/ACRE		270	0.0336		NA NA	0.0000	0.0336		0%	0.0000		100%	0.0336	
H03.29	03.29	150	COMM	20.60		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0288	0.0288		10%	0.0029		90%	0.0259	
H03.29	**NODE TOTAL**			**29.54**	**29.54**				**0.0336**			**0.0288**	**0.0624**	**0.0624**		**0.0029**	**0.0029**		**0.0595**	**0.0595**
H03.27	03.27	150	COMM	22.88		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0320	0.0320		70%	0.0224		30%	0.0096	
H03.27																				
H03.27	**NODE TOTAL**			**22.88**	**52.42**				**0.0000**			**0.0320**	**0.0320**	**0.0944**		**0.0224**	**0.0253**		**0.0096**	**0.0691**
(HERNDON AVENUE SEWER MAIN AT INTERSECTION WITH CLOVIS AVENUE)																				
H45.13	**NODE TOTAL**				**145.40**									**0.2141**			**0.0595**			**0.1546**
H45.15	**NODE TOTAL**				**706.39**									**0.6382**			**0.3722**			**0.2630**
H45.12	**NODE TOTAL**				**706.39**									**0.6382**			**0.3722**			**0.2630**
TOTALS THIS SHEET									**0.4562**			**0.1820**		**0.6382**			**0.3722**			**0.2630**
%									**71.48%**			**28.52%**		**100.00%**			**58.32%**			**41.21%**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
(AREAS TRIBUTARY TO LOCAN AND NEES AVENUE SEWER MAINS E/O TEMPERANCE AVENUE)																				
F109.G	109.G	103	VL-RES	30.08		0.000540 MGD/ACRE		270	0.0162		NA NA	0.0000	0.0162		0%	0.0000		100%	0.0162	
F109.G																				
F109.G	**NODE TOTAL**			**30.08**	**30.08**				**0.0162**			**0.0000**	**0.0162**	**0.0162**		**0.0000**	**0.0000**		**0.0162**	**0.0162**
F109.H	109.H	103	VL-RES	46.25		0.000540 MGD/ACRE		270	0.0250		NA NA	0.0000	0.0250		0%	0.0000		100%	0.0250	
F109.H																				
F109.H	**NODE TOTAL**			**46.25**	**76.33**				**0.0250**			**0.0000**	**0.0250**	**0.0412**		**0.0000**	**0.0000**		**0.0250**	**0.0412**
F110.A	110.A	103	VL-RES	15.01		0.000540 MGD/ACRE		270	0.0081		NA NA	0.0000	0.0081		0%	0.0000		100%	0.0081	
F110.A																				
F110.A	**NODE TOTAL**			**15.01**	**15.01**				**0.0081**			**0.0000**	**0.0081**	**0.0081**		**0.0000**	**0.0000**		**0.0081**	**0.0081**
F110.B	110.B	103	VL-RES	2.51		0.000540 MGD/ACRE		270	0.0014		NA NA	0.0000	0.0014		0%	0.0000		100%	0.0014	
F110.B																				
F110.B	**NODE TOTAL**			**2.51**	**17.52**				**0.0014**			**0.0000**	**0.0014**	**0.0095**		**0.0000**	**0.0000**		**0.0014**	**0.0095**
F110.C	110.C	103	VL-RES	22.57		0.000540 MGD/ACRE		270	0.0122		NA NA	0.0000	0.0122		0%	0.0000		100%	0.0122	
F110.C																				
F110.C	**NODE TOTAL**			**22.57**	**22.57**				**0.0122**			**0.0000**	**0.0122**	**0.0122**		**0.0000**	**0.0000**		**0.0122**	**0.0122**
F110.D	110.D	103	VL-RES	14.43		0.000540 MGD/ACRE		270	0.0078		NA NA	0.0000	0.0078		0%	0.0000		100%	0.0078	
F110.D																				
F110.D	**NODE TOTAL**			**14.43**	**54.52**				**0.0078**			**0.0000**	**0.0078**	**0.0295**		**0.0000**	**0.0000**		**0.0078**	**0.0295**
F110.E	110.E	103	VL-RES	17.67		0.000540 MGD/ACRE		270	0.0095		NA NA	0.0000	0.0095		0%	0.0000		100%	0.0095	
F110.E																				
F110.E	**NODE TOTAL**			**17.67**	**148.52**				**0.0095**			**0.0000**	**0.0095**	**0.0802**		**0.0000**	**0.0000**		**0.0095**	**0.0802**
F81.A	81.A	103	VL-RES	20.05		0.000540 MGD/ACRE		270	0.0108		NA NA	0.0000	0.0108		0%	0.0000		100%	0.0108	
F81.A																				
F81.A	**NODE TOTAL**			**20.05**	**20.05**				**0.0108**			**0.0000**	**0.0108**	**0.0108**		**0.0000**	**0.0000**		**0.0108**	**0.0108**
F157.72	157.72	122	H-RES	12.14		0.003762 MGD/ACRE		270	0.0457		NA NA	0.0000	0.0457		0%	0.0000		100%	0.0457	
F157.72	157.72	99	EX-SFR	29.18		0.000270 MGD/UNIT	220	270	0.0594		NA NA	0.0000	0.0594		0%	0.0000		100%	0.0594	
F157.72																				
F157.72																				
F157.72	**NODE TOTAL**			**41.32**	**41.32**				**0.1051**			**0.0000**	**0.1051**	**0.1051**		**0.0000**	**0.0000**		**0.1051**	**0.1051**
F157.62	157.62	99	EX-SFR	15.26		0.000270 MGD/UNIT	98	270	0.0265		NA NA	0.0000	0.0265		0%	0.0000		100%	0.0265	
F157.62	157.62	99	EX-SFR	1.06		0.000270 MGD/UNIT	6	270	0.0016		NA NA	0.0000	0.0016		0%	0.0000		100%	0.0016	
F157.62	157.62	99	EX-SFR	22.05		0.000270 MGD/UNIT	168	270	0.0454		NA NA	0.0000	0.0454		0%	0.0000		100%	0.0454	
F157.62	157.62	122	H-RES	9.92		0.003762 MGD/ACRE		270	0.0373		NA NA	0.0000	0.0373		0%	0.0000		100%	0.0373	
F157.62	**NODE TOTAL**			**48.29**	**89.61**				**0.1108**			**0.0000**	**0.1108**	**0.2159**		**0.0000**	**0.0000**		**0.1108**	**0.2159**
F157.50	157.50	99	EX-SFR	8.23		0.000270 MGD/UNIT	57	270	0.0154		NA NA	0.0000	0.0154		50%	0.0077		50%	0.0077	
F157.50	157.50	99	EX-SFR	40.11		0.000270 MGD/UNIT	119	270	0.0321		NA NA	0.0000	0.0321		0%	0.0000		100%	0.0321	
F157.50	157.50	99	EX-SFR	13.14		0.000270 MGD/UNIT	104	270	0.0281		NA NA	0.0000	0.0281		0%	0.0000		100%	0.0281	
F157.50	157.50	99	EX-SFR	1.76		0.000270 MGD/UNIT	10	270	0.0027		NA NA	0.0000	0.0027		0%	0.0000		100%	0.0027	
F157.50	157.50	99	EX-SFR	11.30		0.000270 MGD/UNIT	37	270	0.0100		NA NA	0.0000	0.0100		0%	0.0000		100%	0.0100	
F157.50	157.50	99	EX-SFR	9.85		0.000270 MGD/UNIT	81	270	0.0219		NA NA	0.0000	0.0219		10%	0.0022		90%	0.0197	
F157.50	157.50	170	OPEN	5.66		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
F157.50																				
F157.50	**NODE TOTAL**			**90.05**	**90.05**				**0.1102**			**0.0000**	**0.1102**	**0.1102**		**0.0099**	**0.0099**		**0.1003**	**0.1003**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
F132.35	**NODE TOTAL**				**179.66**									**0.3261**			**0.0099**			**0.3162**
F132.37	132.37	99	EX-SFR	10.95		0.000270 MGD/UNIT	84	270	0.0227		NA NA	0.0000	0.0227		75%	0.0170		25%	0.0057	
F132.37																				
F132.37	**NODE TOTAL**			**10.95**	**190.61**				**0.0227**			**0.0000**	**0.0227**	**0.3488**		**0.0170**	**0.0269**		**0.0057**	**0.3219**
F132.40	132.40	99	EX-SFR	32.94		0.000270 MGD/UNIT	127	270	0.0343		NA NA	0.0000	0.0343		0%	0.0000		100%	0.0343	
F132.40	132.40	99	EX-SFR	10.53		0.000270 MGD/UNIT	58	270	0.0157		NA NA	0.0000	0.0157		0%	0.0000		100%	0.0157	
F132.40	132.40	103	VL-RES	14.95		0.000540 MGD/ACRE		270	0.0081		NA NA	0.0000	0.0081		0%	0.0000		100%	0.0081	
F132.40	132.40	122	H-RES	5.20		0.003762 MGD/ACRE		270	0.0196		NA NA	0.0000	0.0196		0%	0.0000		100%	0.0196	
F132.40	132.40	150	COMM	15.45		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0216	0.0216		0%	0.0000		100%	0.0216	
F132.40	**NODE TOTAL**			**79.07**	**269.68**				**0.0777**			**0.0216**	**0.0993**	**0.4481**		**0.0000**	**0.0269**		**0.0993**	**0.4212**
F110.22	110.22	107	R1-7500	54.04		0.000864 MGD/ACRE		270	0.0467		NA NA	0.0000	0.0467		0%	0.0000		100%	0.0467	
F110.22																				
F110.22	**NODE TOTAL**			**54.04**	**323.72**				**0.0467**			**0.0000**	**0.0467**	**0.4948**		**0.0000**	**0.0269**		**0.0467**	**0.4679**
F110.03	110.03	103	VL-RES	9.89		0.000540 MGD/ACRE		270	0.0053		NA NA	0.0000	0.0053		0%	0.0000		100%	0.0053	
F110.03																				
F110.03	**NODE TOTAL**			**9.89**	**502.18**				**0.0053**			**0.0000**	**0.0053**	**0.5911**		**0.0000**	**0.0269**		**0.0053**	**0.5642**
F110.G	110.G	123	VH-RES	17.81		0.007700 MGD/ACRE		270	0.1371		NA NA	0.0000	0.1371		0%	0.0000		100%	0.1371	
F110.G	110.G	150	COMM	22.22		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0311	0.0311		0%	0.0000		100%	0.0311	
F110.G	110.G	170	OPEN	6.57		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
F110.G																				
F110.G	**NODE TOTAL**			**46.60**	**46.60**				**0.1371**			**0.0311**	**0.1682**	**0.1682**		**0.0000**	**0.0000**		**0.1682**	**0.1682**
F110.H	110.H	103	VL-RES	15.07		0.000540 MGD/ACRE		270	0.0081		NA NA	0.0000	0.0081		0%	0.0000		100%	0.0081	
F110.H																				
F110.H																				
F110.H	**NODE TOTAL**			**15.07**	**61.67**				**0.0081**			**0.0000**	**0.0081**	**0.1763**		**0.0000**	**0.0000**		**0.0081**	**0.1763**
F82.A	82.A	103	VL-RES	4.80		0.000540 MGD/ACRE		270	0.0026		NA NA	0.0000	0.0026		0%	0.0000		100%	0.0026	
F82.A	82.A	107	R1-7500	21.20		0.000864 MGD/ACRE		270	0.0183		NA NA	0.0000	0.0183		0%	0.0000		100%	0.0183	
F82.A	**NODE TOTAL**			**26.00**	**26.00**				**0.0209**			**0.0000**	**0.0209**	**0.0209**		**0.0000**	**0.0000**		**0.0209**	**0.0209**
F82.B	82.B	103	VL-RES	9.70		0.000540 MGD/ACRE		270	0.0052		NA NA	0.0000	0.0052		0%	0.0000		100%	0.0052	
F82.B	82.B	107	R1-7500	20.02		0.000864 MGD/ACRE		270	0.0173		NA NA	0.0000	0.0173		0%	0.0000		100%	0.0173	
F82.B	**NODE TOTAL**			**29.72**	**55.72**				**0.0225**			**0.0000**	**0.0225**	**0.0434**		**0.0000**	**0.0000**		**0.0225**	**0.0434**
F111.A	111.A	107	R1-7500	15.82		0.000864 MGD/ACRE		270	0.0137		NA NA	0.0000	0.0137		0%	0.0000		100%	0.0137	
F111.A	111.A	103	VL-RES	1.25		0.000540 MGD/ACRE		270	0.0007		NA NA	0.0000	0.0007		0%	0.0000		100%	0.0007	
F111.A	**NODE TOTAL**			**17.07**	**17.07**				**0.0144**			**0.0000**	**0.0144**	**0.0144**		**0.0000**	**0.0000**		**0.0144**	**0.0144**
F111.B	111.B	103	VL-RES	12.52		0.000540 MGD/ACRE		270	0.0068		NA NA	0.0000	0.0068		0%	0.0000		100%	0.0068	
F111.B																				
F111.B	**NODE TOTAL**			**12.52**	**85.31**				**0.0068**			**0.0000**	**0.0068**	**0.0646**		**0.0000**	**0.0000**		**0.0068**	**0.0646**
F110.01	110.01	103	VL-RES	50.11		0.000540 MGD/ACRE		270	0.0271		NA NA	0.0000	0.0271		0%	0.0000		100%	0.0271	
F110.01																				
F110.01	**NODE TOTAL**			**50.11**	**699.27**				**0.0271**			**0.0000**	**0.0271**	**0.8591**		**0.0000**	**0.0269**		**0.0271**	**0.8322**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
(AREAS TRIBUTARY TO TEMPERANCE AVENUE SEWER MAIN N/O NEES AVENUE)																				
F132.11	132.11	99	EX-SFR	77.30		0.000270 MGD/UNIT	215	270	0.0581		NA NA	0.0000	0.0581		15%	0.0087		85%	0.0494	
F132.11	132.11	190	EL-SCH	18.89		NA NA		270	0.0000	850	0.000006 MGD/STUDENT	0.0051	0.0051		45%	0.0023		55%	0.0028	
F132.11																				
F132.11	**NODE TOTAL**			**96.19**	**96.19**				**0.0581**			**0.0051**	**0.0632**	**0.0632**		**0.0110**	**0.0110**		**0.0522**	**0.0522**
F109.B	109.B	99	EX-SFR	40.10		0.000270 MGD/UNIT	130	270	0.0351		NA NA	0.0000	0.0351		100%	0.0351		0%	0.0000	
F109.B	109.B	99	EX-SFR	4.09		0.000270 MGD/UNIT	15	270	0.0041		NA NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
F109.B																				
F109.B	**NODE TOTAL**			**44.19**	**140.38**				**0.0392**			**0.0000**	**0.0392**	**0.1024**		**0.0392**	**0.0502**		**0.0000**	**0.0522**
F109.34	109.34	99	EX-SFR	12.35		0.000270 MGD/UNIT	37	270	0.0100		NA NA	0.0000	0.0100		90%	0.0090		10%	0.0010	
F109.34	109.34	107	R1-7500	2.30		0.000864 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		0%	0.0000		100%	0.0020	
F109.34	**NODE TOTAL**			**14.65**	**14.65**				**0.0120**			**0.0000**	**0.0120**	**0.0120**		**0.0090**	**0.0090**		**0.0030**	**0.0030**
F109.05	109.05	99	EX-SFR	15.93		0.000270 MGD/UNIT	49	270	0.0132		NA NA	0.0000	0.0132		100%	0.0132		0%	0.0000	
F109.05	109.05	103	VL-RES	5.41		0.000540 MGD/ACRE		270	0.0029		NA NA	0.0000	0.0029		0%	0.0000		100%	0.0029	
F109.05	**NODE TOTAL**			**21.34**	**176.37**				**0.0161**			**0.0000**	**0.0161**	**0.1305**		**0.0132**	**0.0724**		**0.0029**	**0.0581**
F109.C	109.C	103	VL-RES	20.01		0.000540 MGD/ACRE		270	0.0108		NA NA	0.0000	0.0108		0%	0.0000		100%	0.0108	
F109.C																				
F109.C	**NODE TOTAL**			**20.01**	**20.01**				**0.0108**			**0.0000**	**0.0108**	**0.0108**		**0.0000**	**0.0000**		**0.0108**	**0.0108**
F109.E	109.E	103	VL-RES	10.03		0.000540 MGD/ACRE		270	0.0054		NA NA	0.0000	0.0054		0%	0.0000		100%	0.0054	
F109.E																				
F109.E	**NODE TOTAL**			**10.03**	**30.04**				**0.0054**			**0.0000**	**0.0054**	**0.0162**		**0.0000**	**0.0000**		**0.0054**	**0.0162**
F109.F	109.F	103	VL-RES	10.05		0.000540 MGD/ACRE		270	0.0054		NA NA	0.0000	0.0054		0%	0.0000		100%	0.0054	
F109.F																				
F109.F	**NODE TOTAL**			**10.05**	**40.09**				**0.0054**			**0.0000**	**0.0054**	**0.0216**		**0.0000**	**0.0000**		**0.0054**	**0.0216**
F108.47	108.47	99	EX-SFR	20.06		0.000270 MGD/UNIT	44	270	0.0119		NA NA	0.0000	0.0119		100%	0.0119		0%	0.0000	
F108.47	108.47	99	EX-SFR	40.23		0.000270 MGD/UNIT	107	270	0.0289		NA NA	0.0000	0.0289		100%	0.0289		0%	0.0000	
F108.47	108.47	107	R1-7500	1.66		0.000864 MGD/ACRE		270	0.0014		NA NA	0.0000	0.0014		0%	0.0000		100%	0.0014	
F108.47	108.47	103	VL-RES	2.52		0.000540 MGD/ACRE		270	0.0014		NA NA	0.0000	0.0014		0%	0.0000		100%	0.0014	
F108.47	108.47	103	VL-RES	2.29		0.000540 MGD/ACRE		270	0.0012		NA NA	0.0000	0.0012		0%	0.0000		100%	0.0012	
F108.47	**NODE TOTAL**			**66.76**	**283.22**				**0.0448**			**0.0000**	**0.0448**	**0.1969**		**0.0408**	**0.1132**		**0.0040**	**0.0837**
F108.B	108.B	107	R1-7500	15.21		0.000864 MGD/ACRE		270	0.0131		NA NA	0.0000	0.0131		0%	0.0000		100%	0.0131	
F108.B	108.B	103	VL-RES	2.53		0.000540 MGD/ACRE		270	0.0014		NA NA	0.0000	0.0014		0%	0.0000		100%	0.0014	
F108.B	**NODE TOTAL**			**17.74**	**17.74**				**0.0145**			**0.0000**	**0.0145**	**0.0145**		**0.0000**	**0.0000**		**0.0145**	**0.0145**
F108.01	108.01	103	VL-RES	6.88		0.000540 MGD/ACRE		270	0.0037		NA NA	0.0000	0.0037		0%	0.0000		100%	0.0037	
F108.01																				
F108.01	**NODE TOTAL**			**6.88**	**307.84**				**0.0037**			**0.0000**	**0.0037**	**0.2151**		**0.0000**	**0.1132**		**0.0037**	**0.1019**
F108.31	**NODE TOTAL**				**307.84**									**0.2151**			**0.1132**			**0.1019**
F108.D	108.D	107	R1-7500	14.15		0.000864 MGD/ACRE		270	0.0122		NA NA	0.0000	0.0122		0%	0.0000		100%	0.0122	
F108.D	108.D	103	VL-RES	10.04		0.000540 MGD/ACRE		270	0.0054		NA NA	0.0000	0.0054		0%	0.0000		100%	0.0054	
F108.D	**NODE TOTAL**			**24.19**	**24.19**				**0.0176**			**0.0000**	**0.0176**	**0.0176**		**0.0000**	**0.0000**		**0.0176**	**0.0176**
F108.E	108.E	107	R1-7500	25.30		0.000864 MGD/ACRE		270	0.0219		NA NA	0.0000	0.0219		0%	0.0000		100%	0.0219	
F108.E																				
F108.E	**NODE TOTAL**			**25.30**	**49.49**				**0.0219**			**0.0000**	**0.0219**	**0.0395**		**0.0000**	**0.0000**		**0.0219**	**0.0395**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
						RESIDENTIAL					NON-RESIDENTIAL					DEVELOPED			UNDEVELOPED	
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	PROJECTED FLOW GENERATION RATE	ACTUAL NO. OF SFR DU'S	PROJ FLOW PER SFR DU (G/DAY)	PROJ AVG DAILY FLOW (MGD)	SPECIAL UNITS	PROJECTED FLOW GENERATION RATE	PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	PORTION DE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)	PORTION UNDE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
F108.F	**NODE TOTAL**				**357.33**									**0.2546**			**0.1132**			**0.1414**
F81.B	81.B	103	VL-RES	33.86		0.000540 MGD/ACRE		270	0.0183		NA NA	0.0000	0.0183		0%	0.0000		100%	0.0183	
F81.B																				
F81.B	**NODE TOTAL**			**33.86**	**33.86**				**0.0183**			**0.0000**	**0.0183**	**0.0183**		**0.0000**	**0.0000**		**0.0183**	**0.0183**
F81.13	81.13	99	EX-SFR	17.69		0.000270 MGD/UNIT	51	270	0.0138		NA NA	0.0000	0.0138		100%	0.0138		0%	0.0000	
F81.13	81.13	99	EX-SFR	21.21		0.000270 MGD/UNIT	63	270	0.0170		NA NA	0.0000	0.0170		0%	0.0000		100%	0.0170	
F81.13	81.13	103	VL-RES	5.01		0.000540 MGD/ACRE		270	0.0027		NA NA	0.0000	0.0027		0%	0.0000		100%	0.0027	
F81.13	81.13	170	OPEN	80.67		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F81.13	**NODE TOTAL**			**124.58**	**515.77**				**0.0335**			**0.0000**	**0.0335**	**0.3064**		**0.0138**	**0.1270**		**0.0197**	**0.1794**
F80.18	80.18	99	EX-SFR	24.39		0.000270 MGD/UNIT	59	270	0.0159		NA NA	0.0000	0.0159		100%	0.0159		0%	0.0000	
F80.18	80.18	130	OFFICE	6.19		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0074	0.0074		0%	0.0000		100%	0.0074	
F80.18	**NODE TOTAL**			**30.58**	**30.58**				**0.0159**			**0.0074**	**0.0233**	**0.0233**		**0.0159**	**0.0159**		**0.0074**	**0.0074**
(AREAS TRIBUTARY TO TEMPERANCE AND ALLUVIAL AVENUE SEWER MAINS S/O NEES AVENUE & E/O ARMSTRONG INTERCEPTOR)																				
F80.24	80.24	99	EX-SFR	21.29		0.000270 MGD/UNIT	83	270	0.0224		NA NA	0.0000	0.0224		100%	0.0224		0%	0.0000	
F80.24	80.24	130	OFFICE	32.02		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0384	0.0384		0%	0.0000		100%	0.0384	
F80.24	**NODE TOTAL**			**53.31**	**1,298.93**				**0.0224**			**0.0384**	**0.0608**	**1.2496**		**0.0224**	**0.1922**		**0.0384**	**1.0574**
F82.05	82.05	130	OFFICE	43.09		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0517	0.0517		0%	0.0000		100%	0.0517	
F82.05																				
F82.05	**NODE TOTAL**			**43.09**	**1,342.02**				**0.0000**			**0.0517**	**0.0517**	**1.3013**		**0.0000**	**0.1922**		**0.0517**	**1.1091**
F82.?	82.?	150	COMM	14.31		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0200	0.0200		10%	0.0020		90%	0.0180	
F82.?																				
F82.?	**NODE TOTAL**			**14.31**	**14.31**				**0.0000**			**0.0200**	**0.0200**	**0.0200**		**0.0020**	**0.0020**		**0.0180**	**0.0180**
F82.01	82.01	130	OFFICE	46.56		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0559	0.0559		15%	0.0084		85%	0.0475	
F82.01																				
F82.01	**NODE TOTAL**			**46.56**	**1,402.89**				**0.0000**			**0.0559**	**0.0559**	**1.3772**		**0.0084**	**0.2026**		**0.0475**	**1.1746**
(AREAS TRIBUTARY TO ARMSTRONG AND ALLUVIAL AVENUE SEWER MAINS N/0 SH#168 & W/O ARMSTRONG INTERCEPTOR)																				
F107.03	107.03	99	EX-SFR	151.63		0.000270 MGD/UNIT	479	270	0.1293		NA NA	0.0000	0.1293		100%	0.1293		0%	0.0000	
F107.03	107.03	170	OPEN	5.37		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F107.03	**NODE TOTAL**			**157.00**	**157.00**				**0.1293**			**0.0000**	**0.1293**	**0.1293**		**0.1293**	**0.1293**		**0.0000**	**0.0000**
F80.07	**NODE TOTAL**				**157.00**									**0.1293**			**0.1293**			**0.0000**
F80.03																				
F80.03																				
F80.03	**NODE TOTAL**			**0.00**	**157.00**				**0.0000**			**0.0000**	**0.0000**	**0.1293**		**0.0000**	**0.1293**		**0.0000**	**0.0000**
F80.27	80.27	106	L-RES	19.91		0.000729 MGD/ACRE		270	0.0145		NA NA	0.0000	0.0145		0%	0.0000		100%	0.0145	
F80.27	80.27	99	EX-SFR	5.02		0.000270 MGD/UNIT	14	270	0.0038		NA NA	0.0000	0.0038		25%	0.0010		75%	0.0029	
F80.27	80.27	190	EL-SCH	19.07		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F80.27	80.27	99	EX-SFR	4.96		0.000270 MGD/UNIT	16	270	0.0043		NA NA	0.0000	0.0043		85%	0.0037		15%	0.0006	
F80.27	**NODE TOTAL**			**48.96**	**48.96**				**0.0226**			**0.0041**	**0.0267**	**0.0267**		**0.0087**	**0.0087**		**0.0180**	**0.0180**
F56.A	56.A	130	OFFICE	8.03		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0096	0.0096		0%	0.0000		100%	0.0096	
F56.A	56.A	106	L-RES	7.69		0.000729 MGD/ACRE		270	0.0056		NA NA	0.0000	0.0056		0%	0.0000		100%	0.0056	
F56.A	**NODE TOTAL**			**15.72**	**15.72**				**0.0056**			**0.0096**	**0.0152**	**0.0152**		**0.0000**	**0.0000**		**0.0152**	**0.0152**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
F80.01	80.01	106	L-RES	6.81		0.000729 MGD/ACRE		270	0.0050		NA NA	0.0000	0.0050		0%	0.0000		100%	0.0050	
F80.01	80.01	106	L-RES	1.37		0.000729 MGD/ACRE		270	0.0010		NA NA	0.0000	0.0010		0%	0.0000		100%	0.0010	
F80.01	80.01	99	EX-SFR	96.27		0.000270 MGD/UNIT	345	270	0.0932		NA NA	0.0000	0.0932		100%	0.0932		0%	0.0000	
F80.01	80.01	106	L-RES	3.12		0.000729 MGD/ACRE		270	0.0023		NA NA	0.0000	0.0023		0%	0.0000		100%	0.0023	
F80.01	80.01	130	OFFICE	5.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0060	0.0060		0%	0.0000		100%	0.0060	
F80.01	80.01	130	OFFICE	2.49		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0030	0.0030		0%	0.0000		100%	0.0030	
F80.01	**NODE TOTAL**			**115.06**	**336.74**				**0.1015**			**0.0090**	**0.1105**	**0.2817**		**0.0932**	**0.2312**		**0.0173**	**0.0505**
F43.03	43.03	106	L-RES	2.91		0.000729 MGD/ACRE		270	0.0021		NA NA	0.0000	0.0021		0%	0.0000		100%	0.0021	
F43.03	43.03	99	EX-SFR	13.94		0.000270 MGD/UNIT	56	270	0.0151		NA NA	0.0000	0.0151		100%	0.0151		0%	0.0000	
F43.03	43.03	106	L-RES	2.55		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
F43.03	43.03	130	OFFICE	16.26		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0195	0.0195		0%	0.0000		100%	0.0195	
F43.03	**NODE TOTAL**			**35.66**	**35.66**				**0.0191**			**0.0195**	**0.0386**	**0.0386**		**0.0151**	**0.0151**		**0.0235**	**0.0235**
F43.A	43.A	106	L-RES	24.80		0.000729 MGD/ACRE		270	0.0181		NA NA	0.0000	0.0181		0%	0.0000		100%	0.0181	
F43.A																				
F43.A	**NODE TOTAL**			**24.80**	**24.80**				**0.0181**			**0.0000**	**0.0181**	**0.0181**		**0.0000**	**0.0000**		**0.0181**	**0.0181**
F57.34	57.34	130	OFFICE	37.80		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0454	0.0454		0%	0.0000		100%	0.0454	
F57.34																				
F57.34	**NODE TOTAL**			**37.80**	**435.00**				**0.0000**			**0.0454**	**0.0454**	**0.3838**		**0.0000**	**0.2463**		**0.0454**	**0.1375**
F57.37	**NODE TOTAL**				**1,837.89**									**1.7610**			**0.4489**			**1.3121**
(AREAS TRIBUTARY TO TOLLHOUSE ROAD SEWER AND HERNDON AVENUE SEWER)																				
F58.A	58.A	140	INDUST	13.41		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0134	0.0134		0%	0.0000		100%	0.0134	
F58.A	58.A	150	COMM	9.85		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0138	0.0138		0%	0.0000		100%	0.0138	
F58.A	**NODE TOTAL**			**23.26**	**23.26**				**0.0000**			**0.0272**	**0.0272**	**0.0272**		**0.0000**	**0.0000**		**0.0272**	**0.0272**
F58.04	58.04	140	INDUST	7.68		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0077	0.0077		50%	0.0039		50%	0.0039	
F58.04																				
F58.04	**NODE TOTAL**			**7.68**	**1,868.83**				**0.0000**			**0.0077**	**0.0077**	**1.7959**		**0.0039**	**0.4528**		**0.0039**	**1.3431**
F112.01	112.01	130	OFFICE	62.96		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0756	0.0756		0%	0.0000		100%	0.0756	
F112.01	112.01	106	L-RES	7.18		0.000729 MGD/ACRE		270	0.0052		NA NA	0.0000	0.0052		0%	0.0000		100%	0.0052	
F112.01	**NODE TOTAL**			**70.14**	**70.14**				**0.0052**			**0.0756**	**0.0808**	**0.0808**		**0.0000**	**0.0000**		**0.0808**	**0.0808**
F83.10	83.10	130	OFFICE	62.67		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0752	0.0752		10%	0.0075		90%	0.0677	
F83.10	83.10	180	HOSPTL	17.40		NA NA		270	0.0000	268	0.000300 MGD/BED	0.0804	0.0804		40%	0.0322		60%	0.0482	
F83.10	**NODE TOTAL**			**80.07**	**80.07**				**0.0000**			**0.1556**	**0.1556**	**0.1556**		**0.0397**	**0.0397**		**0.1159**	**0.1159**
F83.06	**NODE TOTAL**				**150.21**									**0.2364**			**0.0397**			**0.1967**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
F59.86	59.86	121	MH-RES	2.78		0.002244 MGD/ACRE		270	0.0062		NA NA	0.0000	0.0062		20%	0.0012		80%	0.0050	
F59.86	59.86	130	OFFICE	5.11		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0061	0.0061		0%	0.0000		100%	0.0061	
F59.86	59.86	99	EX-SFR	20.05		0.000270 MGD/UNIT	91	270	0.0246		NA NA	0.0000	0.0246		100%	0.0246		0%	0.0000	
F59.86	59.86	122	H-RES	14.45		0.003762 MGD/ACRE		270	0.0544		NA NA	0.0000	0.0544		80%	0.0435		20%	0.0109	
F59.86	59.86	190	EL-SCH	15.18		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F59.86	59.86	106	L-RES	20.05		0.000729 MGD/ACRE		270	0.0146		NA NA	0.0000	0.0146		0%	0.0000		100%	0.0146	
F59.86	**NODE TOTAL**			**77.62**	**77.62**				**0.0998**			**0.0102**	**0.1100**	**0.1100**		**0.0735**	**0.0735**		**0.0365**	**0.0365**
F59.19	59.19	121	MH-RES	2.89		0.002244 MGD/ACRE		270	0.0065		NA NA	0.0000	0.0065		20%	0.0013		80%	0.0052	
F59.19	59.19																			
F59.19	**NODE TOTAL**			**2.89**	**230.72**				**0.0065**			**0.0000**	**0.0065**	**0.3529**		**0.0013**	**0.1144**		**0.0052**	**0.2385**
F58.B	58.B	150	COMM	5.71		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0080	0.0080		0%	0.0000		100%	0.0080	
F58.B	58.B	130	OFFICE	21.33		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0256	0.0256		0%	0.0000		100%	0.0256	
F58.B	**NODE TOTAL**			**27.04**	**27.04**				**0.0000**			**0.0336**	**0.0336**	**0.0336**		**0.0000**	**0.0000**		**0.0336**	**0.0336**
F59.18	59.18	150	COMM	2.37		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0033	0.0033		50%	0.0017		50%	0.0017	
F59.18	59.18	140	INDUST	3.78		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0038	0.0038		25%	0.0010		75%	0.0029	
F59.18	59.18	150	COMM	7.37		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0103	0.0103		0%	0.0000		100%	0.0103	
F59.18	59.18	130	OFFICE	5.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0060	0.0060		0%	0.0000		100%	0.0060	
F59.18	59.18	150	COMM	2.50		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0035	0.0035		0%	0.0000		100%	0.0035	
F59.18	59.18	109	M-RES	2.53		0.001107 MGD/ACRE		270	0.0028	850	NA NA	0.0000	0.0028		0%	0.0000		100%	0.0028	
F59.18	59.18	121	MH-RES	5.92		0.002244 MGD/ACRE		270	0.0133	850	NA NA	0.0000	0.0133		20%	0.0027		80%	0.0106	
F59.18	59.18	99	EX-SFR	10.19		0.000270 MGD/UNIT	36	270	0.0097		NA NA	0.0000	0.0097		100%	0.0097		0%	0.0000	
F59.18	**NODE TOTAL**			**39.66**	**297.42**				**0.0258**			**0.0269**	**0.0527**	**0.4392**		**0.0150**	**0.1294**		**0.0377**	**0.3098**
PUMP	**NODE TOTAL**				**172.86**				**0.1116**			**0.0445**		**0.1562**			**0.0911**			**0.0651**
F59.81	59.81	130	OFFICE	5.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0060	0.0060		0%	0.0000		100%	0.0060	
F59.81	59.81	109	M-RES	2.50		0.001107 MGD/ACRE		270	0.0028		NA NA	0.0000	0.0028		0%	0.0000		100%	0.0028	
F59.81	59.81	150	COMM	2.50		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0035	0.0035		0%	0.0000		100%	0.0035	
F59.81	59.81	107	R1-7500	9.59		0.000864 MGD/ACRE		270	0.0083		NA NA	0.0000	0.0083		0%	0.0000		100%	0.0083	
F59.81	59.81	109	M-RES	8.86		0.001107 MGD/ACRE		270	0.0098		NA NA	0.0000	0.0098		25%	0.0025		75%	0.0074	
F59.81	59.81	99	EX-SFR	13.07		0.000270 MGD/UNIT	42	270	0.0113		NA NA	0.0000	0.0113		100%	0.0113		0%	0.0000	
F59.81	**NODE TOTAL**			**41.52**	**2,380.63**				**0.0322**			**0.0095**	**0.0417**	**2.4330**		**0.0138**	**0.6870**		**0.0280**	**1.7460**
F41.103	**NODE TOTAL**				**2,380.63**									**2.4330**			**0.6870**			**1.7460**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
(AREAS TRIBUTARY TO BULLARD AVENUE SEWER E/O ARMSTRONG AVENUE)																				
F84.A	84.A	106	L-RES	17.12		0.000729 MGD/ACRE		270	0.0125		NA NA	0.0000	0.0125		0%	0.0000		100%	0.0125	
F84.A	84.A	170	OPEN	75.86		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F84.A	84.A	106	L-RES	5.39		0.000729 MGD/ACRE		270	0.0039		NA NA	0.0000	0.0039		0%	0.0000		100%	0.0039	
F84.A	84.A	170	OPEN	2.49		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F84.A	84.A	106	L-RES	10.41		0.000729 MGD/ACRE		270	0.0076		NA NA	0.0000	0.0076		0%	0.0000		100%	0.0076	
F84.A	**NODE TOTAL**			**111.27**	**111.27**				**0.0240**			**0.0000**	**0.0240**	**0.0240**		**0.0000**	**0.0000**		**0.0240**	**0.0240**
F86.118	86.118	106	L-RES	2.08		0.000729 MGD/ACRE		270	0.0015		NA NA	0.0000	0.0015		0%	0.0000		100%	0.0015	
F86.118	86.118	99	EX-SFR	10.41		0.000270 MGD/UNIT	33	270	0.0089		NA NA	0.0000	0.0089		100%	0.0089		0%	0.0000	
F86.118	86.118	99	EX-SFR	4.68		0.000270 MGD/UNIT	15	270	0.0041		NA NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
F86.118	**NODE TOTAL**			**17.17**	**128.44**				**0.0145**			**0.0000**	**0.0145**	**0.0385**		**0.0130**	**0.0130**		**0.0015**	**0.0255**
F86.115	86.115	99	EX-SFR	34.30		0.000270 MGD/UNIT	105	270	0.0284		NA NA	0.0000	0.0284		100%	0.0284		0%	0.0000	
F86.115	86.115																			
F86.115	**NODE TOTAL**			**34.30**	**162.74**				**0.0284**			**0.0000**	**0.0284**	**0.0669**		**0.0284**	**0.0414**		**0.0000**	**0.0255**
F85.05	F85.05	109	M-RES	3.09		0.001107 MGD/ACRE		270	0.0034		NA NA	0.0000	0.0034		100%	0.0034		0%	0.0000	
F85.05																				
F85.05	**NODE TOTAL**			**3.09**	**165.83**				**0.0034**			**0.0000**	**0.0034**	**0.0703**		**0.0034**	**0.0448**		**0.0000**	**0.0255**
F85.06	85.06	109	M-RES	7.19		0.001107 MGD/ACRE		270	0.0080		NA NA	0.0000	0.0080		0%	0.0000		100%	0.0080	
F85.06	85.06	99	EX-SFR	27.87		0.000270 MGD/UNIT	83	270	0.0224		NA NA	0.0000	0.0224		100%	0.0224		0%	0.0000	
F85.06	85.06	106	L-RES	2.89		0.000729 MGD/ACRE		270	0.0021		NA NA	0.0000	0.0021		0%	0.0000		100%	0.0021	
F85.06	85.06	121	MH-RES	8.21		0.002244 MGD/ACRE		270	0.0184		NA NA	0.0000	0.0184		0%	0.0000		100%	0.0184	
F85.06	**NODE TOTAL**			**46.16**	**211.99**				**0.0509**			**0.0000**	**0.0509**	**0.1212**		**0.0224**	**0.0672**		**0.0285**	**0.0540**
F85.B	85.B	170	OPEN	18.98		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F85.B	85.B	170	OPEN	18.11		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F85.B	85.B	109	M-RES	9.78		0.001107 MGD/ACRE		270	0.0108		NA NA	0.0000	0.0108		0%	0.0000		100%	0.0108	
F85.B	**NODE TOTAL**			**46.87**	**46.87**				**0.0108**			**0.0000**	**0.0108**	**0.0108**		**0.0000**	**0.0000**		**0.0108**	**0.0108**
F86.03	86.03	170	OPEN	2.44		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F86.03	86.03	99	EX-SFR	60.87		0.000270 MGD/UNIT	263	270	0.0710		NA NA	0.0000	0.0710		100%	0.0710		0%	0.0000	
F86.03	**NODE TOTAL**			**63.31**	**63.31**				**0.0710**			**0.0000**	**0.0710**	**0.0710**		**0.0710**	**0.0710**		**0.0000**	**0.0000**
F85.01	**NODE TOTAL**				**322.17**									**0.2030**			**0.1382**			**0.0648**
F41.111	**NODE TOTAL**				**2,702.80**									**2.6360**			**0.8252**			**1.8108**
F40.65	**NODE TOTAL**				**2,702.80**									**2.6360**			**0.8252**			**1.8108**

FLOW GENERATION CALCULATIONS

TABLE F-FG-2

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR SEWER																				
(AREAS TRIBUTARY TO SHAW AVENUE SEWER E/O ARMSTRONG AVENUE)																				
F87.79	87.79	107	R1-7500	0.00		0.000864 MGD/ACRE		270	0.0000		NA NA	0.0000	0.0000		0%	0.0000		100%	0.0000	
F87.79																				
F87.79	**NODE TOTAL**			**0.00**	**0.00**				**0.0000**			**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**
F87.53	87.53	107	R1-7500	0.00		0.000864 MGD/ACRE		270	0.0000		NA NA	0.0000	0.0000		0%	0.0000		100%	0.0000	
F87.53																				
F87.53	**NODE TOTAL**			**0.00**	**0.00**				**0.0000**			**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**
F87.56	87.56	99	EX-SFR	34.46		0.000270 MGD/UNIT	112	270	0.0302		NA NA	0.0000	0.0302		100%	0.0302		0%	0.0000	
F87.56																				
F87.56	**NODE TOTAL**			**34.46**	**34.46**				**0.0302**			**0.0000**	**0.0302**	**0.0302**		**0.0302**	**0.0302**		**0.0000**	**0.0000**
F87.10	87.10	190	EL-SCH	16.42		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F87.10																				
F87.10	**NODE TOTAL**			**16.42**	**16.42**				**0.0000**			**0.0041**	**0.0041**	**0.0041**		**0.0041**	**0.0041**		**0.0000**	**0.0000**
F86.62	86.62	99	EX-SFR	40.23		0.000270 MGD/UNIT	139	270	0.0375		NA NA	0.0000	0.0375		100%	0.0375		0%	0.0000	
F86.62																				
F86.62	**NODE TOTAL**			**40.23**	**56.65**				**0.0375**			**0.0000**	**0.0375**	**0.0416**		**0.0375**	**0.0416**		**0.0000**	**0.0000**
F87.33	87.33	99	EX-SFR	29.73		0.000270 MGD/UNIT	111	270	0.0300		NA NA	0.0000	0.0300		100%	0.0300		0%	0.0000	
F87.33	87.33	106	L-RES	2.28		0.000729 MGD/ACRE		270	0.0017		NA NA	0.0000	0.0017		50%	0.0009		50%	0.0009	
F87.33	**NODE TOTAL**			**32.01**	**88.66**				**0.0317**			**0.0000**	**0.0317**	**0.0733**		**0.0309**	**0.0725**		**0.0009**	**0.0009**
F87.19	87.19	99	EX-SFR	63.55		0.000270 MGD/UNIT	220	270	0.0594		NA NA	0.0000	0.0594		90%	0.0535		10%	0.0059	
F87.19																				
F87.19	**NODE TOTAL**			**63.55**	**63.55**				**0.0594**			**0.0000**	**0.0594**	**0.0594**		**0.0535**	**0.0535**		**0.0059**	**0.0059**
F87.18	87.18	99	EX-SFR	11.00		0.000270 MGD/UNIT	38	270	0.0103	850	NA NA	0.0000	0.0103		100%	0.0103		0%	0.0000	
F87.18																				
F87.18	**NODE TOTAL**			**11.00**	**163.21**				**0.0103**			**0.0000**	**0.0103**	**0.1430**		**0.0103**	**0.1362**		**0.0000**	**0.0068**
F87.14	**NODE TOTAL**				**163.21**									**0.1430**			**0.1362**			**0.0068**
F87.11	**NODE TOTAL**				**197.67**									**0.1732**			**0.1664**			**0.0068**
(ARMSTRONG INTERCEPTOR WEST OF ARMSTRONG AVENUE TO ASHLAN AVENUE)																				
F62.88	**NODE TOTAL**				**2,900.47**									**2.8092**			**0.9916**			**1.8175**
F25.78	**NODE TOTAL**				**2,900.47**									**2.8092**			**0.9916**			**1.8175**
F37.51	**NODE TOTAL**				**2,900.47**									**2.8092**			**0.9916**			**1.8175**
TOTALS THIS SHEET (INCLUDING HERNDON-CLOVIS DIVERSION)									**2.0954**			**0.7137**		**2.8092**			**0.9916**			**1.8175**
%									**74.59%**			**25.41%**		**100.00%**			**35.30%**			**64.70%**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																						
(AREAS TRIBUTARY TO HERNDON AVENUE,TOLLHOUSE ROAD & SUNNYSIDE AVENUE SEWER MAINS N/O BULLARD AVENUE)																						
F58.C	58.C	122	H-RES	4.12		0.003762	MGD/ACRE		270	0.0155		NA	NA	0.0000	0.0155		0%	0.0000		100%	0.0155	
F58.C	58.C	130	OFFICE	11.02		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0132	0.0132		0%	0.0000		100%	0.0132	
F58.C	58.C	150	COMM	10.13		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0142	0.0142		0%	0.0000		100%	0.0142	
F58.C	58.C	122	H-RES	6.36		0.003762	MGD/ACRE		270	0.0239		NA	NA	0.0000	0.0239		0%	0.0000		100%	0.0239	
F58.C	58.C	130	OFFICE	7.96		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0096	0.0096		0%	0.0000		100%	0.0096	
F58.C	**NODE TOTAL**			**39.59**	**39.59**					**0.0394**				**0.0370**	**0.0764**	**0.0764**		**0.0000**	**0.0000**		**0.0764**	**0.0764**
F42.01	42.01	150	COMM	4.27		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0060	0.0060		40%	0.0024		60%	0.0036	
F42.01	42.01	170	OPEN	1.97		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F42.01	42.01	99	EX-SFR	23.61		0.000270	MGD/UNIT	252	270	0.0680		NA	NA	0.0000	0.0680		5%	0.0034		95%	0.0646	
F42.01	42.01	122	H-RES	20.13		0.003762	MGD/ACRE		270	0.0757		NA	NA	0.0000	0.0757		0%	0.0000		100%	0.0757	
F42.01	42.01	130	OFFICE	17.80		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0214	0.0214		50%	0.0107		50%	0.0107	
F42.01	42.01	150	COMM	29.87		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0418	0.0418		65%	0.0272		35%	0.0146	
F42.01	**NODE TOTAL**			**97.65**	**137.24**					**0.1437**				**0.0692**	**0.2129**	**0.2893**		**0.0437**	**0.0437**		**0.1692**	**0.2456**
F01.15	01.15	122	H-RES	9.49		0.003762	MGD/ACRE		270	0.0357		NA	NA	0.0000	0.0357		100%	0.0357		0%	0.0000	
F01.15	01.15	99	EX-SFR	7.02		0.000270	MGD/UNIT	21	270	0.0057		NA	NA	0.0000	0.0057		100%	0.0057		0%	0.0000	
F01.15	01.15	150	COMM	21.68		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0304	0.0304		60%	0.0182		40%	0.0122	
F01.15	01.15	192	HI-SCH	8.06		NA	NA		270	0.0000	650	0.000016	MGD/STUDENT	0.0104	0.0104		100%	0.0104		0%	0.0000	
F01.15	**NODE TOTAL**			**46.25**	**183.49**					**0.0414**				**0.0408**	**0.0822**	**0.3715**		**0.0700**	**0.1137**		**0.0122**	**0.2578**
F01.04	**NODE TOTAL**				**183.49**											**0.3715**			**0.1137**			**0.2578**
F01.05	01.05	130	OFFICE	18.49		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0222	0.0222		100%	0.0222		0%	0.0000	
F01.05	01.05	99	EX-SFR	21.17		0.000270	MGD/UNIT	46	270	0.0124		NA	NA	0.0000	0.0124		95%	0.0118		5%	0.0006	
F01.05	**NODE TOTAL**			**39.66**	**223.15**					**0.0124**				**0.0222**	**0.0346**	**0.4061**		**0.0340**	**0.1477**		**0.0006**	**0.2584**
F01.21	01.21	140	INDUST	37.00		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0370	0.0370		80%	0.0296		20%	0.0074	
F01.21	01.21	99	EX-SFR	17.36		0.000270	MGD/UNIT	81	270	0.0219		NA	NA	0.0000	0.0219		100%	0.0219		0%	0.0000	
F01.21	**NODE TOTAL**			**54.36**	**277.51**					**0.0219**				**0.0370**	**0.0589**	**0.4650**		**0.0515**	**0.1992**		**0.0074**	**0.2658**
F01.19	01.19	140	INDUST	18.61		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0186	0.0186		95%	0.0177		5%	0.0009	
F01.19	01.19	170	OPEN	9.53		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F01.19	**NODE TOTAL**			**28.14**	**305.65**					**0.0000**				**0.0186**	**0.0186**	**0.4836**		**0.0177**	**0.2169**		**0.0009**	**0.2667**
F01.09	01.09	140	INDUST	24.24		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0242	0.0242		85%	0.0206		15%	0.0036	
F01.09	01.09	170	OPEN	10.03		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F01.09	01.09	99	EX-SFR	1.53		0.000270	MGD/UNIT	5	270	0.0014		NA	NA	0.0000	0.0014		100%	0.0014		0%	0.0000	
F01.09	**NODE TOTAL**			**35.80**	**341.45**					**0.0014**				**0.0242**	**0.0256**	**0.5092**		**0.0220**	**0.2388**		**0.0036**	**0.2704**
F12.53	12.53	140	INDUST	20.46		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0205	0.0205		70%	0.0144		30%	0.0062	
F12.53																						
F12.53	**NODE TOTAL**			**20.46**	**361.91**					**0.0000**				**0.0205**	**0.0205**	**0.5297**		**0.0144**	**0.2532**		**0.0062**	**0.2765**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																				
F12.04	12.04	99	EX-SFR	10.85		0.000270 MGD/UNIT	59	270	0.0159		NA NA	0.0000	0.0159		100%	0.0159		0%	0.0000	
F12.04	12.04	130	OFFICE	7.24		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0087	0.0087		100%	0.0087		0%	0.0000	
F12.04	12.04	140	INDUST	12.29		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0123	0.0123		100%	0.0123		0%	0.0000	
F12.04	12.04	150	COMM	11.37		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0159	0.0159		0%	0.0000		100%	0.0159	
F12.04	12.04	121	MH-RES	14.30		0.002244 MGD/ACRE		270	0.0321		NA NA	0.0000	0.0321		100%	0.0321		0%	0.0000	
F12.04	12.04	99	EX-SFR	18.97		0.000270 MGD/UNIT	106	270	0.0286		NA NA	0.0000	0.0286		100%	0.0286		0%	0.0000	
F12.04	12.04	130	OFFICE	12.89		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0155	0.0155		100%	0.0155		0%	0.0000	
F12.04	12.04	140	INDUST	1.30		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0013	0.0013		100%	0.0013		0%	0.0000	
F12.04	12.04	140	INDUST	2.42		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0024	0.0024		100%	0.0024		0%	0.0000	
F12.04	**NODE TOTAL**			**91.63**	**91.63**				**0.0766**			**0.0561**	**0.1327**	**0.1327**		**0.1168**	**0.1168**		**0.0159**	**0.0159**
F12.10	12.10	122	H-RES	1.74		0.003762 MGD/ACRE		270	0.0065		NA NA	0.0000	0.0065		80%	0.0052		20%	0.0013	
F12.10	12.10	99	EX-SFR	3.91		0.000270 MGD/UNIT	18	270	0.0049		NA NA	0.0000	0.0049		95%	0.0047		5%	0.0002	
F12.10	12.10	150	COMM	1.07		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0015	0.0015		0%	0.0000		100%	0.0015	
F12.10	**NODE TOTAL**			**6.72**	**98.35**				**0.0114**			**0.0015**	**0.0129**	**0.1456**		**0.0099**	**0.1267**		**0.0030**	**0.0189**
F12.09	12.09	150	COMM	3.71		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0052	0.0052		80%	0.0042		20%	0.0010	
F12.09																				
F12.09	**NODE TOTAL**			**3.71**	**102.06**				**0.0000**			**0.0052**	**0.0052**	**0.1508**		**0.0042**	**0.1308**		**0.0010**	**0.0200**
F12.57	12.57	109	M-RES	5.16		0.001107 MGD/ACRE		270	0.0057		NA NA	0.0000	0.0057		100%	0.0057		0%	0.0000	
F12.57	12.57	99	EX-SFR	49.55		0.000270 MGD/UNIT	196	270	0.0529		NA NA	0.0000	0.0529		95%	0.0503		5%	0.0026	
F12.57	**NODE TOTAL**			**54.71**	**518.68**				**0.0586**			**0.0000**	**0.0586**	**0.7391**		**0.0560**	**0.4400**		**0.0026**	**0.2992**
F12.61	**NODE TOTAL**				**518.68**									**0.7391**			**0.4400**			**0.2992**
(AREAS TRIBUTARY TO BULLARD AVENUE SEWER MAIN; SUNNYSIDE AVENUE SEWER MAIN BETWEEN BULLARD & BARSTOW AVENUE)																				
F60.52	60.52	106	L-RES	24.94		0.000729 MGD/ACRE		270	0.0182		NA NA	0.0000	0.0182		0%	0.0000		100%	0.0182	
F60.52	60.52	99	EX-SFR	101.79		0.000270 MGD/UNIT	355	270	0.0959		NA NA	0.0000	0.0959		100%	0.0959		0%	0.0000	
F60.52	**NODE TOTAL**			**126.73**	**126.73**				**0.1141**			**0.0000**	**0.1141**	**0.1141**		**0.0959**	**0.0959**		**0.0182**	**0.0182**
F60.53	60.53	106	L-RES	5.03		0.000729 MGD/ACRE		270	0.0037		NA NA	0.0000	0.0037		0%	0.0000		100%	0.0037	
F60.53	60.53	99	EX-SFR	168.63		0.000270 MGD/UNIT	572	270	0.1544		NA NA	0.0000	0.1544		100%	0.1544		0%	0.0000	
F60.53	60.53	106	L-RES	3.71		0.000729 MGD/ACRE		270	0.0027		NA NA	0.0000	0.0027		100%	0.0027		0%	0.0000	
F60.53	**NODE TOTAL**			**177.37**	**304.10**				**0.1608**			**0.0000**	**0.1608**	**0.2749**		**0.1571**	**0.2530**		**0.0037**	**0.0219**
F59.04	59.04	109	M-RES	1.44		0.001107 MGD/ACRE		270	0.0016		NA NA	0.0000	0.0016		0%	0.0000		100%	0.0016	
F59.04	59.04	99	EX-SFR	147.26		0.000270 MGD/UNIT	534	270	0.1442		NA NA	0.0000	0.1442		100%	0.1442		0%	0.0000	
F59.04	59.04	190	EL-SCH	15.00		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F59.04	59.04	109	M-RES	5.30		0.001107 MGD/ACRE		270	0.0059		NA NA	0.0000	0.0059		0%	0.0000		100%	0.0059	
F59.04	**NODE TOTAL**			**169.00**	**169.00**				**0.1517**			**0.0041**	**0.1558**	**0.1558**		**0.1483**	**0.1483**		**0.0075**	**0.0075**
F42.05	42.05	109	M-RES	3.66		0.001107 MGD/ACRE		270	0.0041		NA NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
F42.05	42.05	99	EX-SFR	138.91		0.000270 MGD/UNIT	495	270	0.1337		NA NA	0.0000	0.1337		100%	0.1337		0%	0.0000	
F42.05	42.05	170	OPEN	12.33		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F42.05	**NODE TOTAL**			**154.90**	**323.90**				**0.1378**			**0.0000**	**0.1378**	**0.2936**		**0.1378**	**0.2861**		**0.0000**	**0.0075**
F41.61	**NODE TOTAL**				**628.00**									**0.5685**			**0.5391**			**0.0294**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																				
F40.14	40.14	99	EX-SFR	28.01		0.000270 MGD/UNIT	90	270	0.0243		NA NA	0.0000	0.0243		100%	0.0243		0%	0.0000	
F40.14																				
F40.14	**NODE TOTAL**			**28.01**	**28.01**				**0.0243**			**0.0000**	**0.0243**	**0.0243**		**0.0243**	**0.0243**		**0.0000**	**0.0000**
F40.10	40.10	170	OPEN	21.23		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F40.10	40.10	99	EX-SFR	8.81		0.000270 MGD/UNIT	36	270	0.0097		NA NA	0.0000	0.0097		100%	0.0097		0%	0.0000	
F40.10	40.10	109	M-RES	1.05		0.001107 MGD/ACRE		270	0.0012		NA NA	0.0000	0.0012		100%	0.0012		0%	0.0000	
F40.10	**NODE TOTAL**			**31.09**	**687.10**				**0.0109**			**0.0000**	**0.0109**	**0.6037**		**0.0109**	**0.5743**		**0.0000**	**0.0294**
F12.64	12.64	150	COMM	0.56		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0008	0.0008		100%	0.0008		0%	0.0000	
F12.64	12.64	130	OFFICE	0.45		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0005	0.0005		100%	0.0005		0%	0.0000	
F12.64	12.64	99	EX-SFR	20.79		0.000270 MGD/UNIT	75	270	0.0203		NA NA	0.0000	0.0203		95%	0.0193		5%	0.0010	
F12.64	12.64	121	MH-RES	2.17		0.002244 MGD/ACRE		270	0.0049		NA NA	0.0000	0.0049		100%	0.0049		0%	0.0000	
F12.64	12.64	99	EX-SFR	5.03		0.000270 MGD/UNIT	21	270	0.0057		NA NA	0.0000	0.0057		95%	0.0054		5%	0.0003	
F12.64	**NODE TOTAL**			**29.00**	**716.10**				**0.0309**			**0.0013**	**0.0322**	**0.6359**		**0.0309**	**0.6052**		**0.0013**	**0.0307**
F12.63	12.63	109	M-RES	0.44		0.001107 MGD/ACRE		270	0.0005		NA NA	0.0000	0.0005		100%	0.0005		0%	0.0000	
F12.63	12.63	121	MH-RES	0.79		0.002244 MGD/ACRE		270	0.0018		NA NA	0.0000	0.0018		100%	0.0018		0%	0.0000	
F12.63	12.63	122	H-RES	4.29		0.003762 MGD/ACRE		270	0.0161		NA NA	0.0000	0.0161		75%	0.0121		25%	0.0040	
F12.63	**NODE TOTAL**			**5.52**	**1,240.30**				**0.0184**			**0.0000**	**0.0184**	**1.3934**		**0.0144**	**1.0595**		**0.0040**	**0.3339**
(AREAS TRIBUTARY TO BARSTOW AVENUE SEWER MAIN; SUNNYSIDE AVENUE SEWER MAIN BETWEEN BARSTOW & SHAW AVENUE)																				
F62.36	62.36	106	L-RES	1.54		0.000729 MGD/ACRE		270	0.0011		NA NA	0.0000	0.0011		50%	0.0006		50%	0.0006	
F62.36	62.36	99	EX-SFR	135.66		0.000270 MGD/UNIT	478	270	0.1291		NA NA	0.0000	0.1291		100%	0.1291		0%	0.0000	
F62.36	**NODE TOTAL**			**137.20**	**137.20**				**0.1302**			**0.0000**	**0.1302**	**0.1302**		**0.1297**	**0.1297**		**0.0006**	**0.0006**
F39.59	39.59	190	EL-SCH	27.34		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		100%	0.0045		0%	0.0000	
F39.59	39.59	99	EX-SFR	60.66		0.000270 MGD/UNIT	241	270	0.0651		NA NA	0.0000	0.0651		100%	0.0651		0%	0.0000	
F39.59	**NODE TOTAL**			**88.00**	**225.20**				**0.0651**			**0.0045**	**0.0696**	**0.1998**		**0.0696**	**0.1993**		**0.0000**	**0.0006**
F39.02	39.02	99	EX-SFR	91.98		0.000270 MGD/UNIT	324	270	0.0875		NA NA	0.0000	0.0875		100%	0.0875		0%	0.0000	
F39.02	39.02	190	EL-SCH	12.52		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F39.02	39.02	130	OFFICE	4.99		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0060	0.0060		75%	0.0045		25%	0.0015	
F39.02	**NODE TOTAL**			**109.49**	**109.49**				**0.0875**			**0.0101**	**0.0976**	**0.0976**		**0.0961**	**0.0961**		**0.0015**	**0.0015**
F39.01	**NODE TOTAL**				**334.69**									**0.2974**			**0.2954**			**0.0021**
F40.02	40.02	192	HI-SCH	54.03		NA NA		270	0.0000	2,750	0.000016 MGD/STUDENT	0.0440	0.0440		100%	0.0440		0%	0.0000	
F40.02																				
F40.02	**NODE TOTAL**			**54.03**	**54.03**				**0.0000**			**0.0440**	**0.0440**	**0.0440**		**0.0440**	**0.0440**		**0.0000**	**0.0000**
F13.71	13.71	130	OFFICE	1.16		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0014	0.0014		100%	0.0014		0%	0.0000	
F13.71	13.71	99	EX-SFR	1.99		0.000270 MGD/UNIT	6	270	0.0016		NA NA	0.0000	0.0016		100%	0.0016		0%	0.0000	
F13.71	13.71	99	EX-SFR	87.45		0.000270 MGD/UNIT	308	270	0.0832		NA NA	0.0000	0.0832		100%	0.0832		0%	0.0000	
F13.71	13.71	106	L-RES	2.00		0.000729 MGD/ACRE		270	0.0015		NA NA	0.0000	0.0015		80%	0.0012		20%	0.0003	
F13.71	**NODE TOTAL**			**92.60**	**481.32**				**0.0863**			**0.0014**	**0.0877**	**0.4291**		**0.0874**	**0.4268**		**0.0003**	**0.0024**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																				
F13.22	13.22	99	EX-SFR	61.37		0.000270 MGD/UNIT	265	270	0.0716		NA NA	0.0000	0.0716		100%	0.0716		0%	0.0000	
F13.22	13.22	121	MH-RES	2.40		0.002244 MGD/ACRE		270	0.0054		NA NA	0.0000	0.0054		100%	0.0054		0%	0.0000	
F13.22	13.22	99	EX-SFR	3.57		0.000270 MGD/UNIT	10	270	0.0027		NA NA	0.0000	0.0027		100%	0.0027		0%	0.0000	
F13.22	13.22	121	MH-RES	0.61		0.002244 MGD/ACRE		270	0.0014		NA NA	0.0000	0.0014		100%	0.0014		0%	0.0000	
F13.22	13.22	122	H-RES	1.05		0.003762 MGD/ACRE		270	0.0040		NA NA	0.0000	0.0040		100%	0.0040		0%	0.0000	
F13.22	13.22	140	INDUST	5.21		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0052	0.0052		100%	0.0052		0%	0.0000	
F13.22	**NODE TOTAL**			**74.21**	**74.21**				**0.0851**			**0.0052**	**0.0903**	**0.0903**		**0.0903**	**0.0903**		**0.0000**	**0.0000**
F13.85	**NODE TOTAL**				**1,314.51**									**1.4837**			**1.1498**			**0.3339**
PUMP	**NODE TOTAL**	**(From Barstow/Villa)**			**112.82**				**0.1309**			**0.0427**		**0.1736**			**0.1540**			**0.0196**
F24.65	24.65	140	INDUST	5.53		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0055	0.0055		80%	0.0044		20%	0.0011	
F24.65	24.65	106	L-RES	1.99		0.000729 MGD/ACRE		270	0.0015		NA NA	0.0000	0.0015		50%	0.0008		50%	0.0008	
F24.65	24.65	99	EX-SFR	78.81		0.000270 MGD/UNIT	320	270	0.0864		NA NA	0.0000	0.0864		100%	0.0864		0%	0.0000	
F24.65	24.65	170	OPEN	7.75		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F24.65	**NODE TOTAL**			**94.08**	**94.08**				**0.0879**			**0.0055**	**0.0934**	**0.0934**		**0.0916**	**0.0916**		**0.0019**	**0.0019**
F13.78	**NODE TOTAL**				**575.40**									**0.5225**			**0.5183**			**0.0042**
F14.49	14.49	121	MH-RES	21.73		0.002244 MGD/ACRE		270	0.0488		NA NA	0.0000	0.0488		100%	0.0488		0%	0.0000	
F14.49																				
F14.49	**NODE TOTAL**			**21.73**	**2,024.46**				**0.0488**			**0.0000**	**0.0488**	**2.2286**		**0.0488**	**1.8709**		**0.0000**	**0.3577**
F23.32	23.32	150	COMM	20.12		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0282	0.0282		100%	0.0282		0%	0.0000	
F23.32																				
F23.32	**NODE TOTAL**			**20.12**	**20.12**				**0.0000**			**0.0282**	**0.0282**	**0.0282**		**0.0282**	**0.0282**		**0.0000**	**0.0000**
F23.10	**NODE TOTAL**				**2,044.58**									**2.2568**			**1.8991**			**0.3577**
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN & SIERRA VISTA AVE. SEWER MAIN BETWEEN SHAW & GETTYSBURG AVE.)																				
F62.80	62.80	99	EX-SFR	57.65		0.000270 MGD/UNIT	141	270	0.0381		NA NA	0.0000	0.0381		100%	0.0381		0%	0.0000	
F62.80																				
F62.80	**NODE TOTAL**			**57.65**	**57.65**				**0.0381**			**0.0000**	**0.0381**	**0.0381**		**0.0381**	**0.0381**		**0.0000**	**0.0000**
F62.89	62.89	99	EX-SFR	68.92		0.000270 MGD/UNIT	259	270	0.0699		NA NA	0.0000	0.0699		100%	0.0699		0%	0.0000	
F62.89																				
F62.89	**NODE TOTAL**			**68.92**	**68.92**				**0.0699**			**0.0000**	**0.0699**	**0.0699**		**0.0699**	**0.0699**		**0.0000**	**0.0000**
F62.01	**NODE TOTAL**				**126.57**									**0.1080**			**0.1080**			**0.0000**
F39.72	39.72	99	EX-SFR	4.05		0.000270 MGD/UNIT	14	270	0.0038		NA NA	0.0000	0.0038		100%	0.0038		0%	0.0000	
F39.72	39.72	150	COMM	14.55		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0204	0.0204		100%	0.0204		0%	0.0000	
F39.72	**NODE TOTAL**			**18.60**	**18.60**				**0.0038**			**0.0204**	**0.0242**	**0.0242**		**0.0242**	**0.0242**		**0.0000**	**0.0000**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																						
F38.01	38.01	130	OFFICE	8.25		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0099	0.0099		0%	0.0000		100%	0.0099	
F38.01	38.01	121	MH-RES	2.76		0.002244	MGD/ACRE		270	0.0062		NA	NA	0.0000	0.0062		0%	0.0000		100%	0.0062	
F38.01	38.01	130	OFFICE	3.84		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0046	0.0046		100%	0.0046		0%	0.0000	
F38.01	38.01	170	OPEN	7.86		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F38.01	**NODE TOTAL**			**22.71**	**167.88**					**0.0062**				**0.0145**	**0.0207**	**0.1529**		**0.0046**	**0.1368**		**0.0161**	**0.0161**
F38.95	38.95	150	COMM	2.42		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0034	0.0034		50%	0.0017		50%	0.0017	
F38.95	38.95	121	MH-RES	3.99		0.002244	MGD/ACRE		270	0.0090		NA	NA	0.0000	0.0090		100%	0.0090		0%	0.0000	
F38.95	**NODE TOTAL**			**6.41**	**174.29**					**0.0090**				**0.0034**	**0.0124**	**0.1653**		**0.0107**	**0.1475**		**0.0017**	**0.0178**
F38.55	38.55	130	OFFICE	7.99		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0096	0.0096		0%	0.0000		100%	0.0096	
F38.55	38.55	150	COMM	14.41		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0202	0.0202		50%	0.0101		50%	0.0101	
F38.55	38.55	121	MH-RES	1.79		0.002244	MGD/ACRE		270	0.0040		NA	NA	0.0000	0.0040		100%	0.0040		0%	0.0000	
F38.55	38.55	130	OFFICE	10.99		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0132	0.0132		0%	0.0000		100%	0.0132	
F38.55	**NODE TOTAL**			**35.18**	**209.47**					**0.0040**				**0.0430**	**0.0470**	**0.2123**		**0.0141**	**0.1616**		**0.0329**	**0.0507**
F24.70	24.70	130	OFFICE	6.69		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0080	0.0080		30%	0.0024		70%	0.0056	
F24.70	24.70	99	EX-SFR	1.43		0.000270	MGD/UNIT	11	270	0.0030		NA	NA	0.0000	0.0030		0%	0.0000		100%	0.0030	
F24.70	24.70	150	COMM	13.55		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0190	0.0190		65%	0.0124		35%	0.0067	
F24.70	24.70	121	MH-RES	9.80		0.002244	MGD/ACRE		270	0.0220		NA	NA	0.0000	0.0220		100%	0.0220		0%	0.0000	
F24.70	24.70	130	OFFICE	12.05		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0145	0.0145		15%	0.0022		85%	0.0123	
F24.70	**NODE TOTAL**			**43.52**	**252.99**					**0.0250**				**0.0415**	**0.0665**	**0.2788**		**0.0389**	**0.2005**		**0.0276**	**0.0783**
F26.34	26.34	150	COMM	53.54		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0750	0.0750		90%	0.0675		10%	0.0075	
F26.34																						
F26.34	**NODE TOTAL**			**53.54**	**53.54**					**0.0000**				**0.0750**	**0.0750**	**0.0750**		**0.0675**	**0.0675**		**0.0075**	**0.0075**
F25.48	25.48	121	MH-RES	6.76		0.002244	MGD/ACRE		270	0.0152		NA	NA	0.0000	0.0152		80%	0.0122		20%	0.0030	
F25.48	25.48	99	EX-SFR	57.02		0.000270	MGD/UNIT	202	270	0.0545		NA	NA	0.0000	0.0545		100%	0.0545		0%	0.0000	
F25.48	**NODE TOTAL**			**63.78**	**2,414.89**					**0.0697**				**0.0000**	**0.0697**	**2.6803**		**0.0667**	**2.2338**		**0.0030**	**0.4465**
(AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN BETWEEN TEMPERANCE AVE. AND SIERRA VISTA AVE, & CLAREMONT/STANFORD SEWER MAIN S/O GETTYSBURG AVE.)																						
F64.01	64.01	99	EX-SFR	10.80		0.000270	MGD/UNIT	20	270	0.0054		NA	NA	0.0000	0.0054		60%	0.0032		40%	0.0022	
F64.01	64.01	99	EX-SFR	92.74		0.000270	MGD/UNIT	178	270	0.0481		NA	NA	0.0000	0.0481		95%	0.0457		5%	0.0024	
F64.01	64.01	106	L-RES	4.99		0.000729	MGD/ACRE		270	0.0036		NA	NA	0.0000	0.0036		0%	0.0000		100%	0.0036	
F64.01	64.01	106	L-RES	2.51		0.000729	MGD/ACRE		270	0.0018		NA	NA	0.0000	0.0018		80%	0.0014		20%	0.0004	
F64.01	**NODE TOTAL**			**111.04**	**111.04**					**0.0589**				**0.0000**	**0.0589**	**0.0589**		**0.0504**	**0.0504**		**0.0085**	**0.0085**
F38.57	38.57	99	EX-SFR	67.32		0.000270	MGD/UNIT	168	270	0.0454		NA	NA	0.0000	0.0454		100%	0.0454		0%	0.0000	
F38.57	38.57	106	L-RES	10.00		0.000729	MGD/ACRE		270	0.0073		NA	NA	0.0000	0.0073		30%	0.0022		70%	0.0051	
F38.57	38.57	130	OFFICE	1.40		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0017	0.0017		100%	0.0017		0%	0.0000	
F38.57	38.57	99	EX-SFR	28.61		0.000270	MGD/UNIT	68	270	0.0184		NA	NA	0.0000	0.0184		100%	0.0184		0%	0.0000	
F38.57	38.57	99	EX-SFR	6.67		0.000270	MGD/UNIT	16	270	0.0043		NA	NA	0.0000	0.0043		60%	0.0026		40%	0.0017	
F38.57	38.57	99	EX-SFR	2.49		0.000270	MGD/UNIT	4	270	0.0011		NA	NA	0.0000	0.0011		100%	0.0011		0%	0.0000	
F38.57	**NODE TOTAL**			**116.49**	**116.49**					**0.0765**				**0.0017**	**0.0782**	**0.0782**		**0.0714**	**0.0714**		**0.0068**	**0.0068**

FLOW GENERATION CALCULATIONS

TABLE F-FG-3

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS																						
F38.20	38.20	106	L-RES	3.61		0.000729	MGD/ACRE		270	0.0026		NA	NA	0.0000	0.0026		60%	0.0016		40%	0.0010	
F38.20	38.20	99	EX-SFR	10.01		0.000270	MGD/UNIT	24	270	0.0065		NA	NA	0.0000	0.0065		100%	0.0065		0%	0.0000	
F38.20	38.20	190	EL-SCH	15.36		NA	NA		270	0.0000	675	0.000006	MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
F38.20	38.20	106	L-RES	5.16		0.000729	MGD/ACRE		270	0.0038		NA	NA	0.0000	0.0038		0%	0.0000		100%	0.0038	
F38.20	38.20	99	EX-SFR	24.47		0.000270	MGD/UNIT	79	270	0.0213		NA	NA	0.0000	0.0213		95%	0.0202		5%	0.0011	
F38.20	38.20	106	L-RES	4.96		0.000729	MGD/ACRE		270	0.0036		NA	NA	0.0000	0.0036		100%	0.0036		0%	0.0000	
F38.20	38.20	99	EX-SFR	2.05		0.000270	MGD/UNIT	11	270	0.0030		NA	NA	0.0000	0.0030		100%	0.0030		0%	0.0000	
F38.20	**NODE TOTAL**			**65.62**	**293.15**					**0.0408**				**0.0041**	**0.0449**	**0.1820**		**0.0390**	**0.1607**		**0.0059**	**0.0213**
F38.48	38.48	99	EX-SFR	4.81		0.000270	MGD/UNIT	12	270	0.0032		NA	NA	0.0000	0.0032		100%	0.0032		0%	0.0000	
F38.48	38.48	99	EX-SFR	57.61		0.000270	MGD/UNIT	185	270	0.0500		NA	NA	0.0000	0.0500		100%	0.0500		0%	0.0000	
F38.48	**NODE TOTAL**			**62.42**	**62.42**					**0.0532**				**0.0000**	**0.0532**	**0.0532**		**0.0532**	**0.0532**		**0.0000**	**0.0000**
F38.50	**NODE TOTAL**				**355.57**											**0.2352**			**0.2139**			**0.0213**
F25.58	25.58	121	MH-RES	2.05		0.002244	MGD/ACRE		270	0.0046		NA	NA	0.0000	0.0046		0%	0.0000		100%	0.0046	
F25.58	25.58	99	EX-SFR	19.44		0.000270	MGD/UNIT	70	270	0.0189		NA	NA	0.0000	0.0189		100%	0.0189		0%	0.0000	
F25.58	**NODE TOTAL**			**21.49**	**377.06**					**0.0235**				**0.0000**	**0.0235**	**0.2587**		**0.0189**	**0.2328**		**0.0046**	**0.0259**
F25.28	25.28	121	MH-RES	2.73		0.002244	MGD/ACRE		270	0.0061		NA	NA	0.0000	0.0061		100%	0.0061		0%	0.0000	
F25.28	25.28	99	EX-SFR	61.75		0.000270	MGD/UNIT	247	270	0.0667		NA	NA	0.0000	0.0667		100%	0.0667		0%	0.0000	
F25.28	**NODE TOTAL**			**64.48**	**64.48**					**0.0728**				**0.0000**	**0.0728**	**0.0728**		**0.0728**	**0.0728**		**0.0000**	**0.0000**
F25.62	25.62	99	EX-SFR	8.79		0.000270	MGD/UNIT	32	270	0.0086		NA	NA	0.0000	0.0086		100%	0.0086		0%	0.0000	
F25.62																						
F25.62	**NODE TOTAL**			**8.79**	**450.33**					**0.0086**				**0.0000**	**0.0086**	**0.3401**		**0.0086**	**0.3142**		**0.0000**	**0.0259**
F36.38	36.38	99	EX-SFR	1.95		0.000270	MGD/UNIT	6	270	0.0016		NA	NA	0.0000	0.0016		100%	0.0016		0%	0.0000	
F36.38																						
F36.38	**NODE TOTAL**			**1.95**	**452.28**					**0.0016**				**0.0000**	**0.0016**	**0.3417**		**0.0016**	**0.3158**		**0.0000**	**0.0259**
F36.46	**NODE TOTAL**				**2,867.17**											**3.0220**			**2.5497**			**0.4724**
F36.48	36.48	99	EX-SFR	54.22		0.000270	MGD/UNIT	199	270	0.0537		NA	NA	0.0000	0.0537		100%	0.0537		0%	0.0000	
F36.48																						
F36.48	**NODE TOTAL**			**54.22**	**2,921.39**					**0.0537**				**0.0000**	**0.0537**	**3.0757**		**0.0537**	**2.6034**		**0.0000**	**0.4724**
TOTALS THIS SHEET										**2.3928**				**0.6829**		**3.0757**			**2.6034**			**0.4724**
%										**77.80%**				**22.20%**		**100.00%**			**84.64%**			**15.36%**

FLOW GENERATION CALCULATIONS

TABLE F-FG-4

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE (AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O TEMPERANCE AVENUE)																				
F122.05	122.05	190	EL-SCH	23.80		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
F122.05	122.05	121	MH-RES	5.11		0.002244 MGD/ACRE		270	0.0115		NA NA	0.0000	0.0115		0%	0.0000		100%	0.0115	
F122.05	122.05	107	R1-7500	17.98		0.000864 MGD/ACRE		270	0.0155		NA NA	0.0000	0.0155		0%	0.0000		100%	0.0155	
F122.05	**NODE TOTAL**			**46.89**	**46.89**				**0.0270**			**0.0045**	**0.0315**	**0.0315**		**0.0000**	**0.0000**		**0.0315**	**0.0315**
F123.03	123.03	192	HI-SCH	80.00		NA NA		270	0.0000	2,950	0.000016 MGD/STUDENT	0.0472	0.0472		100%	0.0472		0%	0.0000	
F123.03	123.03	191	MI-SCH	56.98		NA NA		270	0.0000	1,700	0.000014 MGD/STUDENT	0.0238	0.0238		100%	0.0238		0%	0.0000	
F123.03	123.03	107	R1-7500	32.84		0.000864 MGD/ACRE		270	0.0284		NA NA	0.0000	0.0284		0%	0.0000		100%	0.0284	
F123.03	**NODE TOTAL**			**169.82**	**169.82**				**0.0284**			**0.0710**	**0.0994**	**0.0994**		**0.0710**	**0.0710**		**0.0284**	**0.0284**
F122.01	122.01	107	R1-7500	17.36		0.000864 MGD/ACRE		270	0.0150		NA NA	0.0000	0.0150		0%	0.0000		100%	0.0150	
F122.01																				
F122.01	**NODE TOTAL**			**17.36**	**234.07**				**0.0150**			**0.0000**	**0.0150**	**0.1459**		**0.0000**	**0.0710**		**0.0150**	**0.0749**
F119.08	119.08	99	EX-SFR	52.87		0.000270 MGD/UNIT	153	270	0.0413		NA NA	0.0000	0.0413		10%	0.0041		90%	0.0372	
F119.08	119.08	107	R1-7500	6.93		0.000864 MGD/ACRE		270	0.0060		NA NA	0.0000	0.0060		0%	0.0000		100%	0.0060	
F119.08	**NODE TOTAL**			**59.80**	**59.80**				**0.0473**			**0.0000**	**0.0473**	**0.0473**		**0.0041**	**0.0041**		**0.0432**	**0.0432**
F119.06	119.06	107	R1-7500	24.75		0.000864 MGD/ACRE		270	0.0214		NA NA	0.0000	0.0214		0%	0.0000		100%	0.0214	
F119.06																				
F119.06	**NODE TOTAL**			**24.75**	**318.62**				**0.0214**			**0.0000**	**0.0214**	**0.2146**		**0.0000**	**0.0751**		**0.0214**	**0.1395**
F89.22	89.22	107	R1-7500	4.99		0.000864 MGD/ACRE		270	0.0043		NA NA	0.0000	0.0043		0%	0.0000		100%	0.0043	
F89.22	89.22	99	EX-SFR	60.58		0.000270 MGD/UNIT	213	270	0.0575		NA NA	0.0000	0.0575		40%	0.0230		60%	0.0345	
F89.22	89.22	130	OFFICE	20.43		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0245	0.0245		30%	0.0074		70%	0.0172	
F89.22	**NODE TOTAL**			**86.00**	**86.00**				**0.0618**			**0.0245**	**0.0863**	**0.0863**		**0.0304**	**0.0304**		**0.0560**	**0.0560**
F90.07	90.07	122	H-RES	9.87		0.003762 MGD/ACRE		270	0.0371		NA NA	0.0000	0.0371		0%	0.0000		100%	0.0371	
F90.07	90.07	107	R1-7500	10.56		0.000864 MGD/ACRE		270	0.0091		NA NA	0.0000	0.0091		0%	0.0000		100%	0.0091	
F90.07	90.07	170	OPEN	31.89		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F90.07	90.07	99	EX-SFR	22.59		0.000270 MGD/UNIT	80	270	0.0216		NA NA	0.0000	0.0216		100%	0.0216		0%	0.0000	
F90.07	**NODE TOTAL**			**74.91**	**74.91**				**0.0678**			**0.0000**	**0.0678**	**0.0678**		**0.0216**	**0.0216**		**0.0462**	**0.0462**
F90.06	90.06	130	OFFICE	3.93		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0047	0.0047		0%	0.0000		100%	0.0047	
F90.06	90.06	150	COMM	3.93		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0055	0.0055		0%	0.0000		100%	0.0055	
F90.06	90.06	99	EX-SFR	13.36		0.000270 MGD/UNIT	45	270	0.0122		NA NA	0.0000	0.0122		100%	0.0122		0%	0.0000	
F90.06	**NODE TOTAL**			**21.22**	**500.75**				**0.0122**			**0.0102**	**0.0224**	**0.3911**		**0.0122**	**0.1393**		**0.0102**	**0.2518**
F90.03	90.03	106	L-RES	2.37		0.000729 MGD/ACRE		270	0.0017		NA NA	0.0000	0.0017		0%	0.0000		100%	0.0017	
F90.03	90.03	99	EX-SFR	45.12		0.000270 MGD/UNIT	152	270	0.0410		NA NA	0.0000	0.0410		100%	0.0410		0%	0.0000	
F90.03	**NODE TOTAL**			**47.49**	**548.24**				**0.0427**			**0.0000**	**0.0427**	**0.4338**		**0.0410**	**0.1803**		**0.0017**	**0.2535**
F90.53	90.53	170	OPEN	10.97		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F90.53	90.53	107	R1-7500	16.16		0.000864 MGD/ACRE		270	0.0140		NA NA	0.0000	0.0140		0%	0.0000		100%	0.0140	
F90.53	90.53	99	EX-SFR	69.99		0.000270 MGD/UNIT	233	270	0.0629		NA NA	0.0000	0.0629		100%	0.0629		0%	0.0000	
F90.53	**NODE TOTAL**			**97.12**	**97.12**				**0.0769**			**0.0000**	**0.0769**	**0.0769**		**0.0629**	**0.0629**		**0.0140**	**0.0140**
F90.40	**NODE TOTAL**				**645.36**									**0.5107**			**0.2432**			**0.2675**

FLOW GENERATION CALCULATIONS

TABLE F-FG-4

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE																				
(AREAS TRIBUTARY TO GETTYSBURG AND TEMPERANCE AVENUE SEWER MAINS)																				
F117.29	117.29	107	R1-7500	2.73		0.000864 MGD/ACRE		270	0.0024		NA NA	0.0000	0.0024		0%	0.0000		100%	0.0024	
F117.29	117.29	99	EX-SFR	31.45		0.000270 MGD/UNIT	101	270	0.0273		NA NA	0.0000	0.0273		95%	0.0259		5%	0.0014	
F117.29	117.29	107	R1-7500	4.95		0.000864 MGD/ACRE		270	0.0043		NA NA	0.0000	0.0043		0%	0.0000		100%	0.0043	
F117.29	117.29	107	R1-7500	25.21		0.000864 MGD/ACRE		270	0.0218		NA NA	0.0000	0.0218		0%	0.0000		100%	0.0218	
F117.29	**NODE TOTAL**			**64.34**	**64.34**				**0.0558**			**0.0000**	**0.0558**	**0.0558**		**0.0259**	**0.0259**		**0.0299**	**0.0299**
F118.27	118.27	109	M-RES	1.37		0.001107 MGD/ACRE		270	0.0015		NA NA	0.0000	0.0015		0%	0.0000		100%	0.0015	
F118.27	118.27	107	R1-7500	1.08		0.000864 MGD/ACRE		270	0.0009		NA NA	0.0000	0.0009		0%	0.0000		100%	0.0009	
F118.27	118.27	99	EX-SFR	38.36		0.000270 MGD/UNIT	112	270	0.0302		NA NA	0.0000	0.0302		20%	0.0060		80%	0.0242	
F118.27	118.27	99	EX-SFR	49.65		0.000270 MGD/UNIT	168	270	0.0454		NA NA	0.0000	0.0454		95%	0.0431		5%	0.0023	
F118.27	118.27	107	R1-7500	2.49		0.000864 MGD/ACRE		270	0.0022		NA NA	0.0000	0.0022		0%	0.0000		100%	0.0022	
F118.27	**NODE TOTAL**			**92.95**	**157.29**				**0.0802**			**0.0000**	**0.0802**	**0.1360**		**0.0492**	**0.0751**		**0.0310**	**0.0609**
F117.C	117.C	107	R1-7500	27.89		0.000864 MGD/ACRE		270	0.0241		NA NA	0.0000	0.0241		0%	0.0000		100%	0.0241	
F117.C																				
F117.C	**NODE TOTAL**			**27.89**	**27.89**				**0.0241**			**0.0000**	**0.0241**	**0.0241**		**0.0000**	**0.0000**		**0.0241**	**0.0241**
F88.98	88.98	107	R1-7500	6.94		0.000864 MGD/ACRE		270	0.0060		NA NA	0.0000	0.0060		0%	0.0000		100%	0.0060	
F88.98	88.98	99	EX-SFR	20.97		0.000270 MGD/UNIT	62	270	0.0167		NA NA	0.0000	0.0167		10%	0.0017		90%	0.0150	
F88.98	**NODE TOTAL**			**27.91**	**27.91**				**0.0227**			**0.0000**	**0.0227**	**0.0227**		**0.0017**	**0.0017**		**0.0210**	**0.0210**
F117.E	117.E	99	EX-SFR	12.42		0.000270 MGD/UNIT	42	270	0.0113		NA NA	0.0000	0.0113		100%	0.0113		0%	0.0000	
F117.E																				
F117.E	**NODE TOTAL**			**12.42**	**68.22**				**0.0113**			**0.0000**	**0.0113**	**0.0581**		**0.0113**	**0.0130**		**0.0000**	**0.0451**
F88.78	88.78	190	EL-SCH	16.64		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		100%	0.0045		0%	0.0000	
F88.78																				
F88.78	**NODE TOTAL**			**16.64**	**242.15**				**0.0000**			**0.0045**	**0.0045**	**0.1986**		**0.0045**	**0.0926**		**0.0000**	**0.1060**
F88.23	88.23	99	EX-SFR	50.16		0.000270 MGD/UNIT	182	270	0.0491		NA NA	0.0000	0.0491		100%	0.0491		0%	0.0000	
F88.23																				
F88.23	**NODE TOTAL**			**50.16**	**50.16**				**0.0491**			**0.0000**	**0.0491**	**0.0491**		**0.0491**	**0.0491**		**0.0000**	**0.0000**
F88.13	88.13	99	EX-SFR	18.24		0.000270 MGD/UNIT	71	270	0.0192		NA NA	0.0000	0.0192		100%	0.0192		0%	0.0000	
F88.13																				
F88.13	**NODE TOTAL**			**18.24**	**68.40**				**0.0192**			**0.0000**	**0.0192**	**0.0683**		**0.0192**	**0.0683**		**0.0000**	**0.0000**
F88.19	88.19	99	EX-SFR	26.86		0.000270 MGD/UNIT	97	270	0.0262		NA NA	0.0000	0.0262		100%	0.0262		0%	0.0000	
F88.19	88.19	170	OPEN	4.92		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F88.19	**NODE TOTAL**			**31.78**	**100.18**				**0.0262**			**0.0000**	**0.0262**	**0.0945**		**0.0262**	**0.0945**		**0.0000**	**0.0000**
F88.22	**NODE TOTAL**				**342.33**									**0.2931**			**0.1871**			**0.1060**
F89.74	89.74	99	EX-SFR	36.53		0.000270 MGD/UNIT	112	270	0.0302		NA NA	0.0000	0.0302		100%	0.0302		0%	0.0000	
F89.74																				
F89.74	**NODE TOTAL**			**36.53**	**378.86**				**0.0302**			**0.0000**	**0.0302**	**0.3233**		**0.0302**	**0.2173**		**0.0000**	**0.1060**
F88.01	88.01	106	L-RES	12.89		0.000729 MGD/ACRE		270	0.0094		NA NA	0.0000	0.0094		30%	0.0028		70%	0.0066	
F88.01																				
F88.01	**NODE TOTAL**			**12.89**	**391.75**				**0.0094**			**0.0000**	**0.0094**	**0.3327**		**0.0028**	**0.2201**		**0.0066**	**0.1126**
F64.38	64.38	106	L-RES	4.73		0.000729 MGD/ACRE		270	0.0034		NA NA	0.0000	0.0034		0%	0.0000		100%	0.0034	
F64.38	64.38	99	EX-SFR	35.40		0.000270 MGD/UNIT	122	270	0.0329		NA NA	0.0000	0.0329		95%	0.0313		5%	0.0016	
F64.38	64.38	106	L-RES	5.02		0.000729 MGD/ACRE		270	0.0037		NA NA	0.0000	0.0037		0%	0.0000		100%	0.0037	
F64.38	**NODE TOTAL**			**45.15**	**436.90**				**0.0400**			**0.0000**	**0.0400**	**0.3727**		**0.0313**	**0.2514**		**0.0087**	**0.1214**

FLOW GENERATION CALCULATIONS

TABLE F-FG-4

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE																				
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN BETWEEN TEMPERANCE AVENUE AND FOWLER AVENUE)																				
F65.32	65.32	106	L-RES	2.62		0.000729 MGD/ACRE		270	0.0019		NA NA	0.0000	0.0019		0%	0.0000		100%	0.0019	
F65.32	65.32	99	EX-SFR	9.91		0.000270 MGD/UNIT	21	270	0.0057		NA NA	0.0000	0.0057		50%	0.0029		50%	0.0029	
F65.32	**NODE TOTAL**			**12.53**	**1,094.79**				**0.0076**			**0.0000**	**0.0076**	**0.8910**		**0.0029**	**0.4974**		**0.0048**	**0.3936**
F65.20	65.20	99	EX-SFR	5.00		0.000270 MGD/UNIT	11	270	0.0030		NA NA	0.0000	0.0030		100%	0.0030		0%	0.0000	
F65.20	65.20	99	EX-SFR	48.09		0.000270 MGD/UNIT	131	270	0.0354		NA NA	0.0000	0.0354		100%	0.0354		0%	0.0000	
F65.20	65.20	106	L-RES	19.22		0.000729 MGD/ACRE		270	0.0140		NA NA	0.0000	0.0140		0%	0.0000		100%	0.0140	
F65.20	**NODE TOTAL**			**72.31**	**1,167.10**				**0.0524**			**0.0000**	**0.0524**	**0.9434**		**0.0384**	**0.5358**		**0.0140**	**0.4076**
F65.15	65.15	106	L-RES	7.43		0.000729 MGD/ACRE		270	0.0054		NA NA	0.0000	0.0054		0%	0.0000		100%	0.0054	
F65.15	65.15	99	EX-SFR	21.26		0.000270 MGD/UNIT	59	270	0.0159		NA NA	0.0000	0.0159		100%	0.0159		0%	0.0000	
F65.15	65.15	106	L-RES	20.29		0.000729 MGD/ACRE	0	270	0.0148		NA NA	0.0000	0.0148		5%	0.0007		95%	0.0141	
F65.15	65.15	99	EX-SFR	0.77		0.000270 MGD/UNIT	2	270	0.0005		NA NA	0.0000	0.0005		100%	0.0005		0%	0.0000	
F65.15	**NODE TOTAL**			**49.75**	**1,216.85**				**0.0366**			**0.0000**	**0.0366**	**0.9800**		**0.0171**	**0.5529**		**0.0195**	**0.4271**
F66.04	66.04	99	EX-SFR	5.51		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		100%	0.0046		0%	0.0000	
F66.04	66.04	106	L-RES	9.21		0.000729 MGD/ACRE		270	0.0067		NA NA	0.0000	0.0067		0%	0.0000		100%	0.0067	
F66.04	66.04	99	EX-SFR	14.74		0.000270 MGD/UNIT	42	270	0.0113		NA NA	0.0000	0.0113		0%	0.0000		100%	0.0113	
F66.04	66.04	99	EX-SFR	11.01		0.000270 MGD/UNIT	36	270	0.0097		NA NA	0.0000	0.0097		100%	0.0097		0%	0.0000	
F66.04	66.04	106	L-RES	4.95		0.000729 MGD/ACRE		270	0.0036		NA NA	0.0000	0.0036		0%	0.0000		100%	0.0036	
F66.04	66.04	121	MH-RES	3.56		0.002244 MGD/ACRE		270	0.0080		NA NA	0.0000	0.0080		60%	0.0048		40%	0.0032	
F66.04	66.04	150	COMM	13.38		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0187	0.0187		35%	0.0065		65%	0.0122	
F66.04	**NODE TOTAL**			**62.36**	**1,279.21**				**0.0439**			**0.0187**	**0.0626**	**1.0426**		**0.0256**	**0.5786**		**0.0370**	**0.4640**
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN (10") W/O FOWLER AVENUE)																				
F36.116	36.116	170	OPEN	12.32		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F36.116	36.116	99	EX-SFR	69.02		0.000270 MGD/UNIT	278	270	0.0751		NA NA	0.0000	0.0751		100%	0.0751		0%	0.0000	
F36.116	36.116	150	COMM	13.68		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0192	0.0192		90%	0.0173		10%	0.0019	
F36.116	36.116	150	COMM	3.91		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0055	0.0055		0%	0.0000		100%	0.0055	
F36.116	**NODE TOTAL**			**98.93**	**98.93**				**0.0751**			**0.0247**	**0.0998**	**0.0998**		**0.0924**	**0.0924**		**0.0074**	**0.0074**
(AREAS TRIBUTARY TO FOWLER SEWER N/O ASHLAN, & FOWLER TRUNK SEWER, ASHLAN AVENUE SOUTH)																				
F37.22	37.22	121	MH-RES	1.11		0.002244 MGD/ACRE		270	0.0025		NA NA	0.0000	0.0025		25%	0.0006		75%	0.0019	
F37.22	37.22	106	L-RES	1.51		0.000729 MGD/ACRE		270	0.0011		NA NA	0.0000	0.0011		100%	0.0011		0%	0.0000	
F37.22	37.22	106	L-RES	2.75		0.000729 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		50%	0.0010		50%	0.0010	
F37.22	37.22	99	EX-SFR	61.30		0.000270 MGD/UNIT	189	270	0.0510		NA NA	0.0000	0.0510		100%	0.0510		0%	0.0000	
F37.22	37.22	106	L-RES	2.79		0.000729 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		0%	0.0000		100%	0.0020	
F37.22	37.22	170	OPEN	5.01		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F37.22	37.22	106	L-RES	3.81		0.000729 MGD/ACRE		270	0.0028		NA NA	0.0000	0.0028		0%	0.0000		100%	0.0028	
F37.22	37.22	99	EX-SFR	4.13		0.000270 MGD/UNIT	8	270	0.0022		NA NA	0.0000	0.0022		0%	0.0000		100%	0.0022	
F37.22	37.22	106	L-RES	2.51		0.000729 MGD/ACRE		270	0.0018		NA NA	0.0000	0.0018		0%	0.0000		100%	0.0018	
F37.22	37.22	99	EX-SFR	7.50		0.000270 MGD/UNIT	17	270	0.0046		NA NA	0.0000	0.0046		0%	0.0000		100%	0.0046	
F37.22	37.22	106	L-RES	1.84		0.000729 MGD/ACRE		270	0.0013		NA NA	0.0000	0.0013		0%	0.0000		100%	0.0013	
F37.22	**NODE TOTAL**			**94.26**	**94.26**				**0.0713**			**0.0000**	**0.0713**	**0.0713**		**0.0537**	**0.0537**		**0.0176**	**0.0176**
F36.120	**NODE TOTAL**				**193.19**									**0.1711**			**0.1461**			**0.0250**
F67.53	**NODE TOTAL**				**4,179.68**									**3.8518**			**1.5702**			**2.2816**
F67.52	**NODE TOTAL**				**4,372.87**									**4.0229**			**1.7163**			**2.3066**
F67.51	**NODE TOTAL**				**7,294.26**									**7.0986**			**4.3196**			**2.7789**

FLOW GENERATION CALCULATIONS

TABLE F-FG-4

AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE																						
F67.28	67.28	99	EX-SFR	69.75		0.000270	MGD/UNIT	264	270	0.0713		NA	NA	0.0000	0.0713		100%	0.0713		0%	0.0000	
F67.28	67.28	190	EL-SCH	17.03		NA	NA		270	0.0000	675	0.000006	MGD/STUDENT	0.0041	0.0041		115%	0.0047		-15%	-0.0006	
F67.28	**NODE TOTAL**			**86.78**	**86.78**					**0.0713**				**0.0041**	**0.0754**	**0.0754**		**0.0760**	**0.0760**		**-0.0006**	**-0.0006**
F67.54	**NODE TOTAL**				**7,381.04**											**7.1740**			**4.3957**			**2.7783**
F94.A	94.A	99	EX-SFR	135.87		0.000345	MGD/UNIT	630	345	0.2174		NA	NA	0.0000	0.2174		100%	0.2174		0%	0.0000	
F94.A	94.A	170	OPEN	18.09		NA	NA		345	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
F94.A	94.A	99	EX-SFR	5.97		0.000345	MGD/UNIT	33	345	0.0114		NA	NA	0.0000	0.0114		100%	0.0114		0%	0.0000	
F94.A	94.A	150	COMM	0.76		NA	NA		345	0.0000		0.001380	MGD/ACRE	0.0010	0.0010		100%	0.0010		0%	0.0000	
F94.A	**NODE TOTAL**			**160.69**	**7,541.73**					**0.2288**				**0.0010**	**0.2298**	**7.4038**		**0.2298**	**4.6255**		**0.0000**	**2.7783**
TOTALS THIS SHEET										**1.3557**				**0.1632**		**1.5189**			**0.6583**			**0.2254**
%										**89.26%**				**10.74%**		**100.00%**			**43.34%**			**14.84%**
GRAND TOTALS FTS N/O FRESNO					**7,381.04**					**6.0713**				**1.7408**		**7.8122**			**4.3957**			**2.7783**
%										**77.72%**				**22.28%**		**100.00%**			**56.27%**			**35.56%**

CITY OF FRESNO DESIGN FLOW GENERATION RATES

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-1
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO FUTURE PUMP STATION AT INTERSECTION OF HERNDON AND CLOVIS AVENUE											
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN N/O HERNDON AVENUE)											
H55.55	H55.43	813	0.0617	8	0.00340	0.4556	2.00	0.50	0.2277	0.1660	27.1%
H56.55	H55.43	453	0.0204	8	0.00294	0.4237	2.00	0.50	0.2117	0.1913	9.6%
H43.A	H55.43	862	0.0364	8	0.00240	0.3828	2.00	0.50	0.1913	0.1549	19.0%
H55.43	H55.01	2,564	0.2030	10	0.00200	0.6335	2.00	0.50	0.3166	0.1136	64.1%
H55.02	H55.01	349	0.0711	10	0.00200	0.6335	2.00	0.50	0.3166	0.2455	22.5%
H55.01	H45.03	1,384	0.3121	12	0.00200	1.0302	2.00	0.50	0.5149	0.2028	60.6%
H45.05	H45.03	751	0.0000	8	0.00350	0.4622	2.00	0.50	0.2310	0.2310	0.0%
H45.03	H45.09	1,970	0.3748	15	0.00120	1.4469	1.71	0.55	0.8471	0.4723	44.2%
H45.06	H45.09	679	0.0383	8	0.00350	0.4622	2.00	0.50	0.2310	0.1927	16.6%
H45.09	H45.16	797	0.4131	15	0.00150	1.6177	1.71	0.55	0.9471	0.5340	43.6%
H45.16	H45.15	515	0.4241	15	0.00150	1.6177	1.71	0.55	0.9471	0.5230	44.8%
(AREAS TRIBUTARY TO HERNDON AVENUE SEWER MAIN E/O CLOVIS AVENUE)											
H44.04	H44.02	355	0.0584	8	0.00260	0.3984	2.00	0.50	0.1991	0.1407	29.3%
H44.02	H44.01	535	0.0584	12	0.00250	1.1518	2.00	0.50	0.5757	0.5173	10.1%
H44.01	H45.13	2,067	0.1197	12	0.00250	1.1518	2.00	0.50	0.5757	0.4560	20.8%
(AREAS TRIBUTARY TO CLOVIS AVENUE SEWER MAIN S/O HERNDON AVENUE)											
H03.29	H03.27	671	0.0624	8	0.00300	0.4280	2.00	0.50	0.2139	0.1515	29.2%
H03.27	H45.13	666	0.0944	8	0.00300	0.4280	2.00	0.50	0.2139	0.1195	44.1%
(HERNDON AVENUE SEWER MAIN AT INTERSECTION WITH CLOVIS AVENUE)											
H45.13	H45.15	39	0.2141	12	0.02205	3.4207	2.00	0.50	1.7097	1.4956	12.5%
H45.15	H45.12	29	0.6382	18	0.00140	2.5413	1.71	0.55	1.4879	0.8497	42.9%
H45.12	PUMP	NA	0.6382	18	0.00140	2.5413	1.71	0.55	1.4879	0.8497	42.9%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-2
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR AT ALLUVIAL AVENUE											
(AREAS TRIBUTARY TO LOCAN & NEES AVENUE SEWER MAINS E/O TEMPERANCE)											
F109.G	F109.H	1,655	0.0162	8	0.00497	0.5506	2.00	0.50	0.2752	0.2590	5.9%
F109.H	F110.E	1,155	0.0412	8	0.00240	0.3828	2.00	0.50	0.1913	0.1501	21.5%
F110.A	F110.B	1,102	0.0081	8	0.00300	0.4280	2.00	0.50	0.2139	0.2058	3.8%
F110.B	F110.D	331	0.0095	8	0.00300	0.4280	2.00	0.50	0.2139	0.2044	4.4%
F110.C	F110.D	1,102	0.0122	8	0.00299	0.4275	2.00	0.50	0.2136	0.2014	5.7%
F110.D	F110.E	1,323	0.0295	8	0.00452	0.5251	2.00	0.50	0.2624	0.2329	11.2%
F110.E	F110.03	822	0.0802	10	0.00220	0.6645	2.00	0.50	0.3321	0.2519	24.1%
F81.A	F110.03	1,015	0.0108	8	0.00350	0.4622	2.00	0.50	0.2310	0.2202	4.7%
F157.72	F157.62	2,047	0.1051	8	0.00340	0.4556	2.00	0.50	0.2277	0.1226	46.2%
F157.62	F132.35	2,180	0.2159	10	0.00240	0.6940	2.00	0.50	0.3469	0.1310	62.2%
F157.50	F132.35	1,981	0.1102	10	0.00240	0.6940	2.00	0.50	0.3469	0.2367	31.8%
F132.35	F132.37	770	0.3261	12	0.00200	1.0302	2.00	0.50	0.5149	0.1888	63.3%
F132.37	F132.40	534	0.3488	15	0.00200	1.8679	1.71	0.55	1.0936	0.7448	31.9%
F132.40	F110.22	1,838	0.4481	15	0.00300	2.2877	1.71	0.55	1.3394	0.8913	33.5%
F110.22	F110.03	1,925	0.4948	15	0.00240	2.0462	1.71	0.55	1.1980	0.7032	41.3%
F110.03	F110.01	994	0.5911	15	0.00322	2.3701	1.71	0.55	1.3876	0.7965	42.6%
F110.G	F110.H	981	0.1682	10	0.00320	0.8014	2.00	0.50	0.4005	0.2323	42.0%
F110.H	F110.01	1,157	0.1763	10	0.00827	1.2883	2.00	0.50	0.6439	0.4676	27.4%
F82.A	F82.B	1,029	0.0209	8	0.00240	0.3828	2.00	0.50	0.1913	0.1704	10.9%
F82.B	F111.B	977	0.0434	8	0.00240	0.3828	2.00	0.50	0.1913	0.1479	22.7%
F111.A	F111.B	1,226	0.0144	8	0.00350	0.4622	2.00	0.50	0.2310	0.2166	6.2%
F111.B	F110.01	661	0.0646	10	0.00240	0.6940	2.00	0.50	0.3469	0.2823	18.6%
F110.01	F80.24	2,632	0.8591	18	0.00239	3.3226	1.71	0.55	1.9453	1.0862	44.2%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-2
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR AT ALLUVIAL AVENUE											
(AREAS TRIBUTARY TO TEMPERANCE AVENUE SEWER MAIN N/O NEES AVENUE)											
F132.11	F109.B	2,445	0.0632	8	0.00240	0.3828	2.00	0.50	0.1913	0.1281	33.0%
F109.B	F109.05	1,872	0.1024	8	0.00240	0.3828	2.00	0.50	0.1913	0.0889	53.5%
F109.34	F109.05	526	0.0120	8	0.00300	0.4280	2.00	0.50	0.2139	0.2019	5.6%
F109.05	F108.47	1,913	0.1305	8	0.00300	0.4280	2.00	0.50	0.2139	0.0834	61.0%
F109.C	F109.E	993	0.0108	8	0.00302	0.4294	2.00	0.50	0.2146	0.2038	5.0%
F109.E	F109.F	662	0.0162	8	0.00532	0.5699	2.00	0.50	0.2848	0.2686	5.7%
F109.F	F108.47	366	0.0216	8	0.00230	0.3747	2.00	0.50	0.1873	0.1657	11.5%
F108.47	F108.01	3,365	0.1969	10	0.00240	0.6940	2.00	0.50	0.3469	0.1500	56.8%
F108.B	F108.01	875	0.0145	8	0.00560	0.5847	2.00	0.50	0.2922	0.2777	5.0%
F108.01	F108.31	834	0.2151	10	0.00230	0.6794	2.00	0.50	0.3396	0.1245	63.3%
F108.31	F108.F	438	0.2151	12	0.00170	0.9498	2.00	0.50	0.4747	0.2596	45.3%
F108.D	F108.E	806	0.0176	8	0.00350	0.4622	2.00	0.50	0.2310	0.2134	7.6%
F108.E	F108.F	1,312	0.0395	8	0.00326	0.4461	2.00	0.50	0.2230	0.1835	17.7%
F108.F	F81.13	440	0.2546	12	0.00170	0.9498	2.00	0.50	0.4747	0.2201	53.6%
F81.B	F81.13	1,463	0.0183	8	0.00350	0.4622	2.00	0.50	0.2310	0.2127	7.9%
F81.13	F80.24	2,199	0.3064	12	0.00170	0.9498	2.00	0.50	0.4747	0.1683	64.5%
F80.18	F80.24	551	0.0233	8	0.00640	0.6251	2.00	0.50	0.3124	0.2891	7.5%
(AREAS TRIBUTARY TO TEMPERANCE & ALLUVIAL AVE. SEWER MAINS S/O NEES AVE. & E/O ARMSTRONG INTERCEPTOR)											
F80.24	F82.05	1,334	1.2496	18	0.00229	3.2518	1.71	0.55	1.9039	0.6543	65.6%
F82.05	F82.01	1,093	1.3013	18	0.00230	3.2573	1.71	0.55	1.9071	0.6058	68.2%
F82.01	F57.37	1,552	1.3772	18	0.00230	3.2573	1.71	0.55	1.9071	0.5299	72.2%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-2
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR AT ALLUVIAL AVENUE											
(AREAS TRIBUTARY TO ARMSTRONG AND ALLUVIAL AVENUE SEWER MAINS N/0 SH#168 & W/O ARMSTRONG INTERCEPTOR)											
F107.03	F80.07	633	0.1293	12	0.00170	0.9498	2.00	0.50	0.4747	0.3454	27.2%
F80.07	F80.03	1,733	0.1293	12	0.00170	0.9498	2.00	0.50	0.4747	0.3454	27.2%
F80.03	F80.01	886	0.1293	12	0.00170	0.9498	2.00	0.50	0.4747	0.3454	27.2%
F80.27	F80.01	1,726	0.0267	8	0.00300	0.4280	2.00	0.50	0.2139	0.1872	12.5%
F56.A	F80.01	1,379	0.0152	10	0.00200	0.6335	2.00	0.50	0.3166	0.3014	4.8%
F80.01	F57.34	2,650	0.2817	24	0.00150	5.6651	1.71	0.55	3.3168	3.0351	8.5%
F43.03	F57.34	1,090	0.0386	8	0.00240	0.3828	2.00	0.50	0.1913	0.1527	20.2%
F43.A	F57.34	1,201	0.0181	8	0.00240	0.3828	2.00	0.50	0.1913	0.1732	9.5%
F57.34	F57.37	1,334	0.3838	24	0.00150	5.6651	1.71	0.55	3.3168	2.9330	11.6%
(AREAS TRIBUTARY TO TOLLHOUSE ROAD SEWER AND HERNDON AVENUE SEWER)											
F57.37	F58.04	2,211	1.7610	24	0.00150	5.6651	1.71	0.55	3.3168	1.5558	53.1%
F58.A	F58.04	1,327	0.0272	8	0.00350	0.4622	2.00	0.50	0.2310	0.2038	11.8%
F58.04	F59.81	866	1.7959	27	0.00120	6.9368	1.71	0.55	4.0613	2.2654	44.2%
F112.01	F83.06	1,799	0.0808	12	0.00170	0.9498	2.00	0.50	0.4747	0.3939	17.0%
F83.10	F83.06	1,146	0.1556	12	0.00240	1.1285	2.00	0.50	0.5640	0.4084	27.6%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-2
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR AT ALLUVIAL AVENUE											
F83.06	F59.19	594	0.2364	12	0.00170	0.9498	2.00	0.50	0.4747	0.2383	49.8%
F59.86	F59.19	471	0.1100	10	0.00200	0.6335	2.00	0.50	0.3166	0.2066	34.7%
F59.19	F59.18	607	0.3529	12	0.00170	0.9498	2.00	0.50	0.4747	0.1218	74.3%
F58.B	F59.18	755	0.0336	8	0.00210	0.3581	2.00	0.50	0.1790	0.1454	18.8%
F59.18	F59.81	2,012	0.4392	12	0.00170	0.9498	2.00	0.50	0.4747	0.0355	*92.5%*
F59.81	F41.103	2,695	2.4330	27	0.00115	6.7907	1.71	0.55	3.9758	1.5428	61.2%
F41.103	F41.111	2,484	2.4330	27	0.00115	6.7907	1.71	0.55	3.9758	1.5428	61.2%
(AREAS TRIBUTARY TO BULLARD AVENUE SEWER E/O ARMSTRONG AVENUE)											
F84.A	F86.118	3,504	0.0240	10	0.00240	0.6940	2.00	0.50	0.3469	0.3229	6.9%
F86.118	F86.115	997	0.0385	10	0.00240	0.6940	2.00	0.50	0.3469	0.3084	11.1%
F86.115	F85.05	320	0.0669	10	0.00240	0.6940	2.00	0.50	0.3469	0.2800	19.3%
F85.05	F85.06	562	0.0703	15	0.00120	1.4469	1.71	0.55	0.8471	0.7768	8.3%
F85.06	F85.01	700	0.1212	15	0.00120	1.4469	1.71	0.55	0.8471	0.7259	14.3%
F85.B	F85.01	2,313	0.0108	8	0.00300	0.4280	2.00	0.50	0.2139	0.2031	5.0%
F86.03	F85.01	1,160	0.0710	8	0.00300	0.4280	2.00	0.50	0.2139	0.1429	33.2%
F85.01	F41.111	2,727	0.2030	15	0.00300	2.2877	1.71	0.55	1.3394	1.1364	15.2%
F41.111	F40.65	2,518	2.6360	30	0.00100	8.3866	1.71	0.55	4.9102	2.2742	53.7%
F40.65	F62.88	2,694	2.6360	30	0.00100	8.3866	1.71	0.55	4.9102	2.2742	53.7%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-2
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ARMSTRONG INTERCEPTOR AT ALLUVIAL AVENUE											
(AREAS TRIBUTARY TO SHAW AVENUE SEWER E/O ARMSTRONG AVENUE)											
F87.79	F87.53	646	0.0000	10	0.00200	0.6335	2.00	0.50	0.3166	0.3166	0.0%
F87.53	F87.56	1,322	0.0000	10	0.00250	0.7083	2.00	0.50	0.3540	0.3540	0.0%
F87.56	F87.11	1,288	0.0302	12	0.00250	1.1518	2.00	0.50	0.5757	0.5455	5.2%
F87.10	F86.62	2,503	0.0041	10	0.00200	0.6335	2.00	0.50	0.3166	0.3125	1.3%
F86.62	F87.33	273	0.0416	10	0.00200	0.6335	2.00	0.50	0.3166	0.2750	13.1%
F87.33	F87.18	1,323	0.0733	12	0.00200	1.0302	2.00	0.50	0.5149	0.4416	14.2%
F87.19	F87.18	368	0.0594	12	0.00170	0.9498	2.00	0.50	0.4747	0.4153	12.5%
F87.18	F87.14	1,045	0.1430	12	0.00170	0.9498	2.00	0.50	0.4747	0.3317	30.1%
F87.14	F87.11	1,277	0.1430	12	0.00170	0.9498	2.00	0.50	0.4747	0.3317	30.1%
F87.11	F62.88	2,646	0.1732	15	0.00150	1.6177	1.71	0.55	0.9471	0.7739	18.3%
(ARMSTRONG INTERCEPTOR WEST OF ARMSTRONG AVENUE TO ASHLAN AVENUE)											
F62.88	F25.78	2,806	2.8092	30	0.00100	8.3866	1.71	0.55	4.9102	2.1010	57.2%
F25.78	F37.51	2,750	2.8092	30	0.00100	8.3866	1.71	0.55	4.9102	2.1010	57.2%
F37.51	TOTALS T	2,360	2.8092	30	0.00100	8.3866	1.71	0.55	4.9102	2.1010	57.2%

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-3
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS											
(AREAS TRIBUTARY TO HERNDON AVENUE,TOLLHOUSE ROAD & SUNNYSIDE AVENUE SEWER MAINS N/O BULLARD AVENUE)											
F58.C	F42.01	1,074	0.0764	8	0.00240	0.3828	2.00	0.50	0.1913	0.1149	39.9%
F42.01	F01.15	2,634	0.2893	12	0.00170	0.9498	2.00	0.50	0.4747	0.1854	60.9%
F01.15	F01.04	2,024	0.3715	12	0.00160	0.9215	2.00	0.50	0.4605	0.0890	80.7%
F01.04	F01.05	545	0.3715	15	0.00130	1.5060	1.71	0.55	0.8817	0.5102	42.1%
F01.05	F01.21	421	0.4061	15	0.00130	1.5060	1.71	0.55	0.8817	0.4756	46.1%
F01.21	F01.19	702	0.4650	15	0.00130	1.5060	1.71	0.55	0.8817	0.4167	52.7%
F01.19	F01.09	571	0.4836	15	0.00130	1.5060	1.71	0.55	0.8817	0.3981	54.8%
F01.09	F12.53	730	0.5092	15	0.00130	1.5060	1.71	0.55	0.8817	0.3725	57.8%
F12.53	F12.57	1,090	0.5297	15	0.00130	1.5060	1.71	0.55	0.8817	0.3520	60.1%
F12.04	F12.10	901	0.1327	8	0.00300	0.4280	2.00	0.50	0.2139	0.0812	62.0%
F12.10	F12.09	25	0.1456	10	0.01040	1.4447	2.00	0.50	0.7221	0.5765	20.2%
F12.09	F12.57	500	0.1508	10	0.00200	0.6335	2.00	0.50	0.3166	0.1658	47.6%
F12.57	F12.61	855	0.7391	18	0.00154	2.6653	1.71	0.55	1.5605	0.8214	47.4%
F12.61	F12.63	330	0.7391	24	0.00100	4.6255	1.71	0.55	2.7081	1.9690	27.3%
(AREAS TRIBUTARY TO BULLARD AVENUE SEWER MAIN; SUNNYSIDE AVENUE SEWER MAIN BETWEEN BULLARD & BARSTOW AVENUE)											
F60.52	F60.53	1,291	0.1141	10	0.00200	0.6335	2.00	0.50	0.3166	0.2025	36.0%
F60.53	F41.61	2,007	0.2749	10	0.00200	0.6335	2.00	0.50	0.3166	0.0417	86.8%
F59.04	F42.05	1,607	0.1558	10	0.00200	0.6335	2.00	0.50	0.3166	0.1608	49.2%
F42.05	F41.61	3,127	0.2936	10	0.00200	0.6335	2.00	0.50	0.3166	0.0230	*92.7%*
F41.61	F40.10	577	0.5685	15	0.00110	1.3853	1.71	0.55	0.8110	0.2425	70.1%
F40.14	F40.10	813	0.0243	12	0.00120	0.7980	2.00	0.50	0.3988	0.3745	6.1%
F40.10	F12.64	2,732	0.6037	15	0.00110	1.3853	1.71	0.55	0.8110	0.2073	74.4%
F12.64	F12.63	24	0.6359	15	0.00140	1.5628	1.71	0.55	0.9150	0.2791	69.5%
F12.63	F13.85	2,622	1.3934	24	0.00070	3.8700	1.71	0.55	2.2658	0.8724	61.5%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-3
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS											
(AREAS TRIBUTARY TO BARSTOW AVENUE SEWER MAIN; SUNNYSIDE AVENUE SEWER MAIN BETWEEN BARSTOW & SHAW AVENUE)											
F62.36	F39.59	785	0.1302	10	0.00200	0.6335	2.00	0.50	0.3166	0.1864	41.1%
F39.59	F39.01	2,618	0.1998	10	0.00200	0.6335	2.00	0.50	0.3166	0.1168	63.1%
F39.02	F39.01	319	0.0976	8	0.00240	0.3828	2.00	0.50	0.1913	0.0937	51.0%
F39.01	F13.71	28	0.2974	10	0.00240	0.6940	2.00	0.50	0.3469	0.0495	85.7%
F40.02	F13.71	578	0.0440	10	0.00480	0.9815	2.00	0.50	0.4905	0.4465	9.0%
F13.71	F13.78	2,615	0.4291	12	0.00100	0.7285	2.00	0.50	0.3641	-0.0650	117.9%
F24.65	F13.78	344	0.0934	8	0.00200	0.3494	2.00	0.50	0.1746	0.0812	53.5%
F13.78	F14.49	15	0.5225	12	0.00100	0.7285	2.00	0.50	0.3641	-0.1584	143.5%
F13.22	F13.85	654	0.0903	10	0.00110	0.4699	2.00	0.50	0.2348	0.1445	38.5%
F13.85	F14.49	13	1.4837	24	0.00070	3.8700	1.71	0.55	2.2658	0.7821	65.5%
F14.49	F23.10	2,565	2.2286	24	0.00080	4.1372	1.71	0.55	2.4222	0.1936	*92.0%*
F23.32	F23.10	1,367	0.0282	12	0.00200	1.0302	2.00	0.50	0.5149	0.4867	5.5%
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN & SIERRA VISTA AVE. SEWER MAIN BETWEEN SHAW & GETTYSBURG AVE.)											
F62.80	F62.01	1,259	0.0381	10	0.00210	0.6492	2.00	0.50	0.3245	0.2864	11.7%
F62.89	F62.01	510	0.0699	8	0.00200	0.3494	2.00	0.50	0.1746	0.1047	40.0%
F62.01	F38.01	45	0.1080	10	0.00210	0.6492	2.00	0.50	0.3245	0.2165	33.3%
F39.72	F38.01	255	0.0242	8	0.00240	0.3828	2.00	0.50	0.1913	0.1671	12.6%
F38.01	F38.95	1,461	0.1529	10	0.00180	0.6010	2.00	0.50	0.3004	0.1475	50.9%
F38.95	F38.55	734	0.1653	10	0.00160	0.5667	2.00	0.50	0.2832	0.1179	58.4%
F38.55	F24.70	1,748	0.2123	10	0.00190	0.6175	2.00	0.50	0.3086	0.0963	68.8%
F24.70	F25.48	1,263	0.2788	10	0.00190	0.6175	2.00	0.50	0.3086	0.0298	*90.3%*
F23.10	F25.48	131	2.2568	24	0.00080	4.1372	1.71	0.55	2.4222	0.1654	*93.2%*

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-3
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO SUNNYSIDE, SIERRA VISTA, CLAREMONT & HOLLAND/STANFORD AVE. SEWER MAINS											
F26.34	F25.48	1,254	0.0750	10	0.00210	0.6492	2.00	0.50	0.3245	0.2495	23.1%
F25.48	F36.46	2,717	2.6803	24	0.00070	3.8700	1.71	0.55	2.2658	-0.4145	118.3%
(AREAS TRIBUTARY TO GETTYSBURG SEWER BETWEEN TEMPERANCE & SIERRA VISTA, & CLAREMONT/STANFORD SEWER S/O GETTYSBURG)											
F64.01	F38.20	821	0.0589	10	0.00200	0.6335	2.00	0.50	0.3166	0.2577	18.6%
F38.57	F38.20	830	0.0782	8	0.00240	0.3828	2.00	0.50	0.1913	0.1131	40.9%
F38.20	F38.50	2,658	0.1820	10	0.00200	0.6335	2.00	0.50	0.3166	0.1346	57.5%
F38.48	F38.50	792	0.0532	10	0.00180	0.6010	2.00	0.50	0.3004	0.2472	17.7%
F38.50	F25.58	24	0.2352	12	0.00100	0.7285	2.00	0.50	0.3641	0.1289	64.6%
F25.58	F25.62	1,264	0.2587	12	0.00100	0.7285	2.00	0.50	0.3641	0.1054	71.1%
F25.28	F25.62	282	0.0728	8	0.00440	0.5183	2.00	0.50	0.2590	0.1862	28.1%
F25.62	F36.38	1,178	0.3401	12	0.00100	0.7285	2.00	0.50	0.3641	0.0240	*93.4%*
F36.38	F36.46	29	0.3417	12	0.00100	0.7285	2.00	0.50	0.3641	0.0224	*93.9%*
F36.46	F36.48	437	3.0220	27	0.00170	8.2564	1.71	0.55	4.8339	1.8119	62.5%
F36.48	F67.51	4,165	3.0757	27	0.00170	8.2564	1.71	0.55	4.8339	1.7582	63.6%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-4
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE											
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O TEMPERANCE AVENUE)											
F122.05	F122.01	1,935	0.0315	15	0.00170	1.7221	1.71	0.55	1.0083	0.9768	3.1%
F123.03	F122.01	1,185	0.0994	12	0.00240	1.1285	2.00	0.50	0.5640	0.4646	17.6%
F122.01	F119.06	976	0.1459	15	0.00170	1.7221	1.71	0.55	1.0083	0.8624	14.5%
F119.08	F119.06	76	0.0473	8	0.00440	0.5183	2.00	0.50	0.2590	0.2117	18.3%
F119.06	F90.06	1,676	0.2146	15	0.00170	1.7221	1.71	0.55	1.0083	0.7937	21.3%
F89.22	F90.06	184	0.0863	8	0.00340	0.4556	2.00	0.50	0.2277	0.1414	37.9%
F90.07	F90.06	385	0.0678	8	0.00240	0.3828	2.00	0.50	0.1913	0.1235	35.4%
F90.06	F90.03	1,354	0.3911	15	0.00150	1.6177	1.71	0.55	0.9471	0.5560	41.3%
F90.03	F90.40	1,256	0.4338	15	0.00150	1.6177	1.71	0.55	0.9471	0.5133	45.8%
F90.53	F90.40	657	0.0769	8	0.00260	0.3984	2.00	0.50	0.1991	0.1222	38.6%
F90.40	F65.32	32	0.5107	15	0.00150	1.6177	1.71	0.55	0.9471	0.4364	53.9%
(AREAS TRIBUTARY TO GETTYSBURG AND TEMPERANCE AVENUE SEWER MAINS)											
F117.29	F118.27	1,322	0.0558	10	0.00240	0.6940	2.00	0.50	0.3469	0.2911	16.1%
F118.27	F88.78	572	0.1360	10	0.00240	0.6940	2.00	0.50	0.3469	0.2109	39.2%
F117.C	F117.E	1,555	0.0241	8	0.00350	0.4622	2.00	0.50	0.2310	0.2069	10.4%
F88.98	F117.E	495	0.0227	8	0.00897	0.7400	2.00	0.50	0.3699	0.3472	6.1%
F117.E	F88.78	1,677	0.0581	10	0.00350	0.8381	2.00	0.50	0.4189	0.3608	13.9%
F88.78	F88.22	1,346	0.1986	15	0.00120	1.4469	1.71	0.55	0.8471	0.6485	23.4%

SEWER HYDRAULIC CALCULATIONS

TABLE F-HY-4
AREAS TRIBUTARY TO FOWLER TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O & W/O FOWLER AVENUE, & FOWLER TRUNK SEWER S/O ASHLAN AVENUE											
F88.23	F88.13	289	0.0491	10	0.00240	0.6940	2.00	0.50	0.3469	0.2978	14.2%
F88.13	F88.19	2,123	0.0683	10	0.00400	0.8960	2.00	0.50	0.4478	0.3795	15.3%
F88.19	F88.22	207	0.0945	10	0.00450	0.9503	2.00	0.50	0.4750	0.3805	19.9%
F88.22	F89.74	647	0.2931	15	0.00120	1.4469	1.71	0.55	0.8471	0.5540	34.6%
F89.74	F88.01	633	0.3233	15	0.00080	1.1814	1.71	0.55	0.6917	0.3684	46.7%
F88.01	F64.38	1,790	0.3327	15	0.00330	2.3994	1.71	0.55	1.4048	1.0721	23.7%
F64.38	F65.32	855	0.3727	15	0.00330	2.3994	1.71	0.55	1.4048	1.0321	26.5%
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN BETWEEN TEMPERANCE AVENUE AND FOWLER AVENUE)											
F65.32	F65.20	995	0.8910	21	0.00100	3.2398	1.71	0.55	1.8968	1.0058	47.0%
F65.20	F65.15	1,647	0.9434	21	0.00100	3.2398	1.71	0.55	1.8968	0.9534	49.7%
F65.15	F66.04	646	0.9800	21	0.00100	3.2398	1.71	0.55	1.8968	0.9168	51.7%
F66.04	F67.53	1,991	1.0426	21	0.00100	3.2398	1.71	0.55	1.8968	0.8542	55.0%
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN (10") W/O FOWLER AVENUE)											
F36.116	F36.120	720	0.0998	10	0.00240	0.6940	2.00	0.50	0.3469	0.2471	28.8%
(AREAS TRIBUTARY TO FOWLER SEWER N/O ASHLAN, & FOWLER TRUNK SEWER, ASHLAN AVENUE SOUTH)											
F37.22	F36.120	742	0.0713	10	0.00200	0.6335	2.00	0.50	0.3166	0.2453	22.5%
F36.120	F67.52	61	0.1711	12	0.07000	6.0949	2.00	0.50	3.0462	2.8751	5.6%
F67.53	F67.52	54	3.8518	36	0.00200	19.2865	1.71	0.55	11.2917	7.4400	34.1%
F67.52	F67.51	31	4.0229	36	0.00330	24.7739	1.71	0.55	14.5045	10.4816	27.7%
F67.51	F67.54	907	7.0986	36	0.00167	17.6237	1.71	0.55	10.3182	3.2196	68.8%
F67.28	F67.54	885	0.0754	10	0.00140	0.5301	2.00	0.50	0.2649	0.1895	28.5%
F67.54	F94.A	+/- 4,305	7.1740	36	0.00167	17.6237	1.71	0.55	10.3182	3.1442	69.5%
F94.A	SOUTH	NA	7.4038	36	0.00167	17.6237	1.71	0.55	10.3182	2.9144	71.8%

SIERRA SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE S-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO SIERRA TRUNK SEWER SYSTEM

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
WILLOW AVE. SEWER N/O SIERRA AVE.	S06.14	S06.05	100.26	0.0586	0.00%	0.0453	0.00%	0.1039	0.0600	37.22%	0.0439	26.60%
WILLOW AVE. SEWER S/O	S06.14	S07.10	58.73	0.0367	100.00%	0.0000	0.00%	0.0367	0.0367	100.00%	0.0000	0.00%
SIERRA AVE. SEWER E/O WILLOW AVE.	S06.14	S06.13	253.75	0.1912	90.44%	0.0202	9.56%	0.2114	0.1811	85.68%	0.0303	14.32%
TOTAL	**STS**	**S06.14**	**412.74**	**0.2865**	**81.39%**	**0.0655**	**18.61%**	**0.3520**	**0.2779**	**78.93%**	**0.0742**	**21.07%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
JUNE, 2007 METERED FLOW									0.0700			
DIFFERENCE									0.2079			
% VARIANCE FROM METERED FLOW									**+74.81%**			
ADJUSTMENT TO BE MADE									-30.00%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**STS**	**S06.14**	**412.74**	**0.2187**	**81.39%**	**0.0499**	**18.61%**	**0.2686**	**0.1945**	**72.40%**	**0.0742**	**27.60%**
PURCHASED CAPACITY IN REGIONAL SYSTEM								0.5000	0.1945		0.3055	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**+0.2314**	0.0000		+0.2314	

FLOW GENERATION CALCULATIONS

TABLE S-FG-1

AREAS TRIBUTARY TO SIERRA TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN N/O SIERRA AVENUE																						
S06.03	06.03	130	OFFICE	25.31		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0304	0.0304		20%	0.0061		80%	0.0243	
S06.03	06.03	150	COMM	10.66		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0149	0.0149		0%	0.0000		100%	0.0149	
S06.03	06.03	99	EX-SFR	11.89		0.000270	MGD/UNIT	47	270	0.0127		NA	NA	0.0000	0.0127		95%	0.0121		5%	0.0006	
S06.03	06.03	99	EX-SFR	43.98		0.000270	MGD/UNIT	149	270	0.0402		NA	NA	0.0000	0.0402		90%	0.0362		10%	0.0040	
S06.03	**NODE TOTAL**			**91.84**	**91.84**					**0.0529**				**0.0453**	**0.0982**	**0.0982**		**0.0543**	**0.0543**		**0.0439**	**0.0439**
S06.05	06.05	99	EX-SFR	8.42		0.000270	MGD/UNIT	21	270	0.0057		NA	NA	0.0000	0.0057		100%	0.0057		0%	0.0000	
S06.05																						
S06.05	**NODE TOTAL**			**8.42**	**100.26**					**0.0057**				**0.0000**	**0.0057**	**0.1039**		**0.0057**	**0.0600**		**0.0000**	**0.0439**
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN S/O SIERRA AVENUE																						
S07.10	07.10	170	OPEN	15.39		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
S07.10	07.10	99	EX-SFR	43.34		0.000270	MGD/UNIT	136	270	0.0367		NA	NA	0.0000	0.0367		100%	0.0367		0%	0.0000	
S07.10	**NODE TOTAL**			**58.73**	**58.73**					**0.0367**				**0.0000**	**0.0367**	**0.0367**		**0.0367**	**0.0367**		**0.0000**	**0.0000**
AREAS TRIBUTARY TO SIERRA AVENUE SEWER MAIN																						
S05.08	05.08	150	COMM	7.35		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0103	0.0103		100%	0.0103		0%	0.0000	
S05.08	05.08	130	OFFICE	8.22		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0099	0.0099		0%	0.0000		100%	0.0099	
S05.08	05.08	107	R1-7500	12.09		0.000864	MGD/ACRE		270	0.0104		NA	NA	0.0000	0.0104		45%	0.0047		55%	0.0057	
S05.08	05.08	99	EX-SFR	32.18		0.000270	MGD/UNIT	111	270	0.0300		NA	NA	0.0000	0.0300		100%	0.0300		0%	0.0000	
S05.08	05.08	106	L-RES	8.16		0.000729	MGD/ACRE		270	0.0059		NA	NA	0.0000	0.0059		20%	0.0012		80%	0.0047	
S05.08	**NODE TOTAL**			**68.00**	**68.00**					**0.0463**				**0.0202**	**0.0665**	**0.0665**		**0.0462**	**0.0462**		**0.0203**	**0.0203**
S05.09	05.09	99	EX-SFR	4.16		0.000270	MGD/UNIT	10	270	0.0027		NA	NA	0.0000	0.0027		100%	0.0027		0%	0.0000	
S05.09	05.09	106	L-RES	14.05		0.000729	MGD/ACRE		270	0.0102		NA	NA	0.0000	0.0102		60%	0.0061		40%	0.0041	
S05.09	05.09	106	L-RES	2.70		0.000729	MGD/ACRE		270	0.0020		NA	NA	0.0000	0.0020		60%	0.0012		40%	0.0008	
S05.09	05.09	99	EX-SFR	17.42		0.000270	MGD/UNIT	42	270	0.0113		NA	NA	0.0000	0.0113		95%	0.0107		5%	0.0006	
S05.09	**NODE TOTAL**			**38.33**	**106.33**					**0.0262**				**0.0000**	**0.0262**	**0.0927**		**0.0208**	**0.0669**		**0.0054**	**0.0258**
S05.33	05.33	99	EX-SFR	54.92		0.000270	MGD/UNIT	168	270	0.0454		NA	NA	0.0000	0.0454		100%	0.0454		0%	0.0000	
S05.33																						
S05.33	**NODE TOTAL**			**54.92**	**161.25**					**0.0454**				**0.0000**	**0.0454**	**0.1381**		**0.0454**	**0.1123**		**0.0000**	**0.0258**
S08.77	08.77	99	EX-SFR	39.10		0.000270	MGD/UNIT	122	270	0.0329		NA	NA	0.0000	0.0329		100%	0.0329		0%	0.0000	
S08.77																						
S08.77	**NODE TOTAL**			**39.10**	**200.35**					**0.0329**				**0.0000**	**0.0329**	**0.1710**		**0.0329**	**0.1452**		**0.0000**	**0.0258**
S08.15	08.15	99	EX-SFR	49.81		0.000270	MGD/UNIT	140	270	0.0378		NA	NA	0.0000	0.0378		95%	0.0359		5%	0.0019	
S08.15	08.15	106	L-RES	3.59		0.000729	MGD/ACRE		270	0.0026		NA	NA	0.0000	0.0026		0%	0.0000		100%	0.0026	
S08.15	**NODE TOTAL**			**53.40**	**253.75**					**0.0404**				**0.0000**	**0.0404**	**0.2114**		**0.0359**	**0.1811**		**0.0045**	**0.0303**
S06.13	**NODE TOTAL**				**253.75**											**0.2114**			**0.1811**			**0.0303**
S06.14	**NODE TOTAL**				**412.74**											**0.3520**			**0.2779**			**0.0742**
STS	**NODE TOTAL**				**412.74**											**0.3520**			**0.2779**			**0.0742**
TOTALS THIS SHEET										**0.2865**				**0.0655**		**0.3520**			**0.2779**			**0.0742**
GRAND TOTALS STS										**0.2865**				**0.0655**		**0.3520**			**0.2779**			**0.0742**
%										**81.39%**				**18.61%**		**100.00%**			**78.93%**			**21.07%**

SEWER HYDRAULIC CALCULATIONS

TABLE S-HY-1
AREAS TRIBUTARY TO SIERRA TRUNK SEWER SEWER SYSTEM

NA=NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN N/O SIERRA AVENUE											
S06.03	S06.05	371	0.0982	8	0.00240	0.3828	2.00	0.50	0.1913	0.0931	51.3%
S06.05	S06.14	810	0.1039	8	0.00240	0.3828	2.00	0.50	0.1913	0.0874	54.3%
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN S/O SIERRA AVENUE											
S07.10	S06.14	1,317	0.0367	10	0.00130	0.5108	2.00	0.50	0.2553	0.2186	14.4%
AREAS TRIBUTARY TO SIERRA AVENUE SEWER MAIN											
S05.08	S05.09	401	0.0665	8	0.00300	0.4280	2.00	0.50	0.2139	0.1474	31.1%
S05.09	S05.33	658	0.0927	10	0.00200	0.6335	2.00	0.50	0.3166	0.2239	29.3%
S05.33	S08.77	888	0.1381	10	0.00200	0.6335	2.00	0.50	0.3166	0.1785	43.6%
S08.77	S08.15	630	0.1710	10	0.00200	0.6335	2.00	0.50	0.3166	0.1456	54.0%
S08.15	S06.13	722	0.2114	10	0.00150	0.5487	2.00	0.50	0.2742	0.0628	77.1%
S06.13	S06.14	410	0.2114	10	0.00260	0.7224	2.00	0.50	0.3610	0.1496	58.6%
SIERRA TRUNK SEWER ENTERING REGIONAL SYSTEM W/O WILLOW AVENUE											
S06.14	NA	NA	0.3520	12	0.00100	0.7285	1.45	0.61	0.5017	0.1497	70.2%

PEACH SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE P-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

PRIOR TO DIVERSION OF PORTION OF PEACH SERVICE AREA TO FOWLER TRUNK SEWER SYSTEM												
DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
WILLOW & HOLLAND AVE. SEWERS W/O PEACH AVE. (TRIBUTARY TO HOLLAND/HELM PUMP STATION)	P32.35	P32.34	436.98	0.6388	81.58%	0.1442	18.42%	0.7830	0.7582	96.83%	0.0248	3.17%
ASHLAN (NOT INCLUDING HOLLAND/HELM PUMP STATION DISCHARGE)	P32.81	P28.65	281.10	0.4979	90.13%	0.0545	9.87%	0.5524	0.5119	92.66%	0.0405	7.34%
VILLA AVE. SEWER N/O BARSTOW AVE.	P16.44	P16.53	496.87	0.6437	81.41%	0.1470	18.59%	0.7907	0.6529	82.57%	0.1378	17.43%
BARSTOW AVE. SEWER E&W OF VILLA AVE. & VILLA AVE. SEWER BARSTOW TO SHAW AVE.	P21.08	P21.01	427.07	0.4284	67.89%	0.2026	32.11%	0.6310	0.6084	96.41%	0.0227	3.59%
SHAW AVE. SEWERS E&W OF VILLA AVE. & VILLA SEWER SHAW TO GETTYSBURG AVE.	P28.15	P28.14	218.88	0.2104	59.70%	0.1420	40.30%	0.3524	0.3218	91.31%	0.0306	8.69%
GETTYSBURG AVE. SEWER E/O PEACH AVE. & PEACH AVE. SEWER GETTYSBURG TO DAKOTA AVE. (E. BARREL N/O ASHLAN AVE.)	P70.14	P70.03	623.18	0.5487	59.43%	0.3746	40.57%	0.9233	0.6666	72.19%	0.2568	27.81%
DAKOTA AVE. SEWER E/O PEACH AVE.	P70.14	P70.16	27.34	0.0000	0.00%	0.0273	100.00%	0.0273	0.0273	100.00%	0.0000	0.00%
TOTAL	**PTS**	**P70.14**	**2,511.42**	**2.9679**	**73.10%**	**1.0922**	**26.90%**	**4.0601**	**3.5469**	**87.36%**	**0.5132**	**12.64%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
LESS FLOW FROM DAKOTA AVE. SEWER E/O PEACH AVE. THAT DOES NOT PASS THROUGH METER	P70.14	P70.16	-27.34	0.0000	0.00%	-0.0273	100.00%	-0.0273	-0.0273	100.00%	0.0000	0.00%
NET TOTAL CURRENTLY DISCHARGING TO PEACH TRUNK SEWER FROM CITY OF CLOVIS	**PTS**	**P70.14**	**2,484.08**	**2.9679**	**73.59%**	**1.0649**	**26.41%**	**4.0328**	**3.5196**	**87.28%**	**0.5132**	**12.72%**
2007 METERED FLOW									2.6000			
DIFFERENCE									0.9196			
% VARIANCE FROM METERED FLOW									**+26.13%**	TO BE APPLIED TO TOTAL DEVELOPED FLOW		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	PTS	P70.14							-26.13%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**PTS**	**P70.14**	**2,511.42**	**2.2905**	**73.10%**	**0.8429**	**26.90%**	**3.1334**	**2.6202**	**83.62%**	**0.5132**	**16.38%**
PURCHASED CAPACITY IN REGIONAL SYSTEM								3.0000	2.6202		0.3798	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**-0.1334**	0.0000		-0.1334	

FLOW GENERATION CALCULATIONS

TABLE P-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

AFTER DIVERSION OF PORTION OF PEACH SERVICE AREA TO FOWLER TRUNK SEWER SYSTEM												
DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
WILLOW & HOLLAND AVE. SEWERS W/O PEACH AVE. (TRIBUTARY TO HOLLAND/HELM PUMP STATION)	P32.35	P32.34	436.98	0.6388	81.58%	0.1442	18.42%	0.7830	0.7582	96.83%	0.0248	3.17%
ASHLAN (NOT INCLUDING HOLLAND/HELM PUMP STATION DISCHARGE)	P32.81	P28.65	281.10	0.4979	90.13%	0.0545	9.87%	0.5524	0.5119	92.66%	0.0405	7.34%
VILLA AVE. SEWER N/O BARSTOW AVE.	P16.44	P16.53	496.87	0.6437	81.41%	0.1470	18.59%	0.7907	0.6529	82.57%	0.1378	17.43%
BARSTOW AVE. SEWER E&W OF VILLA AVE. & VILLA AVE. SEWER BARSTOW TO SHAW AVE.	P21.08	P21.01	427.07	0.4284	67.89%	0.2026	32.11%	0.6310	0.6084	96.41%	0.0227	3.59%
LESS FUTURE DIVERSION OF FLOW TO FOWLER TRUNK SEWER (USING VILLA/BARSTOW PUMP STATION)	**PS**		**-112.82**	**-0.1309**	**75.41%**	**-0.0427**	**24.59%**	**-0.1736**	**-0.1540**	**88.71%**	**-0.0196**	**11.29%**
SHAW AVE. SEWERS E&W OF VILLA AVE. & VILLA SEWER SHAW TO GETTYSBURG AVE.	P28.15	P28.14	218.88	0.2104	59.70%	0.1420	40.30%	0.3524	0.3218	91.31%	0.0306	8.69%
GETTYSBURG AVE. SEWER E/O PEACH AVE. & PEACH AVE. SEWER GETTYSBURG TO DAKOTA AVE. (E. BARREL N/O ASHLAN AVE.)	P70.14	P70.03	623.18	0.5487	59.43%	0.3746	40.57%	0.9233	0.6666	72.19%	0.2568	27.81%
DAKOTA AVE. SEWER E/O PEACH AVE.	P70.14	P70.16	27.34	0.0000	0.00%	0.0273	100.00%	0.0273	0.0273	100.00%	0.0000	0.00%
TOTAL	**PTS**	**0**	**2,398.60**	**2.8370**	**73.00%**	**1.0495**	**27.00%**	**3.8865**	**3.3929**	**87.30%**	**0.4936**	**12.70%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
% VARIANCE FROM METERED FLOW									**+26.13%**	TO BE APPLIED TO TOTAL DEVELOPED FLOW		
ADJUST TOTAL FLOW BY % VARIANCE FROM METERED FLOW	PTS	P70.14							-26.13%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**PTS**	**P70.14**	**2,398.60**	**2.1899**	**73.00%**	**0.8101**	**27.00%**	**3.0000**	**2.5064**	**83.55%**	**0.4936**	**16.45%**
PURCHASED CAPACITY IN REGIONAL SYSTEM								3.0000	2.5064		0.4936	
PROJECTED UNUSED CAPACITY IN REGIONAL SYSTEM AT BUILDOUT								**0.0000**	0.0000		0.0000	

FLOW GENERATION CALCULATIONS

TABLE P-FG-1

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AND HOLLAND AVENUE SEWER MAINS W/O PEACH AVENUE																				
P30.07	30.07	122	H-RES	10.96		0.003762 MGD/ACRE		270	0.0412		NA NA	0.0000	0.0412		100%	0.0412		0%	0.0000	
P30.07	30.07	122	H-RES	12.73		0.003762 MGD/ACRE		270	0.0479		NA NA	0.0000	0.0479		95%	0.0455		5%	0.0024	
P30.07	30.07	121	MH-RES	10.15		0.002244 MGD/ACRE		270	0.0228		NA NA	0.0000	0.0228		100%	0.0228		0%	0.0000	
P30.07	30.07	99	EX-SFR	14.55		0.000270 MGD/UNIT	63	270	0.0170		NA NA	0.0000	0.0170		100%	0.0170		0%	0.0000	
P30.07	30.07	122	H-RES	1.95		0.003762 MGD/ACRE		270	0.0073		NA NA	0.0000	0.0073		100%	0.0073		0%	0.0000	
P30.07	30.07	121	MH-RES	3.81		0.002244 MGD/ACRE		270	0.0085		NA NA	0.0000	0.0085		100%	0.0085		0%	0.0000	
P30.07	30.07	150	COMM	69.62		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0975	0.0975		100%	0.0975		0%	0.0000	
P30.07	**NODE TOTAL**			**123.77**	**123.77**				**0.1447**			**0.0975**	**0.2422**	**0.2422**		**0.2398**	**0.2398**		**0.0024**	**0.0024**
P30.08	30.08	150	COMM	9.48		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0133	0.0133		100%	0.0133		0%	0.0000	
P30.08	30.08	125	HOTEL	3.49		0.000150 MGD/ROOM	114	150	0.0171		NA NA	0.0000	0.0171		0%	0.0000		100%	0.0171	
P30.08	30.08	122	H-RES	10.73		0.003762 MGD/ACRE		270	0.0404		NA NA	0.0000	0.0404		100%	0.0404		0%	0.0000	
P30.08	**NODE TOTAL**			**23.70**	**147.47**				**0.0575**			**0.0133**	**0.0708**	**0.3130**		**0.0537**	**0.2935**		**0.0171**	**0.0195**
P30.09	30.09	150	COMM	2.38		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0033	0.0033		100%	0.0033		0%	0.0000	
P30.09	30.09	99	EX-SFR	26.27		0.000270 MGD/UNIT	126	270	0.0340		NA NA	0.0000	0.0340		100%	0.0340		0%	0.0000	
P30.09	**NODE TOTAL**			**28.65**	**176.12**				**0.0340**			**0.0033**	**0.0373**	**0.3503**		**0.0373**	**0.3308**		**0.0000**	**0.0195**
P30.25	30.25	99	EX-SFR	10.19		0.000270 MGD/UNIT	52	270	0.0140		NA NA	0.0000	0.0140		100%	0.0140		0%	0.0000	
P30.25																				
P30.25	**NODE TOTAL**			**10.19**	**186.31**				**0.0140**			**0.0000**	**0.0140**	**0.3643**		**0.0140**	**0.3448**		**0.0000**	**0.0195**
P30.28	30.28	99	EX-SFR	7.91		0.000270 MGD/UNIT	40	270	0.0108		NA NA	0.0000	0.0108		100%	0.0108		0%	0.0000	
P30.28	30.28	122	H-RES	7.68		0.003762 MGD/ACRE		270	0.0289		NA NA	0.0000	0.0289		100%	0.0289		0%	0.0000	
P30.28	30.28	150	COMM	2.60		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0036	0.0036		100%	0.0036		0%	0.0000	
P30.28	**NODE TOTAL**			**18.19**	**204.50**				**0.0397**			**0.0036**	**0.0433**	**0.4076**		**0.0433**	**0.3881**		**0.0000**	**0.0195**
P30.31	30.31	122	H-RES	1.97		0.003762 MGD/ACRE		270	0.0074		NA NA	0.0000	0.0074		100%	0.0074		0%	0.0000	
P30.31	30.31	121	MH-RES	5.98		0.002244 MGD/ACRE		270	0.0134		NA NA	0.0000	0.0134		100%	0.0134		0%	0.0000	
P30.31	30.31	99	EX-SFR	16.99		0.000270 MGD/UNIT	75	270	0.0203		NA NA	0.0000	0.0203		100%	0.0203		0%	0.0000	
P30.31	30.31	122	H-RES	16.98		0.003762 MGD/ACRE		270	0.0639		NA NA	0.0000	0.0639		100%	0.0639		0%	0.0000	
P30.31	30.31	130	OFFICE	6.26		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0075	0.0075		65%	0.0049		35%	0.0026	
P30.31	30.31	150	COMM	0.86		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0012	0.0012		100%	0.0012		0%	0.0000	
P30.31	30.31	99	EX-SFR	15.15		0.000270 MGD/UNIT	72	270	0.0194		NA NA	0.0000	0.0194		100%	0.0194		0%	0.0000	
P30.31	**NODE TOTAL**			**64.19**	**268.69**				**0.1244**			**0.0087**	**0.1331**	**0.5407**		**0.1305**	**0.5186**		**0.0026**	**0.0221**
P31.28	31.28	150	COMM	0.71		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0010	0.0010		100%	0.0010		0%	0.0000	
P31.28	31.28	109	M-RES	2.42		0.001107 MGD/ACRE		270	0.0027		NA NA	0.0000	0.0027		0%	0.0000		100%	0.0027	
P31.28	31.28	130	OFFICE	1.17		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0014	0.0014		100%	0.0014		0%	0.0000	
P31.28	31.28	130	OFFICE	8.36		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0100	0.0100		100%	0.0100		0%	0.0000	
P31.28	31.28	99	EX-SFR	43.78		0.000270 MGD/UNIT	209	270	0.0564		NA NA	0.0000	0.0564		100%	0.0564		0%	0.0000	
P31.28	**NODE TOTAL**			**56.44**	**325.13**				**0.0591**			**0.0124**	**0.0715**	**0.6122**		**0.0688**	**0.5874**		**0.0027**	**0.0248**
P32.21	32.21	99	EX-SFR	28.95		0.000270 MGD/UNIT	133	270	0.0359		NA NA	0.0000	0.0359		100%	0.0359		0%	0.0000	
P32.21																				
P32.21	**NODE TOTAL**			**28.95**	**354.08**				**0.0359**			**0.0000**	**0.0359**	**0.6481**		**0.0359**	**0.6233**		**0.0000**	**0.0248**
P32.27	32.27	99	EX-SFR	5.40		0.000270 MGD/UNIT	25	270	0.0068		NA NA	0.0000	0.0068		100%	0.0068		0%	0.0000	
P32.27	32.27	130	OFFICE	1.89		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0023	0.0023		100%	0.0023		0%	0.0000	
P32.27	32.27	122	H-RES	3.97		0.003762 MGD/ACRE		270	0.0149		NA NA	0.0000	0.0149		100%	0.0149		0%	0.0000	
P32.27	**NODE TOTAL**			**11.26**	**365.34**				**0.0217**			**0.0023**	**0.0240**	**0.6721**		**0.0240**	**0.6473**		**0.0000**	**0.0248**
P32.34	32.34	99	EX-SFR	10.98		0.000270 MGD/UNIT	53	270	0.0143		NA NA	0.0000	0.0143		100%	0.0143		0%	0.0000	
P32.34																				
P32.34	**NODE TOTAL**			**10.98**	**376.32**				**0.0143**			**0.0000**	**0.0143**	**0.6864**		**0.0143**	**0.6616**		**0.0000**	**0.0248**

FLOW GENERATION CALCULATIONS

TABLE P-FG-1

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AND HOLLAND AVENUE SEWER MAINS W/O PEACH AVENUE																				
P32.61	32.61	150	COMM	2.21		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0031	0.0031		100%	0.0031		0%	0.0000	
P32.61	32.61	122	H-RES	10.04		0.003762 MGD/ACRE		270	0.0378		NA NA	0.0000	0.0378		100%	0.0378		0%	0.0000	
P32.61	32.61	99	EX-SFR	29.55		0.000270 MGD/UNIT	129	270	0.0348		NA NA	0.0000	0.0348		100%	0.0348		0%	0.0000	
P32.61	**NODE TOTAL**			**41.80**	**41.80**				**0.0726**			**0.0031**	**0.0757**	**0.0757**		**0.0757**	**0.0757**		**0.0000**	**0.0000**
P32.70	32.7	109	M-RES	1.85		0.001107 MGD/ACRE		270	0.0020		NA NA	0.0000	0.0020		100%	0.0020		0%	0.0000	
P32.70	32.7	99	EX-SFR	17.01		0.000270 MGD/UNIT	70	270	0.0189		NA NA	0.0000	0.0189		100%	0.0189		0%	0.0000	
P32.70	**NODE TOTAL**			**18.86**	**60.66**				**0.0209**			**0.0000**	**0.0209**	**0.0966**		**0.0209**	**0.0966**		**0.0000**	**0.0000**
P32.35	**NODE TOTAL**				**436.98**									**0.7830**			**0.7582**			**0.0248**
TOTALS THIS SHEET									**0.6388**			**0.1442**		**0.7830**			**0.7582**			**0.0248**
%									**81.58%**			**18.42%**		**100.00%**			**96.83%**			**3.17%**

FLOW GENERATION CALCULATIONS

TABLE P-FG-2

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO PEACH AVE. SEWER MAIN NORTH OF ASHLAN AVE. (W. BARREL S/O GETTYSBURG AVE.)																						
P20.68	20.68	150	COMM	2.19		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0031	0.0031		100%	0.0031		0%	0.0000	
P20.68	20.68	99	EX-SFR	87.77		0.000270	MGD/UNIT	403	270	0.1088		NA	NA	0.0000	0.1088		100%	0.1088		0%	0.0000	
P20.68	20.68	170	OPEN	7.00		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P20.68	20.68	150	COMM	12.99		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0182	0.0182		100%	0.0182		0%	0.0000	
P20.68	**NODE TOTAL**			**109.95**	**109.95**					**0.1088**				**0.0213**	**0.1301**	**0.1301**		**0.1301**	**0.1301**		**0.0000**	**0.0000**
P20.70	20.70	150	COMM	14.76		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0207	0.0207		100%	0.0207		0%	0.0000	
P20.70	20.70	122	H-RES	21.37		0.003762	MGD/ACRE		270	0.0804		NA	NA	0.0000	0.0804		100%	0.0804		0%	0.0000	
P20.70	**NODE TOTAL**			**36.13**	**146.08**					**0.0804**				**0.0207**	**0.1011**	**0.2312**		**0.1011**	**0.2312**		**0.0000**	**0.0000**
P28.60	28.60	109	M-RES	1.53		0.001107	MGD/ACRE		270	0.0017		NA	NA	0.0000	0.0017		100%	0.0017		0%	0.0000	
P28.60	28.60	109	M-RES	0.85		0.001107	MGD/ACRE		270	0.0009		NA	NA	0.0000	0.0009		50%	0.0005		50%	0.0005	
P28.60	**NODE TOTAL**			**2.38**	**148.46**					**0.0026**				**0.0000**	**0.0026**	**0.2338**		**0.0022**	**0.2334**		**0.0005**	**0.0005**
P29.26	29.26	150	COMM	1.22		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0017	0.0017		100%	0.0017		0%	0.0000	
P29.26	29.26	125	HOTEL	2.70		0.000150	MGD/ROOM	91	150	0.0137		NA	NA	0.0000	0.0137		0%	0.0000		100%	0.0137	
P29.26	29.26	125	HOTEL	2.30		0.000150	MGD/ROOM	99	150	0.0149		NA	NA	0.0000	0.0149		0%	0.0000		100%	0.0149	
P29.26	29.26	150	COMM	7.71		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0108	0.0108		0%	0.0000		100%	0.0108	
P29.26	29.26	122	H-RES	29.77		0.003762	MGD/ACRE		270	0.1120		NA	NA	0.0000	0.1120		100%	0.1120		0%	0.0000	
P29.26	29.26	99	EX-SFR	23.69		0.000270	MGD/UNIT	122	270	0.0329		NA	NA	0.0000	0.0329		100%	0.0329		0%	0.0000	
P29.26	**NODE TOTAL**			**67.39**	**67.39**					**0.1735**				**0.0125**	**0.1860**	**0.1860**		**0.1466**	**0.1466**		**0.0394**	**0.0394**
P29.27	29.27	109	M-RES	2.85		0.001107	MGD/ACRE		270	0.0032		NA	NA	0.0000	0.0032		100%	0.0032		0%	0.0000	
P29.27	29.27	170	OPEN	3.19		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P29.27	29.27	99	EX-SFR	20.37		0.000270	MGD/UNIT	81	270	0.0219		NA	NA	0.0000	0.0219		100%	0.0219		0%	0.0000	
P29.27	29.27																					
P29.27	**NODE TOTAL**			**26.41**	**93.80**					**0.0251**				**0.0000**	**0.0251**	**0.2111**		**0.0251**	**0.1717**		**0.0000**	**0.0394**
P29.33	29.33	122	H-RES	8.86		0.003762	MGD/ACRE		270	0.0333		NA	NA	0.0000	0.0333		100%	0.0333		0%	0.0000	
P29.33	29.33	109	M-RES	9.09		0.001107	MGD/ACRE		270	0.0101		NA	NA	0.0000	0.0101		100%	0.0101		0%	0.0000	
P29.33	**NODE TOTAL**			**17.95**	**111.75**					**0.0434**				**0.0000**	**0.0434**	**0.2545**		**0.0434**	**0.2151**		**0.0000**	**0.0394**
P28.65	28.65	122	H-RES	6.38		0.003762	MGD/ACRE		270	0.0240		NA	NA	0.0000	0.0240		100%	0.0240		0%	0.0000	
P28.65	28.65	121	MH-RES	2.66		0.002244	MGD/ACRE		270	0.0060		NA	NA	0.0000	0.0060		100%	0.0060		0%	0.0000	
P28.65	28.65	109	M-RES	2.21		0.001107	MGD/ACRE		270	0.0024		NA	NA	0.0000	0.0024		100%	0.0024		0%	0.0000	
P28.65	**NODE TOTAL**			**11.25**	**271.46**					**0.0324**				**0.0000**	**0.0324**	**0.5207**		**0.0324**	**0.4809**		**0.0000**	**0.0399**
P32.81	32.81	121	MH-RES	3.02		0.002244	MGD/ACRE		270	0.0068		NA	NA	0.0000	0.0068		90%	0.0061		10%	0.0007	
P32.81	32.81	122	H-RES	6.62		0.003762	MGD/ACRE		270	0.0249		NA	NA	0.0000	0.0249		100%	0.0249		0%	0.0000	
P32.81	**NODE TOTAL**			**9.64**	**718.08**					**0.0317**				**0.0000**	**0.0317**	**1.3354**		**0.0310**	**1.2701**		**0.0007**	**0.0654**
TOTALS THIS SHEET										**0.4979**				**0.0545**		**0.5524**			**0.5119**			**0.0405**
%										**90.13%**				**9.87%**		**100.00%**			**92.66%**			**7.34%**

FLOW GENERATION CALCULATIONS

TABLE P-FG-3

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN N/O BARSTOW AVENUE																						
P16.35	16.35	170	OPEN	5.04		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P16.35	16.35	121	MH-RES	11.56		0.002244	MGD/ACRE		270	0.0259		NA	NA	0.0000	0.0259		100%	0.0259		0%	0.0000	
P16.35	16.35	150	COMM	3.15		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0044	0.0044		100%	0.0044		0%	0.0000	
P16.35	16.35	122	H-RES	2.13		0.003762	MGD/ACRE		270	0.0080		NA	NA	0.0000	0.0080		0%	0.0000		100%	0.0080	
P16.35	16.35	130	OFFICE	10.15		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0122	0.0122		85%	0.0104		15%	0.0018	
P16.35	16.35	99	EX-SFR	5.01		0.000270	MGD/UNIT	31	270	0.0084		NA	NA	0.0000	0.0084		100%	0.0084		0%	0.0000	
P16.35	16.35	122	H-RES	6.23		0.003762	MGD/ACRE		270	0.0234		NA	NA	0.0000	0.0234		100%	0.0234		0%	0.0000	
P16.35	16.35	121	MH-RES	14.37		0.002244	MGD/ACRE		270	0.0322		NA	NA	0.0000	0.0322		100%	0.0322		0%	0.0000	
P16.35	16.35	170	OPEN	2.99		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P16.35	**NODE TOTAL**			**60.63**	**60.63**					**0.0979**				**0.0166**	**0.1145**	**0.1145**		**0.1047**	**0.1047**		**0.0098**	**0.0098**
P16.36	16.36	122	H-RES	0.54		0.003762	MGD/ACRE		270	0.0020		NA	NA	0.0000	0.0020		100%	0.0020		0%	0.0000	
P16.36	16.36	121	MH-RES	2.37		0.002244	MGD/ACRE		270	0.0053		NA	NA	0.0000	0.0053		100%	0.0053		0%	0.0000	
P16.36	**NODE TOTAL**			**2.91**	**63.54**					**0.0073**				**0.0000**	**0.0073**	**0.1218**		**0.0073**	**0.1120**		**0.0000**	**0.0098**
P14.37	14.37	121	MH-RES	2.49		0.002244	MGD/ACRE		270	0.0056		NA	NA	0.0000	0.0056		100%	0.0056		0%	0.0000	
P14.37	14.37	122	H-RES	1.30		0.003762	MGD/ACRE		270	0.0049		NA	NA	0.0000	0.0049		100%	0.0049		0%	0.0000	
P14.37	14.37	140	INDUST	27.86		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0279	0.0279		50%	0.0140		50%	0.0140	
P14.37	14.37	122	H-RES	3.87		0.003762	MGD/ACRE		270	0.0146		NA	NA	0.0000	0.0146		100%	0.0146		0%	0.0000	
P14.37	14.37	121	MH-RES	1.82		0.002244	MGD/ACRE		270	0.0041		NA	NA	0.0000	0.0041		100%	0.0041		0%	0.0000	
P14.37	14.37	140	INDUST	1.82		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0018	0.0018		0%	0.0000		100%	0.0018	
P14.37	14.37	121	MH-RES	1.15		0.002244	MGD/ACRE		270	0.0026		NA	NA	0.0000	0.0026		100%	0.0026		0%	0.0000	
P14.37	14.37	99	EX-SFR	41.65		0.000270	MGD/UNIT	190	270	0.0513		NA	NA	0.0000	0.0513		100%	0.0513		0%	0.0000	
P14.37	**NODE TOTAL**			**81.96**	**81.96**					**0.0831**				**0.0297**	**0.1128**	**0.1128**		**0.0971**	**0.0971**		**0.0158**	**0.0158**
P14.40	14.40	191	MI-SCH	2.62		NA	NA		270	0.0000	150	0.000014	MGD/STUDENT	0.0021	0.0021		90%	0.0019		10%	0.0002	
P14.40	14.40	150	COMM	42.44		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0594	0.0594		90%	0.0535		10%	0.0059	
P14.40	14.40	121	MH-RES	19.64		0.002244	MGD/ACRE		270	0.0441		NA	NA	0.0000	0.0441		80%	0.0353		20%	0.0088	
P14.40	14.40	122	H-RES	2.25		0.003762	MGD/ACRE		270	0.0085		NA	NA	0.0000	0.0085		100%	0.0085		0%	0.0000	
P14.40	14.40	109	M-RES	44.29		0.001107	MGD/ACRE		270	0.0490		NA	NA	0.0000	0.0490		100%	0.0490		0%	0.0000	
P14.40	**NODE TOTAL**			**111.24**	**193.20**					**0.1016**				**0.0615**	**0.1631**	**0.2759**		**0.1481**	**0.2452**		**0.0150**	**0.0307**
P15.34	**NODE TOTAL**				**193.20**											**0.2759**			**0.2452**			**0.0307**
P15.25	15.25	121	MH-RES	3.06		0.002244	MGD/ACRE		270	0.0069		NA	NA	0.0000	0.0069		100%	0.0069		0%	0.0000	
P15.25	15.25	150	COMM	6.87		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0096	0.0096		90%	0.0086		10%	0.0010	
P15.25	15.25	140	INDUST	5.00		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0050	0.0050		100%	0.0050		0%	0.0000	
P15.25	15.25	99	EX-SFR	5.67		0.000270	MGD/UNIT	22	270	0.0059		NA	NA	0.0000	0.0059		100%	0.0059		0%	0.0000	
P15.25	15.25	150	COMM	1.20		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0017	0.0017		100%	0.0017		0%	0.0000	
P15.25	15.25	150	COMM	10.01		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0140	0.0140		100%	0.0140		0%	0.0000	
P15.25	15.25	122	H-RES	6.11		0.003762	MGD/ACRE		270	0.0230		NA	NA	0.0000	0.0230		100%	0.0230		0%	0.0000	
P15.25	**NODE TOTAL**			**37.92**	**37.92**					**0.0358**				**0.0303**	**0.0661**	**0.0661**		**0.0651**	**0.0651**		**0.0010**	**0.0010**
P15.44	**NODE TOTAL**				**231.12**											**0.3420**			**0.3103**			**0.0317**
P15.45	15.45	121	MH-RES	15.96		0.002244	MGD/ACRE		270	0.0358		NA	NA	0.0000	0.0358		100%	0.0358		0%	0.0000	
P15.45																						
P15.45	**NODE TOTAL**			**15.96**	**247.08**					**0.0358**				**0.0000**	**0.0358**	**0.3778**		**0.0358**	**0.3461**		**0.0000**	**0.0317**

FLOW GENERATION CALCULATIONS

TABLE P-FG-3

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN N/O BARSTOW AVENUE																				
P16.41	**NODE TOTAL**				**310.62**									**0.4996**			**0.4581**			**0.0415**
P16.42	16.42	121	MH-RES	16.44		0.002244 MGD/ACRE		270	0.0369		NA NA	0.0000	0.0369		100%	0.0369		0%	0.0000	
P16.42																				
P16.42	**NODE TOTAL**			**16.44**	**327.06**				**0.0369**			**0.0000**	**0.0369**	**0.5365**		**0.0369**	**0.4950**		**0.0000**	**0.0415**
P17.28	17.28	109	M-RES	71.57		0.001107 MGD/ACRE		270	0.0792		NA NA	0.0000	0.0792		0%	0.0000		100%	0.0792	
P17.28	17.28	99	EX-SFR	9.24		0.000270 MGD/UNIT	25	270	0.0068		NA NA	0.0000	0.0068		100%	0.0068		0%	0.0000	
P17.28	17.28	122	H-RES	8.39		0.003762 MGD/ACRE		270	0.0316		NA NA	0.0000	0.0316		100%	0.0316		0%	0.0000	
P17.28	17.28	150	COMM	0.51		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0007	0.0007		100%	0.0007		0%	0.0000	
P17.28	**NODE TOTAL**			**89.71**	**89.71**				**0.1176**			**0.0007**	**0.1183**	**0.1183**		**0.0391**	**0.0391**		**0.0792**	**0.0792**
P16.21	16.21	121	MH-RES	26.36		0.002244 MGD/ACRE		270	0.0592		NA NA	0.0000	0.0592		85%	0.0503		15%	0.0089	
P16.21																				
P16.21	**NODE TOTAL**			**26.36**	**26.36**				**0.0592**			**0.0000**	**0.0592**	**0.0592**		**0.0503**	**0.0503**		**0.0089**	**0.0089**
P17.21	17.21	121	MH-RES	12.28		0.002244 MGD/ACRE		270	0.0276		NA NA	0.0000	0.0276		100%	0.0276		0%	0.0000	
P17.21																				
P17.21	**NODE TOTAL**			**12.28**	**12.28**				**0.0276**			**0.0000**	**0.0276**	**0.0276**		**0.0276**	**0.0276**		**0.0000**	**0.0000**
P16.23	**NODE TOTAL**				**38.64**									**0.0868**			**0.0779**			**0.0089**
P16.24	16.24	170	OPEN	8.77		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P16.24	16.24	121	MH-RES	2.08		0.002244 MGD/ACRE		270	0.0047		NA NA	0.0000	0.0047		100%	0.0047		0%	0.0000	
P16.24	16.24	170	OPEN	6.28		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P16.24	16.24	140	INDUST	8.22		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0082	0.0082		0%	0.0000		100%	0.0082	
P16.24	**NODE TOTAL**			**25.35**	**153.70**				**0.0047**			**0.0082**	**0.0129**	**0.2180**		**0.0047**	**0.1217**		**0.0082**	**0.0963**
P16.27	**NODE TOTAL**				**153.70**									**0.2180**			**0.1217**			**0.0963**
P16.53	**NODE TOTAL**				**480.76**									**0.7545**			**0.6167**			**0.1378**
P16.44	16.44	121	MH-RES	16.11		0.002244 MGD/ACRE		270	0.0362		NA NA	0.0000	0.0362		100%	0.0362		0%	0.0000	
P16.44																				
P16.44	**NODE TOTAL**			**16.11**	**496.87**				**0.0362**			**0.0000**	**0.0362**	**0.7907**		**0.0362**	**0.6529**		**0.0000**	**0.1378**
TOTALS THIS SHEET									**0.6437**			**0.1470**		**0.7907**			**0.6529**			**0.1378**
%									**81.41%**			**18.59%**		**100.00%**			**82.57%**			**17.43%**

FLOW GENERATION CALCULATIONS

TABLE P-FG-4

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN E/O & W/O VILLA AVE.; VILLA AVE. SEWER MAIN, BARSTOW TO SHAW AVE.																				
(AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN W/O VILLA AVE.)																				
P16.17	16.17	121	MH-RES	22.97		0.002244 MGD/ACRE		270	0.0515		NA NA	0.0000	0.0515		100%	0.0515		0%	0.0000	
P16.17																				
P16.17	**NODE TOTAL**			**22.97**	**22.97**				**0.0515**			**0.0000**	**0.0515**	**0.0515**		**0.0515**	**0.0515**		**0.0000**	**0.0000**
P16.45	**NODE TOTAL**				**519.84**									**0.8422**			**0.7044**			**0.1378**
(AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN E/O VILLA AVE.)																				
P14.47	14.47	170	OPEN	5.81		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P14.47	14.47	122	H-RES	3.69		0.003762 MGD/ACRE		270	0.0139		NA NA	0.0000	0.0139		100%	0.0139		0%	0.0000	
P14.47	14.47	140	INDUST	12.53		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0125	0.0125		100%	0.0125		0%	0.0000	
P14.47	**NODE TOTAL**			**22.03**	**22.03**				**0.0139**			**0.0125**	**0.0264**	**0.0264**		**0.0264**	**0.0264**		**0.0000**	**0.0000**
P14.55	14.55	140	INDUST	32.52		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0325	0.0325		95%	0.0309		5%	0.0016	
P14.55																				
P14.55	**NODE TOTAL**			**32.52**	**32.52**				**0.0000**			**0.0325**	**0.0325**	**0.0325**		**0.0309**	**0.0309**		**0.0016**	**0.0016**
P23.25	23.25	121	MH-RES	8.34		0.002244 MGD/ACRE		270	0.0187		NA NA	0.0000	0.0187		100%	0.0187		0%	0.0000	
P23.25	23.25	150	COMM	31.25		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0438	0.0438		95%	0.0416		5%	0.0022	
P23.25	23.25	170	OPEN	6.36		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P23.25	23.25	140	INDUST	18.62		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0186	0.0186		90%	0.0167		10%	0.0019	
P23.25	**NODE TOTAL**			**64.57**	**64.57**				**0.0187**			**0.0624**	**0.0811**	**0.0811**		**0.0771**	**0.0771**		**0.0041**	**0.0041**
P23.17	23.17	170	OPEN	10.00		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P23.17	23.17	170	OPEN	0.61		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P23.17	23.17	140	INDUST	19.12		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0191	0.0191		75%	0.0143		25%	0.0048	
P23.17	**NODE TOTAL**			**29.73**	**94.30**				**0.0000**			**0.0191**	**0.0191**	**0.1002**		**0.0143**	**0.0914**		**0.0048**	**0.0088**
P23.02	23.02	170	OPEN	1.45		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P23.02	23.02	140	INDUST	6.25		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0063	0.0063		90%	0.0057		10%	0.0006	
P23.02	**NODE TOTAL**			**7.70**	**102.00**				**0.0000**			**0.0063**	**0.0063**	**0.1065**		**0.0057**	**0.0970**		**0.0006**	**0.0095**
P14.56	**NODE TOTAL**				**156.55**									**0.1654**			**0.1543**			**0.0111**
P15.76	15.76	99	EX-SFR	3.13		0.000270 MGD/UNIT	13	270	0.0035		NA NA	0.0000	0.0035		80%	0.0028		20%	0.0007	
P15.76	15.76	150	COMM	13.04		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0183	0.0183		90%	0.0165		10%	0.0018	
P15.76	15.76	125	HOTEL	1.13		0.000150 MGD/ROOM	36	150	0.0054		NA NA	0.0000	0.0054		65%	0.0035		35%	0.0019	
P15.76	15.76	150	COMM	4.93		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0069	0.0069		90%	0.0062		10%	0.0007	
P15.76	15.76	122	H-RES	3.13		0.003762 MGD/ACRE		270	0.0118		NA NA	0.0000	0.0118		100%	0.0118		0%	0.0000	
P15.76	15.76	190	EL-SCH	15.54		NA NA		270	0.0000	675	0.000006 MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
P15.76	15.76	130	OFFICE	1.10		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0013	0.0013		100%	0.0013		0%	0.0000	
P15.76	15.76	130	OFFICE	0.94		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0011	0.0011		25%	0.0003		75%	0.0008	
P15.76	**NODE TOTAL**			**42.94**	**199.49**				**0.0207**			**0.0317**	**0.0524**	**0.2178**		**0.0465**	**0.2008**		**0.0059**	**0.0170**
P15.80	**NODE TOTAL**				**199.49**									**0.2178**			**0.2008**			**0.0170**
P15.81	15.81	99	EX-SFR	4.76		0.000270 MGD/UNIT	21	270	0.0057		NA NA	0.0000	0.0057		100%	0.0057		0%	0.0000	
P15.81	15.81	121	MH-RES	1.12		0.002244 MGD/ACRE		270	0.0025		NA NA	0.0000	0.0025		100%	0.0025		0%	0.0000	
P15.81	15.81	121	MH-RES	5.12		0.002244 MGD/ACRE		270	0.0115		NA NA	0.0000	0.0115		100%	0.0115		0%	0.0000	
P15.81	15.81	99	EX-SFR	28.53		0.000270 MGD/UNIT	117	270	0.0316		NA NA	0.0000	0.0316		100%	0.0316		0%	0.0000	
P15.81	15.81	109	M-RES	4.23		0.001107 MGD/ACRE		270	0.0047		NA NA	0.0000	0.0047		100%	0.0047		0%	0.0000	
P15.81	15.81	150	COMM	9.16		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0128	0.0128		95%	0.0122		5%	0.0006	
P15.81	**NODE TOTAL**			**52.92**	**252.41**				**0.0560**			**0.0128**	**0.0688**	**0.2866**		**0.0682**	**0.2689**		**0.0006**	**0.0177**

FLOW GENERATION CALCULATIONS

TABLE P-FG-4

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN E/O & W/O VILLA AVE.; VILLA AVE. SEWER MAIN, BARSTOW TO SHAW AVE.																						
P15.82	15.82	99	EX-SFR	4.74		0.000270	MGD/UNIT	23	270	0.0062		NA	NA	0.0000	0.0062		100%	0.0062		0%	0.0000	
P15.82	15.82	130	OFFICE	1.95		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0023	0.0023		100%	0.0023		0%	0.0000	
P15.82	15.82	121	MH-RES	3.54		0.002244	MGD/ACRE		270	0.0079		NA	NA	0.0000	0.0079		95%	0.0075		5%	0.0004	
P15.82	15.82	122	H-RES	6.36		0.003762	MGD/ACRE		270	0.0239		NA	NA	0.0000	0.0239		100%	0.0239		0%	0.0000	
P15.82	15.82	99	EX-SFR	24.20		0.000270	MGD/UNIT	97	270	0.0262		NA	NA	0.0000	0.0262		100%	0.0262		0%	0.0000	
P15.82	15.82	121	MH-RES	7.96		0.002244	MGD/ACRE		270	0.0179		NA	NA	0.0000	0.0179		100%	0.0179		0%	0.0000	
P15.82	**NODE TOTAL**			**48.75**	**301.16**					**0.0821**				**0.0023**	**0.0844**	**0.3710**		**0.0840**	**0.3530**		**0.0004**	**0.0181**
P15.85	15.85	99	EX-SFR	7.47		0.000270	MGD/UNIT	34	270	0.0092		NA	NA	0.0000	0.0092		100%	0.0092		0%	0.0000	
P15.85	15.85	109	M-RES	2.71		0.001107	MGD/ACRE		270	0.0030		NA	NA	0.0000	0.0030		100%	0.0030		0%	0.0000	
P15.85	15.85	121	MH-RES	1.30		0.002244	MGD/ACRE		270	0.0029		NA	NA	0.0000	0.0029		100%	0.0029		0%	0.0000	
P15.85	15.85	122	H-RES	3.44		0.003762	MGD/ACRE		270	0.0129		NA	NA	0.0000	0.0129		100%	0.0129		0%	0.0000	
P15.85	15.85	121	MH-RES	5.66		0.002244	MGD/ACRE		270	0.0127		NA	NA	0.0000	0.0127		100%	0.0127		0%	0.0000	
P15.85	15.85	170	OPEN	14.86		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P15.85	**NODE TOTAL**			**35.44**	**336.60**					**0.0407**				**0.0000**	**0.0407**	**0.4117**		**0.0407**	**0.3937**		**0.0000**	**0.0181**
(AREAS TRIBUTARY TO VILLA AVE. SEWER MAIN BETWEEN BARSTOW & SHAW AVE.)																						
P21.01	21.01	121	MH-RES	11.26		0.002244	MGD/ACRE		270	0.0253		NA	NA	0.0000	0.0253		100%	0.0253		0%	0.0000	
P21.01																						
P21.01	**NODE TOTAL**			**11.26**	**867.70**					**0.0253**				**0.0000**	**0.0253**	**1.2792**		**0.0253**	**1.1234**		**0.0000**	**0.1558**
P21.08	21.08	121	MH-RES	28.18		0.002244	MGD/ACRE		270	0.0632		NA	NA	0.0000	0.0632		100%	0.0632		0%	0.0000	
P21.08	21.08	99	EX-SFR	9.82		0.000270	MGD/UNIT	100	270	0.0270		NA	NA	0.0000	0.0270		100%	0.0270		0%	0.0000	
P21.08	21.08	121	MH-RES	1.79		0.002244	MGD/ACRE		270	0.0040		NA	NA	0.0000	0.0040		100%	0.0040		0%	0.0000	
P21.08	21.08	150	COMM	16.45		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0230	0.0230		80%	0.0184		20%	0.0046	
P21.08	**NODE TOTAL**			**56.24**	**923.94**					**0.1195**				**0.0230**	**0.1425**	**1.4217**		**0.1379**	**1.2613**		**0.0046**	**0.1604**
TOTALS THIS SHEET										**0.4284**				**0.2026**		**0.6310**			**0.6084**			**0.0227**
%										**67.89%**				**32.11%**		**100.00%**			**96.41%**			**3.59%**

FLOW GENERATION CALCULATIONS

TABLE P-FG-5

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN E/O & W/O VILLA AVE.; VILLA AVE. SEWER MAIN, SHAW TO GETTYSBURG AVE.																				
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN W/O VILLA AVE.)																				
P21.15	21.15	150	COMM	25.94		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0363	0.0363		95%	0.0345		5%	0.0018	
P21.15																				
P21.15	**NODE TOTAL**			**25.94**	**25.94**				**0.0000**			**0.0363**	**0.0363**	**0.0363**		**0.0345**	**0.0345**		**0.0018**	**0.0018**
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN E/O VILLA AVE.)																				
P22.78	22.78	150	COMM	32.03		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0448	0.0448		100%	0.0448		0%	0.0000	
P22.78	22.78	121	MH-RES	6.07		0.002244 MGD/ACRE		270	0.0136		NA NA	0.0000	0.0136		100%	0.0136		0%	0.0000	
P22.78	22.78	99	EX-SFR	17.88		0.000270 MGD/UNIT	81	270	0.0219		NA NA	0.0000	0.0219		100%	0.0219		0%	0.0000	
P22.78	22.78	130	OFFICE	4.76		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0057	0.0057		100%	0.0057		0%	0.0000	
P22.78	22.78	121	MH-RES	23.74		0.002244 MGD/ACRE		270	0.0533		NA NA	0.0000	0.0533		100%	0.0533		0%	0.0000	
P22.78	22.78	150	COMM	12.93		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0181	0.0181		100%	0.0181		0%	0.0000	
P22.78	**NODE TOTAL**			**97.41**	**97.41**				**0.0888**			**0.0686**	**0.1574**	**0.1574**		**0.1574**	**0.1574**		**0.0000**	**0.0000**
(AREAS TRIBUTARY TO VILLA AVE. SEWER MAIN BETWEEN SHAW & GETTYSBURG AVE.)																				
P21.14	21.14	150	COMM	26.50		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0371	0.0371		60%	0.0223		40%	0.0148	
P21.14	21.14	122	H-RES	10.90		0.003762 MGD/ACRE		270	0.0410		NA NA	0.0000	0.0410		100%	0.0410		0%	0.0000	
P21.14	**NODE TOTAL**			**37.40**	**1,084.69**				**0.0410**			**0.0371**	**0.0781**	**1.6935**		**0.0633**	**1.5164**		**0.0148**	**0.1771**
P28.14	28.14	122	H-RES	5.91		0.003762 MGD/ACRE		270	0.0222		NA NA	0.0000	0.0222		100%	0.0222		0%	0.0000	
P28.14	28.14	99	EX-SFR	20.75		0.000270 MGD/UNIT	87	270	0.0235		NA NA	0.0000	0.0235		100%	0.0235		0%	0.0000	
P28.14	28.14	109	M-RES	8.36		0.001107 MGD/ACRE		270	0.0093		NA NA	0.0000	0.0093		60%	0.0056		40%	0.0037	
P28.14	**NODE TOTAL**			**35.02**	**1,119.71**				**0.0550**			**0.0000**	**0.0550**	**1.7485**		**0.0513**	**1.5677**		**0.0037**	**0.1808**
P28.15	28.15	109	M-RES	23.11		0.001107 MGD/ACRE		270	0.0256		NA NA	0.0000	0.0256		60%	0.0154		40%	0.0102	
P28.15																				
P28.15	**NODE TOTAL**			**23.11**	**1,142.82**				**0.0256**			**0.0000**	**0.0256**	**1.7741**		**0.0154**	**1.5830**		**0.0102**	**0.1911**
TOTALS THIS SHEET									**0.2104**			**0.1420**		**0.3524**			**0.3218**			**0.0306**
%									**59.70%**			**40.30%**		**100.00%**			**91.31%**			**8.69%**

FLOW GENERATION CALCULATIONS

TABLE P-FG-6

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G		H	I	J	K	L		M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE		RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE		NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN E/O PEACH AVE.; PEACH AVE. SEWER MAIN, GETTYSBURG TO DAKOTA AVE.																						
(AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN E/O PEACH AVE.)																						
P35.07	35.07	140	INDUST	38.07		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0381	0.0381		60%	0.0229		40%	0.0152	
P35.07	35.07	170	OPEN	6.74		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P35.07	**NODE TOTAL**			**44.81**	**44.81**					**0.0000**				**0.0381**	**0.0381**	**0.0381**		**0.0229**	**0.0229**		**0.0152**	**0.0152**
P26.15	26.15	99	EX-SFR	1.36		0.000270	MGD/UNIT	1	270	0.0003		NA	NA	0.0000	0.0003		100%	0.0003		0%	0.0000	
P26.15	26.15	120	EX-MFR	14.95		0.000220	MGD/UNIT	178	220	0.0392		NA	NA	0.0000	0.0392		50%	0.0196		50%	0.0196	
P26.15	26.15	150	COMM	4.38		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0061	0.0061		100%	0.0061		0%	0.0000	
P26.15	26.15	125	HOTEL	4.49		0.000150	MGD/ROOM	165	150	0.0248		NA	NA	0.0000	0.0248		0%	0.0000		100%	0.0248	
P26.15	26.15	170	OPEN	1.30		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P26.15	26.15	140	INDUST	12.35		NA	NA		270	0.0000		0.001000	MGD/ACRE	0.0124	0.0124		100%	0.0124		0%	0.0000	
P26.15	**NODE TOTAL**			**38.83**	**83.64**					**0.0643**				**0.0566**	**0.1209**	**0.1590**		**0.0613**	**0.0841**		**0.0596**	**0.0749**
P26.04	26.04	122	H-RES	22.11		0.003762	MGD/ACRE		270	0.0832		NA	NA	0.0000	0.0832		0%	0.0000		100%	0.0832	
P26.04	26.04	190	EL-SCH	10.01		NA	NA		270	0.0000	725	0.000006	MGD/STUDENT	0.0044	0.0044		95%	0.0042		5%	0.0002	
P26.04	26.04	130	OFFICE	6.42		NA	NA		270	0.0000		0.001200	MGD/ACRE	0.0077	0.0077		0%	0.0000		100%	0.0077	
P26.04	26.04	170	OPEN	5.48		NA	NA		270	0.0000		0.000000	MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P26.04	26.04	150	COMM	28.67		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0401	0.0401		90%	0.0361		10%	0.0040	
P26.04	**NODE TOTAL**			**72.69**	**72.69**					**0.0832**				**0.0522**	**0.1354**	**0.1354**		**0.0403**	**0.0403**		**0.0951**	**0.0951**
P26.23	**NODE TOTAL**				**156.33**											**0.2944**			**0.1244**			**0.1700**
P27.65	27.65	99	EX-SFR	16.88		0.000270	MGD/UNIT	77	270	0.0208		NA	NA	0.0000	0.0208		100%	0.0208		0%	0.0000	
P27.65	27.65	122	H-RES	0.48		0.003762	MGD/ACRE		270	0.0018		NA	NA	0.0000	0.0018		100%	0.0018		0%	0.0000	
P27.65	**NODE TOTAL**			**17.36**	**173.69**					**0.0226**				**0.0000**	**0.0226**	**0.3170**		**0.0226**	**0.1470**		**0.0000**	**0.1700**
P27.69	**NODE TOTAL**				**173.69**											**0.3170**			**0.1470**			**0.1700**
P27.41	27.41	150	COMM	37.37		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0523	0.0523		50%	0.0262		50%	0.0262	
P27.41	27.41	122	H-RES	7.67		0.003762	MGD/ACRE		270	0.0289		NA	NA	0.0000	0.0289		90%	0.0260		10%	0.0029	
P27.41	27.41	99	EX-SFR	38.11		0.000270	MGD/UNIT	183	270	0.0494		NA	NA	0.0000	0.0494		100%	0.0494		0%	0.0000	
P27.41	27.41	125	HOTEL	1.25		0.000150	MGD/ROOM	40	150	0.0060		NA	NA	0.0000	0.0060		0%	0.0000		100%	0.0060	
P27.41	27.41	150	COMM	4.19		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0059	0.0059		80%	0.0047		20%	0.0012	
P27.41	**NODE TOTAL**			**88.59**	**88.59**					**0.0843**				**0.0582**	**0.1425**	**0.1425**		**0.1063**	**0.1063**		**0.0362**	**0.0362**
P27.19	27.19	150	COMM	9.32		NA	NA		270	0.0000		0.001400	MGD/ACRE	0.0130	0.0130		100%	0.0130		0%	0.0000	
P27.19	27.19	122	H-RES	15.32		0.003762	MGD/ACRE		270	0.0576		NA	NA	0.0000	0.0576		100%	0.0576		0%	0.0000	
P27.19	**NODE TOTAL**			**24.64**	**24.64**					**0.0576**				**0.0130**	**0.0706**	**0.0706**		**0.0706**	**0.0706**		**0.0000**	**0.0000**
P27.53	27.53	99	EX-SFR	8.89		0.000270	MGD/UNIT	44	270	0.0119		NA	NA	0.0000	0.0119		100%	0.0119		0%	0.0000	
P27.53																						
P27.53	**NODE TOTAL**			**8.89**	**122.12**					**0.0119**				**0.0000**	**0.0119**	**0.2250**		**0.0119**	**0.1888**		**0.0000**	**0.0362**
P27.56	27.56	122	H-RES	1.85		0.003762	MGD/ACRE		270	0.0070		NA	NA	0.0000	0.0070		100%	0.0070		0%	0.0000	
P27.56	27.56	99	EX-SFR	7.13		0.000270	MGD/UNIT	37	270	0.0100		NA	NA	0.0000	0.0100		100%	0.0100		0%	0.0000	
P27.56	27.56	190	EL-SCH	12.99		NA	NA		270	0.0000	675	0.000006	MGD/STUDENT	0.0041	0.0041		100%	0.0041		0%	0.0000	
P27.56	**NODE TOTAL**			**21.97**	**144.09**					**0.0170**				**0.0041**	**0.0211**	**0.2461**		**0.0211**	**0.2099**		**0.0000**	**0.0362**
P27.72	**NODE TOTAL**				**317.78**											**0.5631**			**0.3569**			**0.2062**
P28.38	28.38	99	EX-SFR	0.44		0.000270	MGD/UNIT	2	270	0.0005		NA	NA	0.0000	0.0005		100%	0.0005		0%	0.0000	
P28.38	28.38	122	H-RES	1.93		0.003762	MGD/ACRE		270	0.0073		NA	NA	0.0000	0.0073		100%	0.0073		0%	0.0000	
P28.38	28.38	99	EX-SFR	5.92		0.000270	MGD/UNIT	24	270	0.0065		NA	NA	0.0000	0.0065		100%	0.0065		0%	0.0000	
P28.38	**NODE TOTAL**			**8.29**	**326.07**					**0.0143**				**0.0000**	**0.0143**	**0.5774**		**0.0143**	**0.3712**		**0.0000**	**0.2062**

FLOW GENERATION CALCULATIONS

TABLE P-FG-6

AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN E/O PEACH AVE.; PEACH AVE. SEWER MAIN, GETTYSBURG TO DAKOTA AVE.																				
P28.40	28.40	109	M-RES	9.18		0.001107 MGD/ACRE		270	0.0102		NA NA	0.0000	0.0102		70%	0.0071		30%	0.0031	
P28.40	28.40	150	COMM	2.56		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0036	0.0036		30%	0.0011		70%	0.0025	
P28.40	**NODE TOTAL**			**11.74**	**1,480.63**				**0.0102**			**0.0036**	**0.0138**	**2.3653**		**0.0082**	**1.9624**		**0.0056**	**0.4029**
(AREAS TRIBUTARY TO PEACH AVE. SEWER MAIN BETWEEN GETTYSBURG & DAKOTA AVE.)																				
P28.45	28.45	150	COMM	3.19		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0045	0.0045		100%	0.0045		0%	0.0000	
P28.45	28.45	99	EX-SFR	29.16		0.000270 MGD/UNIT	136	270	0.0367		NA NA	0.0000	0.0367		100%	0.0367		0%	0.0000	
P28.45	28.45	122	H-RES	6.42		0.003762 MGD/ACRE		270	0.0242		NA NA	0.0000	0.0242		100%	0.0242		0%	0.0000	
P28.45	**NODE TOTAL**			**38.77**	**1,519.40**				**0.0609**			**0.0045**	**0.0654**	**2.4307**		**0.0654**	**2.0278**		**0.0000**	**0.4029**
P33.46	33.46	122	H-RES	3.46		0.003762 MGD/ACRE		270	0.0130		NA NA	0.0000	0.0130		100%	0.0130		0%	0.0000	
P33.46	33.46	99	EX-SFR	82.38		0.000270 MGD/UNIT	371	270	0.1002		NA NA	0.0000	0.1002		100%	0.1002		0%	0.0000	
P33.46	33.46	170	OPEN	26.17		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
P33.46	**NODE TOTAL**			**112.01**	**112.01**				**0.1132**			**0.0000**	**0.1132**	**0.1132**		**0.1132**	**0.1132**		**0.0000**	**0.0000**
P33.66	**NODE TOTAL**				**1,631.41**									**2.5439**			**2.1410**			**0.4029**
P33.68	33.68	150	COMM	3.40		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0048	0.0048		100%	0.0048		0%	0.0000	
P33.68																				
P33.68	**NODE TOTAL**			**3.40**	**2,352.89**				**0.0000**			**0.0048**	**0.0048**	**3.8841**		**0.0048**	**3.4159**		**0.0000**	**0.4682**
P70.23	70.23	150	COMM	24.02		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0336	0.0336		100%	0.0336		0%	0.0000	
P70.23	70.23	130	OFFICE	13.77		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0165	0.0165		100%	0.0165		0%	0.0000	
P70.23	70.23	140	INDUST	30.59		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0306	0.0306		50%	0.0153		50%	0.0153	
P70.23	70.23	121	MH-RES	4.09		0.002244 MGD/ACRE		270	0.0092		NA NA	0.0000	0.0092		0%	0.0000		100%	0.0092	
P70.23	**NODE TOTAL**			**72.47**	**72.47**				**0.0092**			**0.0807**	**0.0899**	**0.0899**		**0.0654**	**0.0654**		**0.0245**	**0.0245**
P70.22	70.22	140	INDUST	7.66		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0077	0.0077		100%	0.0077		0%	0.0000	
P70.22																				
P70.22	**NODE TOTAL**			**7.66**	**2,433.02**				**0.0000**			**0.0077**	**0.0077**	**3.9817**		**0.0077**	**3.4890**		**0.0000**	**0.4927**
P70.07	70.07	140	INDUST	51.06		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0511	0.0511		60%	0.0307		40%	0.0204	
P70.07																				
P70.07	**NODE TOTAL**			**51.06**	**51.06**				**0.0000**			**0.0511**	**0.0511**	**0.0511**		**0.0307**	**0.0307**		**0.0204**	**0.0204**
P70.03	**NODE TOTAL**				**2,484.08**									**4.0328**			**3.5196**			**0.5132**
P70.16	70.16	140	INDUST	27.34		NA NA		270	0.0000		0.001000 MGD/ACRE	0.0273	0.0273		100%	0.0273		0%	0.0000	
P70.16																				
P70.16	**NODE TOTAL**			**27.34**	**27.34**				**0.0000**			**0.0273**	**0.0273**	**0.0273**		**0.0273**	**0.0273**		**0.0000**	**0.0000**
P70.14	**NODE TOTAL**				**2,511.42**									**4.0601**			**3.5469**			**0.5132**
TOTALS THIS SHEET				**650.52**					**0.5487**			**0.4019**		**0.9506**			**0.6939**			**0.2568**
%									**57.72%**			**42.28%**		**100.00%**			**72.99%**			**27.01%**

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-1
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO WILLOW & HOLLAND AVENUE SEWERS W/O PEACH AVENUE											
P30.07	P30.08	670	0.2422	10	0.00200	0.6335	2.00	0.50	0.3166	0.0744	76.5%
P30.08	P30.09	666	0.3130	10	0.00200	0.6335	2.00	0.50	0.3166	0.0036	*98.8%*
P30.09	P30.25	261	0.3503	10	0.00250	0.7083	2.00	0.50	0.3540	0.0037	*98.9%*
P30.25	P30.28	260	0.3643	10	0.00250	0.7083	2.00	0.50	0.3540	-0.0103	102.9%
P30.28	P30.31	812	0.4076	10	0.00230	0.6794	2.00	0.50	0.3396	-0.0680	120.0%
P30.31	P31.28	1,319	0.5407	14	0.00100	1.0989	2.00	0.50	0.5492	0.0085	*98.5%*
P31.28	P32.21	325	0.6122	16	0.00040	0.9922	1.71	0.55	0.5809	-0.0313	105.4%
P32.21	P32.27	267	0.6481	16	0.00050	1.1094	1.71	0.55	0.6495	0.0014	*99.8%*
P32.27	P32.34	258	0.6721	16	0.00050	1.1094	1.71	0.55	0.6495	-0.0226	103.5%
P32.34	P32.35	446	0.6864	16	0.00050	1.1094	1.71	0.55	0.6495	-0.0369	105.7%
P32.61	P32.70	518	0.0757	10	0.00200	0.6335	2.00	0.50	0.3166	0.2409	23.9%
P32.70	P32.35	85	0.0966	10	0.00200	0.6335	2.00	0.50	0.3166	0.2200	30.5%
P32.35	PUMP	70	0.7830	16	0.00050	1.1094	1.71	0.55	0.6495	-0.1335	120.6%
PUMP	P32.81	1,469	0.7830	16	0.00100	1.5689	1.71	0.55	0.9185	0.1355	85.2%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-2
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO PEACH AVE. SEWER MAIN NORTH OF ASHLAN AVE. (W. BARREL S/O GETTYSBURG AVE.)											
P20.68	P20.70	913	0.1301	10	0.00050	0.3168	2.00	0.50	0.1583	0.0282	82.2%
P20.70	P28.60	1,390	0.2312	15	0.00070	1.1051	1.71	0.55	0.6470	0.4158	35.7%
P28.60	P28.65	1,567	0.2338	18	0.00070	1.7970	1.71	0.55	1.0521	0.8183	22.2%
P29.26	P29.27	30	0.1860	10	0.00200	0.6335	2.00	0.50	0.3166	0.1306	58.7%
P29.27	P29.33	793	0.2111	14	0.00040	0.6950	2.00	0.50	0.3473	0.1362	60.8%
P29.33	P28.65	1,358	0.2545	14	0.00040	0.6950	2.00	0.50	0.3473	0.0928	73.3%
P28.65	P32.81	1,309	0.5207	18	0.00050	1.5187	1.71	0.55	0.8892	0.3685	58.6%
P32.81	P33.68	1,353	1.3354	18	0.00060	1.6637	1.71	0.55	0.9740	-0.3614	137.1%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-3
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO VILLA AVENUE SEWER MAIN N/O BARSTOW AVENUE											
P16.35	P16.36	50	0.1145	8	0.00800	0.6988	2.00	0.50	0.3493	0.2348	32.8%
P16.36	P16.41	581	0.1218	10	0.00200	0.6335	2.00	0.50	0.3166	0.1948	38.5%
P14.37	P14.40	341	0.1128	8	0.00062	0.1938	2.00	0.50	0.0968	-0.0160	116.5%
P14.40	P15.34	373	0.2759	10	0.00323	0.8051	2.00	0.50	0.4024	0.1265	68.6%
P15.34	P15.44	2,229	0.2759	12	0.00060	0.5643	2.00	0.50	0.2820	0.0061	*97.8%*
P15.25	P15.44	1,317	0.0661	12	0.00140	0.8619	2.00	0.50	0.4308	0.3647	15.3%
P15.44	P15.45	35	0.3420	12	0.00070	0.6095	2.00	0.50	0.3046	-0.0374	112.3%
P15.45	P16.41	1,345	0.3778	15	0.00190	1.8206	1.71	0.55	1.0659	0.6881	35.4%
P16.41	P16.42	319	0.4996	18	0.00100	2.1478	1.71	0.55	1.2575	0.7579	39.7%
P16.42	P16.53	96	0.5365	18	0.00100	2.1478	1.71	0.55	1.2575	0.7210	42.7%
P16.21	P16.23	481	0.0592	12	0.00060	0.5643	2.00	0.50	0.2820	0.2228	21.0%
P17.21	P16.23	1,120	0.0276	10	0.00100	0.4480	2.00	0.50	0.2239	0.1963	12.3%
P16.23	P16.24	175	0.0868	12	0.00100	0.7285	2.00	0.50	0.3641	0.2773	23.8%
P16.24	P16.27	684	0.2180	15	0.00089	1.2461	1.71	0.55	0.7295	0.5115	29.9%
P16.27	P16.53	676	0.2180	15	0.00089	1.2461	1.71	0.55	0.7295	0.5115	29.9%
P16.53	P16.44	642	0.7545	18	0.00100	2.1478	1.71	0.55	1.2575	0.5030	60.0%
P16.44	P16.45	173	0.7907	18	0.00100	2.1478	1.71	0.55	1.2575	0.4668	62.9%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-4
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN E/O & W/O VILLA AVE.; VILLA AVE. SEWER MAIN, BARSTOW TO SHAW AVE.											
(AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN W/O VILLA AVE.)											
P16.17	P16.45	1,250	0.0515	8	0.00240	0.3828	2.00	0.50	0.1913	0.1398	26.9%
(AREAS TRIBUTARY TO BARSTOW AVE. SEWER MAIN E/O VILLA AVE.)											
P14.47	P14.56	336	0.0264	10	0.00540	1.0410	2.00	0.50	0.5203	0.4939	5.1%
P14.55	P14.56	594	0.0325	10	0.00300	0.7759	2.00	0.50	0.3878	0.3553	8.4%
P23.25	P23.17	732	0.0811	8	0.00150	0.3026	2.00	0.50	0.1512	0.0701	53.6%
P23.17	P23.02	345	0.1002	8	0.00150	0.3026	2.00	0.50	0.1512	0.0510	66.3%
P23.02	P14.56	319	0.1065	8	0.00150	0.3026	2.00	0.50	0.1512	0.0447	70.4%
P14.56	P15.76	183	0.1654	15	0.00040	0.8354	1.71	0.55	0.4891	0.3237	33.8%
P15.76	P15.80	1,235	0.2178	12	0.00164	0.9329	2.00	0.50	0.4663	0.2485	46.7%
P15.80	P15.81	313	0.2178	15	0.00130	1.5060	1.71	0.55	0.8817	0.6639	24.7%
P15.81	P15.82	255	0.2866	15	0.00130	1.5060	1.71	0.55	0.8817	0.5951	32.5%
P15.82	P15.85	740	0.3710	15	0.00130	1.5060	1.71	0.55	0.8817	0.5107	42.1%
P15.85	P21.01	1,330	0.4117	15	0.00130	1.5060	1.71	0.55	0.8817	0.4700	46.7%
(AREAS TRIBUTARY TO VILLA AVE. SEWER MAIN BETWEEN BARSTOW & SHAW AVE.)											
P16.45	P21.01	20	0.8422	18	0.00100	2.1478	1.71	0.55	1.2575	0.4153	67.0%
P21.01	P21.08	964	1.2792	18	0.00100	2.1478	1.71	0.55	1.2575	-0.0217	101.7%
P21.08	P21.14	1,625	1.4217	18	0.00100	2.1478	1.71	0.55	1.2575	-0.1642	113.1%

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

TABLE P-HY-5
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN E/O & W/O VILLA AVE.; VILLA AVE. SEWER MAIN, SHAW TO GETTYSBURG AVE.											
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN W/O VILLA AVE.)											
P21.15	P21.14	432	0.0363	8	0.00250	0.3907	2.00	0.50	0.1953	0.1590	18.6%
(AREAS TRIBUTARY TO SHAW AVE. SEWER MAIN E/O VILLA AVE.)											
P22.78	P21.14	1,330	0.1574	8	0.00340	0.4556	2.00	0.50	0.2277	0.0703	69.1%
(AREAS TRIBUTARY TO VILLA AVE. SEWER MAIN BETWEEN SHAW & GETTYSBURG AVE.)											
P21.14	P28.14	1,353	1.6935	18	0.00080	1.9210	1.71	0.55	1.1247	-0.5688	150.6%
P28.14	P28.15	663	1.7485	21	0.00090	3.0735	1.71	0.55	1.7995	0.0510	*97.2%*
P28.15	P28.40	650	1.7741	21	0.00090	3.0735	1.71	0.55	1.7995	0.0254	*98.6%*

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-6
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN E/O PEACH AVE.; PEACH AVE. SEWER MAIN, GETTYSBURG TO DAKOTA AVE.											
(AREAS TRIBUTARY TO GETTYSBURG AVE. SEWER MAIN E/O PEACH AVE.)											
P35.07	PUMP	1,142	0.0381	8	0.00300	0.4280	2.00	0.50	0.2139	0.1758	17.8%
P26.15	P26.23	1,267	0.1590	10	0.00170	0.5841	2.00	0.50	0.2919	0.1329	54.5%
P26.04	P26.23	1,180	0.1354	8	0.00240	0.3828	2.00	0.50	0.1913	0.0559	70.8%
P26.23	P27.65	1,025	0.2944	10	0.00170	0.5841	2.00	0.50	0.2919	-0.0025	*100.8%*
P27.65	P27.69	1,855	0.3170	15	0.00100	1.3208	1.71	0.55	0.7733	0.4563	41.0%
P27.69	P27.72	17	0.3170	18	0.00150	2.6305	1.71	0.55	1.5401	1.2231	20.6%
P27.41	P27.53	958	0.1425	8	0.00100	0.2471	2.00	0.50	0.1235	-0.0190	115.4%
P27.19	P27.53	607	0.0706	8	0.00200	0.3494	2.00	0.50	0.1746	0.1040	40.4%
P27.53	P27.56	796	0.2250	10	0.00100	0.4480	2.00	0.50	0.2239	-0.0011	*100.5%*
P27.56	P27.72	494	0.2461	10	0.00100	0.4480	2.00	0.50	0.2239	-0.0222	109.9%
P27.72	P28.38	867	0.5631	18	0.00180	2.8816	1.71	0.55	1.6871	1.1240	33.4%
P28.38	P28.40	489	0.5774	18	0.00180	2.8816	1.71	0.55	1.6871	1.1097	34.2%
P28.40	P28.45	1,300	2.3653	21	0.00080	2.8978	1.71	0.55	1.6966	-0.6687	139.4%

SEWER HYDRAULIC CALCULATIONS

TABLE P-HY-6
AREAS TRIBUTARY TO PEACH TRUNK SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
(AREAS TRIBUTARY TO PEACH AVE. SEWER MAIN BETWEEN GETTYSBURG & DAKOTA AVE.)											
P28.45	P33.66	1,833	2.4307	24	0.00080	4.1372	1.71	0.55	2.4222	-0.0085	*100.4%*
P33.46	P33.66	377	0.1132	10	0.00200	0.6335	2.00	0.50	0.3166	0.2034	35.7%
P33.66	P33.68	830	2.5439	24	0.00080	4.1372	1.71	0.55	2.4222	-0.1217	105.0%
P33.68	P70.22	800	3.8841	24	0.00100	4.6255	1.71	0.55	2.7081	-1.1760	143.4%
P70.23	P70.22	428	0.0899	10	0.00170	0.5841	2.00	0.50	0.2919	0.2020	30.8%
P70.22	P70.03	461	3.9817	24	0.00100	4.6255	1.71	0.55	2.7081	-1.2736	147.0%
P70.07	P70.03	959	0.0511	10	0.00140	0.5301	2.00	0.50	0.2649	0.2138	19.3%
P70.03	P70.14	1,296	4.0328	24	0.00160	5.8509	1.71	0.55	3.4255	-0.6073	117.7%
P70.16	P70.14	665	0.0273	8	0.00240	0.3828	2.00	0.50	0.1913	0.1640	14.3%
P70.14	PTS	NA	4.0601	24	0.00150	5.6651	1.71	0.55	3.3168	-0.7433	122.4%
PURCHASED CAPACITY									3.0000		

Shading in cell indicates that separate specific analysis of this location reduces this to an acceptable %. Separate analysis may consist of line metering, calibration adjustment of current flow only, and/or adjustment for upstream planned diversion (if any). See "Analysis of Locations" for calculations.

Italic % By inspection, calibration of current flow only reduces this to an acceptable %.

NORTHWEST SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE N-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO NW SERVICE AREA SEWER SYSTEM

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
SHEPHERD AVE. SEWER E/O WILLOW AVE.	N142.B	N102.53	1,346.63	0.9808	86.84%	0.1486	13.16%	1.1294	0.2363	20.92%	0.8931	79.08%
WILLOW AVE. SEWER N/O SHEPHERD AVENUE	N142.B	N142.A	1,197.44	0.9207	83.21%	0.1858	16.79%	1.1065	0.0000	0.00%	1.1065	100.00%
TOTAL	**NW**	**N142.B**	**2,544.07**	**1.9015**	**85.04%**	**0.3344**	**14.96%**	**2.2359**	**0.2363**	**10.57%**	**1.9996**	**89.43%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
METERED FLOW									NA			
DIFFERENCE									NA			
% VARIANCE FROM METERED FLOW									**NA**			
ADJUSTMENT TO BE MADE									0.00%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**NW**	**N142.B**	**2,544.07**	**1.9015**	**85.04%**	**0.3344**	**14.96%**	**2.2359**	**0.2363**	**10.57%**	**1.9996**	**89.43%**
CURRENT CAPACITY IN CLOVIS ST/WRF								0.3676	0.2363		0.1313	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF								**0.3676**	0.0000		0.3676	
PLANNED CAPACITY IN CLOVIS ST/WRF								2.2359	0.2363		1.9996	
PROJECTED UNUSED CAPACITY IN CLOVIS ST/WRF AT BUILDOUT								**+0.0000**	+0.0000		+0.0000	

FLOW GENERATION CALCULATIONS

TABLE N-FG-1

AREAS TRIBUTARY TO NORTHWEST SERVICE AREA

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SHEPHERD AVENUE SEWER MAIN																				
N135.A	135.A	103	VL-RES	192.48		0.000540 MGD/ACRE		270	0.1039		NA NA	0.0000	0.1039		0%	0.0000		100%	0.1039	
N135.A																				
N135.A	**NODE TOTAL**			**192.48**	**192.48**	**(NOTE: OUTSIDE SOI)**			**0.1039**			**0.0000**	**0.1039**	**0.1039**		**0.0000**	**0.0000**		**0.1039**	**0.1039**
N136.A	136.A	103	VL-RES	235.68		0.000540 MGD/ACRE		270	0.1273		NA NA	0.0000	0.1273		0%	0.0000		100%	0.1273	
N136.A																				
N136.A	**NODE TOTAL**			**235.68**	**428.16**	**(NOTE: OUTSIDE SOI)**			**0.1273**			**0.0000**	**0.1273**	**0.2312**		**0.0000**	**0.0000**		**0.1273**	**0.2312**
N106.01	106.01	99	EX-SFR	43.73		0.000270 MGD/UNIT	133	270	0.0359		NA NA	0.0000	0.0359		100%	0.0359		0%	0.0000	
N106.01																				
N106.01	**NODE TOTAL**			**43.73**	**471.89**				**0.0359**			**0.0000**	**0.0359**	**0.2671**		**0.0359**	**0.0359**		**0.0000**	**0.2312**
N106.34	106.A	99	EX-SFR	23.25		0.000270 MGD/UNIT	69	270	0.0186		NA NA	0.0000	0.0186		100%	0.0186		0%	0.0000	
N106.34	106.A	99	EX-SFR	14.19		0.000270 MGD/UNIT	91	270	0.0246		NA NA	0.0000	0.0246		90%	0.0221		10%	0.0025	
N106.34	106.A	150	COMM	4.11		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0058	0.0058		0%	0.0000		100%	0.0058	
N106.34	106.A	101	R-RES	8.87		0.000135 MGD/ACRE		270	0.0012		NA NA	0.0000	0.0012		0%	0.0000		100%	0.0012	
N106.34	**NODE TOTAL**			**50.42**	**522.31**				**0.0444**			**0.0058**	**0.0502**	**0.3173**		**0.0407**	**0.0766**		**0.0095**	**0.2407**
N104.A	**NODE TOTAL**				**522.31**									**0.3173**			**0.0766**			**0.2407**
N104.16	104.16	170	OPEN	3.67		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
N104.16	104.16	99	EX-SFR	22.66		0.000270 MGD/UNIT	58	270	0.0157		NA NA	0.0000	0.0157		90%	0.0141		10%	0.0016	
N104.16	104.16	120	M-RES	23.13		0.001107 MGD/ACRE		270	0.0256		NA NA	0.0000	0.0256		0%	0.0000		100%	0.0256	
N104.16	104.16	99	EX-SFR	20.58		0.000270 MGD/UNIT	135	270	0.0365		NA NA	0.0000	0.0365		90%	0.0329		10%	0.0037	
N104.16	**NODE TOTAL**			**70.04**	**70.04**				**0.0778**			**0.0000**	**0.0778**	**0.0778**		**0.0470**	**0.0470**		**0.0308**	**0.0308**
N104.39	104.39	107	R1-7500	70.31		0.000864 MGD/ACRE		270	0.0607		NA NA	0.0000	0.0607		0%	0.0000		100%	0.0607	
N104.39	104.39	121	MH-RES	2.51		0.002244 MGD/ACRE		270	0.0056		NA NA	0.0000	0.0056		0%	0.0000		100%	0.0056	
N104.39	**NODE TOTAL**			**72.82**	**665.17**				**0.0663**			**0.0000**	**0.0663**	**0.4614**		**0.0000**	**0.1236**		**0.0663**	**0.3378**
N103.116	103.116	99	EX-SFR	35.00		0.000270 MGD/UNIT	152	270	0.0410		NA NA	0.0000	0.0410		50%	0.0205		50%	0.0205	
N103.116																				
N103.116	**NODE TOTAL**			**35.00**	**700.17**				**0.0410**			**0.0000**	**0.0410**	**0.5024**		**0.0205**	**0.1441**		**0.0205**	**0.3583**
N147.B	147.B	109	M-RES	30.03		0.001107 MGD/ACRE		270	0.0332		NA NA	0.0000	0.0332		0%	0.0000		100%	0.0332	
N147.B	147.B	107	R1-7500	81.56		0.000864 MGD/ACRE		270	0.0705		NA NA	0.0000	0.0705		0%	0.0000		100%	0.0705	
N147.B	**NODE TOTAL**			**111.59**	**111.59**				**0.1037**			**0.0000**	**0.1037**	**0.1037**		**0.0000**	**0.0000**		**0.1037**	**0.1037**
N140.A	140.A	107	R1-7500	95.45		0.000864 MGD/ACRE		270	0.0825		NA NA	0.0000	0.0825		0%	0.0000		100%	0.0825	
N140.A	140.A	121	MH-RES	7.54		0.002244 MGD/ACRE		270	0.0169		NA NA	0.0000	0.0169		0%	0.0000		100%	0.0169	
N140.A	140.A	170	OPEN	9.98		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
N140.A	**NODE TOTAL**			**112.97**	**224.56**				**0.0994**			**0.0000**	**0.0994**	**0.2031**		**0.0000**	**0.0000**		**0.0994**	**0.2031**
N103.02	103.02	99	EX-SFR	39.99		0.000270 MGD/UNIT	120	270	0.0324		NA NA	0.0000	0.0324		95%	0.0308		5%	0.0016	
N103.02	103.02	99	EX-SFR	19.00		0.000270 MGD/UNIT	76	270	0.0205		NA NA	0.0000	0.0205		95%	0.0195		5%	0.0010	
N103.02	**NODE TOTAL**			**58.99**	**58.99**				**0.0529**			**0.0000**	**0.0529**	**0.0529**		**0.0503**	**0.0503**		**0.0026**	**0.0026**

FLOW GENERATION CALCULATIONS

TABLE N-FG-1

AREAS TRIBUTARY TO NORTHWEST SERVICE AREA

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO SHEPHERD AVENUE SEWER MAIN																				
N103.05	103.05	107	R1-7500	36.10		0.000864 MGD/ACRE		270	0.0312		NA NA	0.0000	0.0312		0%	0.0000		100%	0.0312	
N103.05	103.05	170	OPEN	4.39		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
N103.05	**NODE TOTAL**			**40.49**	**1,024.21**				**0.0312**			**0.0000**	**0.0312**	**0.7896**		**0.0000**	**0.1944**		**0.0312**	**0.5952**
N141.A	141.A	107	R1-7500	100.96		0.000864 MGD/ACRE		270	0.0872		NA NA	0.0000	0.0872		0%	0.0000		100%	0.0872	
N141.A	141.A	130	OFFICE	25.13		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0302	0.0302		0%	0.0000		100%	0.0302	
N141.A	**NODE TOTAL**			**126.09**	**126.09**				**0.0872**			**0.0302**	**0.1174**	**0.1174**		**0.0000**	**0.0000**		**0.1174**	**0.1174**
N102.53	102.53	99	EX-SFR	32.28		0.000270 MGD/UNIT	88	270	0.0238		NA NA	0.0000	0.0238		100%	0.0238		0%	0.0000	
N102.53	102.53	99	EX-SFR	48.15		0.000270 MGD/UNIT	141	270	0.0381		NA NA	0.0000	0.0381		5%	0.0019		95%	0.0362	
N102.53	102.53	99	EX-SFR	7.98		0.000270 MGD/UNIT	60	270	0.0162		NA NA	0.0000	0.0162		100%	0.0162		0%	0.0000	
N102.53	102.53	121	MH-RES	14.11		0.002244 MGD/ACRE		270	0.0317		NA NA	0.0000	0.0317		0%	0.0000		100%	0.0317	
N102.53	102.53	130	OFFICE	93.81		NA NA		270	0.0000		0.001200 MGD/ACRE	0.1126	0.1126		0%	0.0000		100%	0.1126	
N102.53	**NODE TOTAL**			**196.33**	**1,346.63**				**0.1098**			**0.1126**	**0.2224**	**1.1294**		**0.0419**	**0.2363**		**0.1805**	**0.8931**
N101.B	**NODE TOTAL**				**1,346.63**									**1.1294**			**0.2363**			**0.8931**
N142.B	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
TOTALS THIS SHEET									**0.9808**			**0.1486**		**1.1294**			**0.2363**			**0.8931**
%									**86.84%**			**13.16%**		**100.00%**			**20.92%**			**79.08%**

FLOW GENERATION CALCULATIONS

TABLE N-FG-2

AREAS TRIBUTARY TO NORTHWEST SERVICE AREA

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN																				
N199.A	199.A	107	R1-7500	80.73		0.000864 MGD/ACRE		270	0.0698		NA NA	0.0000	0.0698		0%	0.0000		100%	0.0698	
N199.A	199.A	101	R-RES	30.96		0.000135 MGD/ACRE		270	0.0042		NA NA	0.0000	0.0042		0%	0.0000		100%	0.0042	
N199.A	**NODE TOTAL**			**111.69**	**111.69**				**0.0740**			**0.0000**	**0.0740**	**0.0740**		**0.0000**	**0.0000**		**0.0740**	**0.0740**
N192.A	192.A	107	R1-7500	40.28		0.000864 MGD/ACRE		270	0.0348		NA NA	0.0000	0.0348		0%	0.0000		100%	0.0348	
N192.A	192.A	103	VL-RES	11.16		0.000540 MGD/ACRE		270	0.0060		NA NA	0.0000	0.0060		0%	0.0000		100%	0.0060	
N192.A	**NODE TOTAL**			**51.44**	**51.44**				**0.0408**			**0.0000**	**0.0408**	**0.0408**		**0.0000**	**0.0000**		**0.0408**	**0.0408**
N193.A	193.A	101	R-RES	49.67		0.000135 MGD/ACRE		270	0.0067		NA NA	0.0000	0.0067		0%	0.0000		100%	0.0067	
N193.A	193.A	103	VL-RES	75.60		0.000540 MGD/ACRE		270	0.0408		NA NA	0.0000	0.0408		0%	0.0000		100%	0.0408	
N193.A	**NODE TOTAL**			**125.27**	**288.40**				**0.0475**			**0.0000**	**0.0475**	**0.1623**		**0.0000**	**0.0000**		**0.0475**	**0.1623**
N198.A	198.A	103	VL-RES	60.04		0.000540 MGD/ACRE		270	0.0324		NA NA	0.0000	0.0324		0%	0.0000		100%	0.0324	
N198.A	198.A	107	R1-7500	36.54		0.000864 MGD/ACRE		270	0.0316		NA NA	0.0000	0.0316		0%	0.0000		100%	0.0316	
N198.A	**NODE TOTAL**			**96.58**	**96.58**				**0.0640**			**0.0000**	**0.0640**	**0.0640**		**0.0000**	**0.0000**		**0.0640**	**0.0640**
N197.A	197.A	107	R1-7500	103.60		0.000864 MGD/ACRE		270	0.0895		NA NA	0.0000	0.0895		0%	0.0000		100%	0.0895	
N197.A	197.A(Por Mixed	130	OFFICE	20.97		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0252	0.0252		0%	0.0000		100%	0.0252	
N197.A	197.A(Por Mixed	150	COMM	10.48		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0147	0.0147		0%	0.0000		100%	0.0147	
N197.A	197.A(Por Mixed	122	H-RES	10.48		0.003762 MGD/ACRE		270	0.0394		NA NA	0.0000	0.0394		0%	0.0000		100%	0.0394	
N197.A	**NODE TOTAL**			**145.53**	**145.53**				**0.1289**			**0.0399**	**0.1688**	**0.1688**		**0.0000**	**0.0000**		**0.1688**	**0.1688**
N194.A	194.A	107	R1-7500	6.81		0.000864 MGD/ACRE		270	0.0059		NA NA	0.0000	0.0059		0%	0.0000		100%	0.0059	
N194.A	194.A	103	VL-RES	6.20		0.000540 MGD/ACRE		270	0.0033		NA NA	0.0000	0.0033		0%	0.0000		100%	0.0033	
N194.A	**NODE TOTAL**			**13.01**	**543.52**				**0.0092**			**0.0000**	**0.0092**	**0.4043**		**0.0000**	**0.0000**		**0.0092**	**0.4043**
N194.B	194.B	107	R1-7500	58.70		0.000864 MGD/ACRE		270	0.0507		NA NA	0.0000	0.0507		0%	0.0000		100%	0.0507	
N194.B																				
N194.B	**NODE TOTAL**			**58.70**	**602.22**				**0.0507**			**0.0000**	**0.0507**	**0.4550**		**0.0000**	**0.0000**		**0.0507**	**0.4550**
N147.A	147.A	107	R1-7500	25.06		0.000864 MGD/ACRE		270	0.0217		NA NA	0.0000	0.0217		0%	0.0000		100%	0.0217	
N147.A	147.A	109	M-RES	1.14		0.001107 MGD/ACRE		270	0.0013		NA NA	0.0000	0.0013		0%	0.0000		100%	0.0013	
N147.A	**NODE TOTAL**			**26.20**	**26.20**				**0.0230**			**0.0000**	**0.0230**	**0.0230**		**0.0000**	**0.0000**		**0.0230**	**0.0230**
N192.B	192.B	107	R1-7500	68.89		0.000864 MGD/ACRE		270	0.0595		NA NA	0.0000	0.0595		0%	0.0000		100%	0.0595	
N192.B																				
N192.B	**NODE TOTAL**			**68.89**	**68.89**				**0.0595**			**0.0000**	**0.0595**	**0.0595**		**0.0000**	**0.0000**		**0.0595**	**0.0595**
N146.A	146.A	107	R1-7500	44.96		0.000864 MGD/ACRE		270	0.0388		NA NA	0.0000	0.0388		0%	0.0000		100%	0.0388	
N146.A	146.A	109	M-RES	39.14		0.001107 MGD/ACRE		270	0.0433		NA NA	0.0000	0.0433		0%	0.0000		100%	0.0433	
N146.A	**NODE TOTAL**			**84.10**	**179.19**				**0.0821**			**0.0000**	**0.0821**	**0.1646**		**0.0000**	**0.0000**		**0.0821**	**0.1646**
N145.A	145.A	107	R1-7500	31.79		0.000864 MGD/ACRE		270	0.0275		NA NA	0.0000	0.0275		0%	0.0000		100%	0.0275	
N145.A	145.A	121	MH-RES	28.93		0.002244 MGD/ACRE		270	0.0649		NA NA	0.0000	0.0649		0%	0.0000		100%	0.0649	
N145.A	145.A	130	OFFICE	20.13		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0242	0.0242		0%	0.0000		100%	0.0242	
N145.A	145.A	170	OPEN	10.06		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
N145.A	**NODE TOTAL**			**90.91**	**872.32**				**0.0924**			**0.0242**	**0.1166**	**0.7362**		**0.0000**	**0.0000**		**0.1166**	**0.7362**

FLOW GENERATION CALCULATIONS

TABLE N-FG-2

AREAS TRIBUTARY TO NORTHWEST SERVICE AREA

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN																				
N194.C	194.C	107	R1-7500	60.05		0.000864 MGD/ACRE		270	0.0519		NA NA	0.0000	0.0519		0%	0.0000		100%	0.0519	
N194.C																				
N194.C	**NODE TOTAL**			**60.05**	**60.05**				**0.0519**			**0.0000**	**0.0519**	**0.0519**		**0.0000**	**0.0000**		**0.0519**	**0.0519**
N145.B	145.B	130	OFFICE	51.40		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0617	0.0617		0%	0.0000		100%	0.0617	
N145.B																				
N145.B	**NODE TOTAL**			**51.40**	**983.77**				**0.0000**			**0.0617**	**0.0617**	**0.8498**		**0.0000**	**0.0000**		**0.0617**	**0.8498**
N146.B	146.B	109	M-RES	90.75		0.001107 MGD/ACRE		270	0.1005		NA NA	0.0000	0.1005		0%	0.0000		100%	0.1005	
N146.B																				
N146.B	**NODE TOTAL**			**90.75**	**90.75**				**0.1005**			**0.0000**	**0.1005**	**0.1005**		**0.0000**	**0.0000**		**0.1005**	**0.1005**
N146.C	**NODE TOTAL**				**90.75**									**0.1005**			**0.0000**			**0.1005**
N145.C	145.C	121	MH-RES	21.58		0.002244 MGD/ACRE		270	0.0484		NA NA	0.0000	0.0484		0%	0.0000		100%	0.0484	
N145.C	145.C	170	OPEN	8.20		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
N145.C	145.C	109	M-RES	43.16		0.001107 MGD/ACRE		270	0.0478		NA NA	0.0000	0.0478		0%	0.0000		100%	0.0478	
N145.C	145.C	130	OFFICE	16.73		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0201	0.0201		0%	0.0000		100%	0.0201	
N145.C	**NODE TOTAL**			**89.67**	**89.67**				**0.0962**			**0.0201**	**0.1163**	**0.1163**		**0.0000**	**0.0000**		**0.1163**	**0.1163**
N145.D	**NODE TOTAL**				**180.42**									**0.2168**			**0.0000**			**0.2168**
N142.A	142.A	130	OFFICE	33.25		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0399	0.0399		0%	0.0000		100%	0.0399	
N142.A																				
N142.A	**NODE TOTAL**			**33.25**	**1,197.44**				**0.0000**			**0.0399**	**0.0399**	**1.1065**		**0.0000**	**0.0000**		**0.0399**	**1.1065**
N142.B	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
TOTALS THIS SHEET									**0.9207**			**0.1858**		**1.1065**			**0.0000**			**1.1065**
GRAND TOTALS NW AREA									**1.9015**			**0.3344**		**2.2359**			**0.2363**			**1.9996**
%									**83.21%**			**16.79%**		**100.00%**			**0.00%**			**100.00%**

SEWER HYDRAULIC CALCULATIONS

TABLE N-HY-1
AREAS TRIBUTARY TO NORTHWEST SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO SHEPHERD AVENUE SEWER MAIN											
N135.A	N136.A	3,820	0.1039	8	0.00240	0.3828	2.00	0.50	0.1913	0.0874	54.3%
N136.A	N106.01	3,296	0.2312	10	0.00240	0.6940	2.00	0.50	0.3469	0.1157	66.7%
N106.01	N106.34	2,621	0.2671	12	0.00150	0.8922	2.00	0.50	0.4459	0.1788	59.9%
N106.34	N104.A	2,638	0.3173	15	0.00130	1.5060	1.71	0.55	0.8817	0.5644	36.0%
N104.A	N104.39	2,644	0.3173	15	0.00178	1.7622	1.71	0.55	1.0317	0.7144	30.8%
N104.16	N104.39	2,729	0.0778	10	0.00200	0.6335	2.00	0.50	0.3166	0.2388	24.6%
N104.39	N103.116	1,283	0.4614	18	0.00100	2.1478	1.71	0.55	1.2575	0.7961	36.7%
N103.116	N103.05	1,366	0.5024	18	0.00100	2.1478	1.71	0.55	1.2575	0.7551	40.0%
N103.02	N103.05	1,094	0.0529	10	0.00160	0.5667	2.00	0.50	0.2832	0.2303	18.7%
N147.B	N140.A	1,836	0.1037	10	0.00240	0.6940	2.00	0.50	0.3469	0.2432	29.9%
N140.A	N103.05	2,675	0.2031	12	0.00187	0.9962	2.00	0.50	0.4979	0.2948	40.8%
N103.05	N102.53	2,658	0.7896	18	0.00150	2.6305	1.71	0.55	1.5401	0.7505	51.3%
N141.A	N102.53	1,368	0.1174	12	0.00249	1.1495	2.00	0.50	0.5745	0.4571	20.4%
N102.53	N101.B	2,787	1.1294	21	0.00142	3.8606	1.71	0.55	2.2603	1.1309	50.0%
N101.B	N142.B	200	1.1294	21	0.00142	3.8606	1.71	0.55	2.2603	1.1309	50.0%
N142.B	PUMP	100	2.2359	24	0.00150	5.6651	1.71	0.55	3.3168	1.0809	67.4%

SEWER HYDRAULIC CALCULATIONS

TABLE N-HY-2
AREAS TRIBUTARY TO NORTHWEST SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO WILLOW AVENUE SEWER MAIN											
N199.A	N193.A	2,394	0.0740	8	0.00355	0.4655	2.00	0.50	0.2327	0.1587	31.8%
N192.A	N193.A	1,038	0.0408	8	0.00240	0.3828	2.00	0.50	0.1913	0.1505	21.3%
N193.A	N194.A	2,652	0.1623	12	0.00200	1.0302	2.00	0.50	0.5149	0.3526	31.5%
N198.A	N194.A	2,403	0.0640	8	0.00491	0.5475	2.00	0.50	0.2736	0.2096	23.4%
N197.A	N194.A	2,682	0.1688	10	0.00240	0.6940	2.00	0.50	0.3469	0.1781	48.7%
N194.A	N194.B	689	0.4043	15	0.00140	1.5628	1.71	0.55	0.9150	0.5107	44.2%
N194.B	N145.A	1,963	0.4550	15	0.00140	1.5628	1.71	0.55	0.9150	0.4600	49.7%
N147.A	N146.A	1,373	0.0230	8	0.00240	0.3828	2.00	0.50	0.1913	0.1683	12.0%
N192.B	N146.A	1,100	0.0595	8	0.00265	0.4022	2.00	0.50	0.2010	0.1415	29.6%
N146.A	N145.A	2,647	0.1646	10	0.00249	0.7069	2.00	0.50	0.3533	0.1887	46.6%
N145.A	N145.B	2,783	0.7362	18	0.00130	2.4489	1.71	0.55	1.4337	0.6975	51.3%
N194.C	N145.B	2,198	0.0519	10	0.00240	0.6940	2.00	0.50	0.3469	0.2950	15.0%
N145.B	N142.A	2,661	0.8498	18	0.00232	3.2714	1.71	0.55	1.9153	1.0655	44.4%
N146.B	N146.C	1,839	0.1005	10	0.00240	0.6940	2.00	0.50	0.3469	0.2464	29.0%
N146.C	N145.D	2,736	0.1005	10	0.00240	0.6940	2.00	0.50	0.3469	0.2464	29.0%
N145.C	N145.D	1,845	0.1163	10	0.00478	0.9794	2.00	0.50	0.4895	0.3732	23.8%
N145.D	N142.A	1,370	0.2168	12	0.00200	1.0302	2.00	0.50	0.5149	0.2981	42.1%
N142.A	N142.B	2,464	1.1065	18	0.00228	3.2431	1.71	0.55	1.8987	0.7922	58.3%

NORTHEAST SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE NE-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO NE SERVICE AREA SEWER SYSTEM

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
AREA TRIBUTARY TO NE SERVICE AREA SEWER SYSTEM	N128.8	NE129.C	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
TOTAL	**N128.8**	**NE129.C**	**5,014.00**	**2.3890**	**78.47%**	**0.6556**	**21.53%**	**3.0446**	**0.0000**	**0.00%**	**3.0446**	**100.00%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
METERED FLOW									NA			
DIFFERENCE									NA			
% VARIANCE FROM METERED FLOW									**NA**			
ADJUSTMENT TO BE MADE									0.00%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**N128.8**	**NE129.C**	**5,014.00**	**2.3890**	**78.47%**	**0.6556**	**21.53%**	**3.0446**	**0.0000**	**0.00%**	**3.0446**	**100.00%**
PLANNED CAPACITY IN CLOVIS ST/WRF								2.6197	0.0000		2.6197	
PROJECTED UNUSED CAPACITY IN REGIONAL TRUNK SEWER AT BUILDOUT								**-0.4249**	0.0000		-0.4249	

FLOW GENERATION CALCULATIONS

TABLE NE-FG-1

AREAS TRIBUTARY TO NE SERVICE AREA SEWER SYSTEM

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
FLOW GENERATION AT EXISTING MASTER PLAN LAND USES																				
AREA DISCHARGING TO NE SERVICE AREA SEWER SYSTEM FROM NE VILLAGE																				
	1	103	VL-RES	845.00		0.000540 MGD/ACRE		270	0.4563		NA NA	0.0000	0.4563		0%	0.0000		100%	0.4563	
	2	122	H-RES	73.00		0.003762 MGD/ACRE		270	0.2746		NA NA	0.0000	0.2746		0%	0.0000		100%	0.2746	
	3	107	R1-7500	168.00		0.000864 MGD/ACRE		270	0.1452		NA NA	0.0000	0.1452		0%	0.0000		100%	0.1452	
	4	130	OFFICE	16.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0192	0.0192		0%	0.0000		100%	0.0192	
	5.1	192	HI-SCH	100.00		NA NA		270	0.0000	2,950	0.000016 MGD/STUDENT	0.0472	0.0472		0%	0.0000		100%	0.0472	
	5.2	190	EL-SCH	47.00		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
	6	121	MH-RES	74.00		0.002244 MGD/ACRE		270	0.1661		NA NA	0.0000	0.1661		0%	0.0000		100%	0.1661	
	7	109	M-RES	80.00		0.001107 MGD/ACRE		270	0.0886		NA NA	0.0000	0.0886		0%	0.0000		100%	0.0886	
	8	130	OFFICE	16.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0192	0.0192		0%	0.0000		100%	0.0192	
	9	109	M-RES	65.00		0.001107 MGD/ACRE		270	0.0720		NA NA	0.0000	0.0720		0%	0.0000		100%	0.0720	
	10	150	COMM	57.00		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0798	0.0798		0%	0.0000		100%	0.0798	
	11	107	R1-7500	215.00		0.000864 MGD/ACRE		270	0.1858		NA NA	0.0000	0.1858		0%	0.0000		100%	0.1858	
	12	107	R1-7500	315.00		0.000864 MGD/ACRE		270	0.2722		NA NA	0.0000	0.2722		0%	0.0000		100%	0.2722	
	13	107	R1-7500	70.00		0.000864 MGD/ACRE		270	0.0605		NA NA	0.0000	0.0605		0%	0.0000		100%	0.0605	
	14	107	R1-7500	87.00		0.000864 MGD/ACRE		270	0.0752		NA NA	0.0000	0.0752		0%	0.0000		100%	0.0752	
	15	107	R1-7500	55.00		0.000864 MGD/ACRE		270	0.0475		NA NA	0.0000	0.0475		0%	0.0000		100%	0.0475	
	16	107	R1-7500	31.00		0.000864 MGD/ACRE		270	0.0268		NA NA	0.0000	0.0268		0%	0.0000		100%	0.0268	
	17	107	R1-7500	38.00		0.000864 MGD/ACRE		270	0.0328		NA NA	0.0000	0.0328		0%	0.0000		100%	0.0328	
	18	107	R1-7500	43.00		0.000864 MGD/ACRE		270	0.0372		NA NA	0.0000	0.0372		0%	0.0000		100%	0.0372	
	19	107	R1-7500	22.00		0.000864 MGD/ACRE		270	0.0190		NA NA	0.0000	0.0190		0%	0.0000		100%	0.0190	
	20.1	150	COMM	47.00		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0658	0.0658		0%	0.0000		100%	0.0658	
	20.2	130	OFFICE	23.00		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0276	0.0276		0%	0.0000		100%	0.0276	
	20.3	122	H-RES	24.00		0.003762 MGD/ACRE		270	0.0903		NA NA	0.0000	0.0903		0%	0.0000		100%	0.0903	
	21.1	191	MI-SCH	57.00		NA NA		270	0.0000	1,700	0.000014 MGD/STUDENT	0.0238	0.0238		0%	0.0000		100%	0.0238	
	21.2	190	EL-SCH	25.00		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
	22	140	INDUST	364.00		NA NA		270	0.0000		0.001000 MGD/ACRE	0.3640	0.3640		0%	0.0000		100%	0.3640	
	23	109	M-RES	235.00		0.001107 MGD/ACRE		270	0.2601		NA NA	0.0000	0.2601		0%	0.0000		100%	0.2601	
	24	107	R1-7500	25.00		0.000864 MGD/ACRE		270	0.0216		NA NA	0.0000	0.0216		0%	0.0000		100%	0.0216	
	25	103	VL-RES	106.00		0.000540 MGD/ACRE		270	0.0572		NA NA	0.0000	0.0572		0%	0.0000		100%	0.0572	
	26.1	170	OPEN	361.00		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
	26.2	170	OPEN	1,330.00		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
0	**NODE TOTAL**			**5,014.00**	**5,014.00**				**2.3890**			**0.6556**	**3.0446**	**3.0446**		**0.0000**	**0.0000**		**3.0446**	**3.0446**
AREA DISCHARGING TO NW SERVICE AREA SEWER SYSTEM FROM NE VILLAGE																				
	27	103	VL-RES	428.00		0.000540 MGD/ACRE		270	0.2311		NA NA	0.0000	0.2311		0%	0.0000		100%	0.2311	
0	**NODE TOTAL**			**428.00**	**428.00**				**0.2311**			**0.0000**	**0.2311**	**0.2311**		**0.0000**	**0.0000**		**0.2311**	**0.2311**
TOTALS THIS SHEET									**2.6201**			**0.6556**		**3.2757**			**0.0000**			**3.2757**
%									**79.99%**			**20.01%**		**100.00%**			**0.00%**			**100.00%**

SOUTHEAST SERVICE AREA

FLOW GENERATION CALCULATIONS

TABLE E-FG-SUMMARY-1

SUMMARY OF AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM NOT INCLUDING FLOWS FROM NW & NE SERVICE AREAS

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
TO PROPOSED CLOVIS ST/WRF FROM SEWER MAIN FROM SOUTH	E166.06	E166.04	1,409.22	1.2342	77.39%	0.3606	22.61%	1.5948	0.0000	0.00%	1.5948	100.00%
TO PROPOSED CLOVIS SATELLITE WWTP FROM SEWER MAIN FROM NORTH	E166.06	E166.10	1,287.70	1.5211	78.02%	0.4285	21.98%	1.9496	0.0000	0.00%	1.9496	100.00%
TOTAL	**ST/WRF**	**E166.06**	**2,696.92**	**2.7553**	**77.74%**	**0.7891**	**22.26%**	**3.5444**	**0.0000**	**0.00%**	**3.5444**	**100.00%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
METERED FLOW									NA			
DIFFERENCE									NA			
% VARIANCE FROM METERED FLOW									**NA**			
ADJUSTMENT TO BE MADE									0.00%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**ST/WRF**	**E166.06**	**2,696.92**	**2.7553**	**77.74%**	**0.7891**	**22.26%**	**3.5444**	**0.0000**	**0.00%**	**3.5444**	**100.00%**
CURRENT CAPACITY IN CLOVIS ST/WRF								0.8000	0.0000		0.8000	
CURRENT UNUSED CAPACITY IN CLOVIS ST/WRF								**0.8000**	0.0000		0.8000	

FLOW GENERATION CALCULATIONS

TABLE E-FG-SUMMARY-2

SUMMARY OF AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM INCLUDING FLOWS FROM NW & NE SERVICE AREAS

DESCRIPTION	NODE		AREA	PROJECTED FLOW GENERATION RATE								
	AT	FROM	(ACRES)	RESIDENTIAL (MGD)	%	NON-RESIDENTIAL (MGD)	%	TOTAL (MGD)	DEVELOPED (MGD)	%	UN-DEVELOPED (MGD)	%
RAW CALCULATED VALUES												
FROM NW SERVICE AREA	N128.A	N129.B	2,544.07	1.9015	85.04%	0.3344	14.96%	2.2359	0.2363	10.57%	1.9996	89.43%
FROM NE SERVICE AREA	N128.A	NE129.C	5,014.00	2.3890	78.47%	0.6556	21.53%	3.0446	0.0000	0.00%	3.0446	100.00%
FROM SE SERVICE AREA	P.S.	E166.06	2,696.92	2.7553	77.74%	0.7891	22.26%	3.5444	0.0000	0.00%	3.5444	100.00%
TOTAL	**ST/WRF**	P.S.	**10,254.99**	**7.0458**	**79.84%**	**1.7791**	**20.16%**	**8.8249**	**0.2363**	**2.68%**	**8.5886**	**97.32%**
ADJUSTMENT TO TOTAL PROJECTED DISCHARGE TO TRUNK SEWER												
METERED FLOW									NA			
DIFFERENCE									NA			
% VARIANCE FROM METERED FLOW									**NA**			
ADJUSTMENT TO BE MADE									0.00%		0.00%	
TOTAL ADJUSTED PROJECTED FLOW AT BUILDOUT	**ST/WRF**	**P.S.**	**10,254.99**	**7.0458**	**79.84%**	**1.7791**	**20.16%**	**8.8249**	**0.2363**	**2.68%**	**8.5886**	**97.32%**
PLANNED CAPACITY OF CLOVIS SE ST/WRF								8.4000	0.2363		8.1637	
PROJECTED REDUCTION IN BUILDOUT FLOW GENERATION REQUIRED IN NE SERVICE AREA								**-0.4249**	0.0000		-0.4249	

FLOW GENERATION CALCULATIONS

TABLE E-FG-1

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN																				
(AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAINS W/O LEONARD AVENUE)																				
N132.A	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
N132.03	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
N130.A	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
N129.A	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
N129.B	**NODE TOTAL**				**2,544.07**									**2.2359**			**0.2363**			**1.9996**
NE129.C	**NODE TOTAL**				**5,014.00**									**3.0446**			**0.0000**			**3.0446**
N128.A	**NODE TOTAL**				**7,558.07**									**5.2805**			**0.2363**			**5.0442**
N127.A	**NODE TOTAL**				**7,558.07**									**5.2805**			**0.2363**			**5.0442**
E163.A	163.A	103	VL-RES	14.17		0.000540 MGD/ACRE		270	0.0077		NA NA	0.0000	0.0077		0%	0.0000		100%	0.0077	
E163.A	163.A	107	R1-7500	54.44		0.000864 MGD/ACRE		270	0.0470		NA NA	0.0000	0.0470		0%	0.0000		100%	0.0470	
E163.A	**NODE TOTAL**			**68.61**	**68.61**				**0.0547**			**0.0000**	**0.0547**	**0.0547**		**0.0000**	**0.0000**		**0.0547**	**0.0547**
E163.B	163.B	103	VL-RES	4.04		0.000540 MGD/ACRE		270	0.0022		NA NA	0.0000	0.0022		0%	0.0000		100%	0.0022	
E163.B																				
E163.B	**NODE TOTAL**			**4.04**	**4.04**				**0.0022**			**0.0000**	**0.0022**	**0.0022**		**0.0000**	**0.0000**		**0.0022**	**0.0022**
E163.C	163.C	107	R1-7500	29.90		0.000864 MGD/ACRE		270	0.0258		NA NA	0.0000	0.0258		0%	0.0000		100%	0.0258	
E163.C																				
E163.C	**NODE TOTAL**			**29.90**	**102.55**				**0.0258**			**0.0000**	**0.0258**	**0.0827**		**0.0000**	**0.0000**		**0.0258**	**0.0827**
E163.D	163.D	107	R1-7500	20.57		0.000864 MGD/ACRE		270	0.0178		NA NA	0.0000	0.0178		0%	0.0000		100%	0.0178	
E163.D																				
E163.D	**NODE TOTAL**			**20.57**	**20.57**				**0.0178**			**0.0000**	**0.0178**	**0.0178**		**0.0000**	**0.0000**		**0.0178**	**0.0178**
E126.A	126.A	107	R1-7500	7.35		0.000864 MGD/ACRE		270	0.0064		NA NA	0.0000	0.0064		0%	0.0000		100%	0.0064	
E126.A																				
E126.A	**NODE TOTAL**			**7.35**	**130.47**				**0.0064**			**0.0000**	**0.0064**	**0.1069**		**0.0000**	**0.0000**		**0.0064**	**0.1069**
E126.B	126.B	103	VL-RES	29.23		0.000540 MGD/ACRE		270	0.0158		NA NA	0.0000	0.0158		0%	0.0000		100%	0.0158	
E126.B																				
E126.B	**NODE TOTAL**			**29.23**	**159.70**				**0.0158**			**0.0000**	**0.0158**	**0.1227**		**0.0000**	**0.0000**		**0.0158**	**0.1227**
E115.A	115.A	107	R1-7500	20.01		0.000864 MGD/ACRE		270	0.0173		NA NA	0.0000	0.0173		0%	0.0000		100%	0.0173	
E115.A	115.A	103	VL-RES	20.08		0.000540 MGD/ACRE		270	0.0108		NA NA	0.0000	0.0108		0%	0.0000		100%	0.0108	
E115.A	**NODE TOTAL**			**40.09**	**40.09**				**0.0281**			**0.0000**	**0.0281**	**0.0281**		**0.0000**	**0.0000**		**0.0281**	**0.0281**
E114.01	114.01	107	R1-7500	39.92		0.000864 MGD/ACRE		270	0.0345		NA NA	0.0000	0.0345		0%	0.0000		100%	0.0345	
E114.01	114.01	103	VL-RES	2.38		0.000540 MGD/ACRE		270	0.0013		NA NA	0.0000	0.0013		0%	0.0000		100%	0.0013	
E114.01	114.01	190	EL-SCH	20.10		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
E114.01	**NODE TOTAL**			**62.40**	**7,820.26**				**0.0358**			**0.0045**	**0.0403**	**5.4716**		**0.0000**	**0.2363**		**0.0403**	**5.2353**
E115.B	115.B	107	R1-7500	79.95		0.000864 MGD/ACRE		270	0.0691		NA NA	0.0000	0.0691		0%	0.0000		100%	0.0691	
E115.B																				
E115.B	**NODE TOTAL**			**79.95**	**79.95**				**0.0691**			**0.0000**	**0.0691**	**0.0691**		**0.0000**	**0.0000**		**0.0691**	**0.0691**

FLOW GENERATION CALCULATIONS

TABLE E-FG-1

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN																				
E115.C	115.C	107	R1-7500	12.29		0.000864 MGD/ACRE		270	0.0106		NA NA	0.0000	0.0106		0%	0.0000		100%	0.0106	
E115.C	115.C	170	OPEN	24.18		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E115.C	115.C	170	OPEN	8.27		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E115.C	**NODE TOTAL**			**44.74**	**124.69**				**0.0106**			**0.0000**	**0.0106**	**0.0797**		**0.0000**	**0.0000**		**0.0106**	**0.0797**
E163.E	163.E	170	OPEN	19.03		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E163.E	163.E	107	R1-7500	6.05		0.000864 MGD/ACRE		270	0.0052		NA NA	0.0000	0.0052		0%	0.0000		100%	0.0052	
E163.E	163.E	109	M-RES	21.10		0.001107 MGD/ACRE		270	0.0234		NA NA	0.0000	0.0234		0%	0.0000		100%	0.0234	
E163.E	**NODE TOTAL**			**46.18**	**46.18**				**0.0286**			**0.0000**	**0.0286**	**0.0286**		**0.0000**	**0.0000**		**0.0286**	**0.0286**
E163.F	163.F	109	M-RES	11.32		0.001107 MGD/ACRE		270	0.0125		NA NA	0.0000	0.0125		0%	0.0000		100%	0.0125	
E163.F																				
E163.F	**NODE TOTAL**			**11.32**	**11.32**				**0.0125**			**0.0000**	**0.0125**	**0.0125**		**0.0000**	**0.0000**		**0.0125**	**0.0125**
E126.D	126.D	107	R1-7500	54.20		0.000864 MGD/ACRE		270	0.0468		NA NA	0.0000	0.0468		0%	0.0000		100%	0.0468	
E126.D	126.D	122	H-RES	12.99		0.003762 MGD/ACRE		270	0.0489		NA NA	0.0000	0.0489		0%	0.0000		100%	0.0489	
E126.D	126.D	121	MH-RES	19.93		0.002244 MGD/ACRE		270	0.0447		NA NA	0.0000	0.0447		0%	0.0000		100%	0.0447	
E126.D	**NODE TOTAL**			**87.12**	**144.62**				**0.1404**			**0.0000**	**0.1404**	**0.1815**		**0.0000**	**0.0000**		**0.1404**	**0.1815**
E116.07	116.07	99	EX-SFR	55.88		0.000270 MGD/UNIT	165	270	0.0446		NA NA	0.0000	0.0446		0%	0.0000		100%	0.0446	
E116.07	116.07	121	MH-RES	19.76		0.002244 MGD/ACRE		270	0.0443		NA NA	0.0000	0.0443		0%	0.0000		100%	0.0443	
E116.07	116.07	122	H-RES	7.93		0.003762 MGD/ACRE		270	0.0298		NA NA	0.0000	0.0298		0%	0.0000		100%	0.0298	
E116.07	**NODE TOTAL**			**83.57**	**8,173.14**				**0.1187**			**0.0000**	**0.1187**	**5.8515**		**0.0000**	**0.2363**		**0.1187**	**5.6152**
E116.A	116.A	107	R1-7500	30.53		0.000864 MGD/ACRE		270	0.0264		NA NA	0.0000	0.0264		0%	0.0000		100%	0.0264	
E116.A	116.A	130	OFFICE	9.86		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0118	0.0118		0%	0.0000		100%	0.0118	
E116.A																				
E116.A	**NODE TOTAL**			**40.39**	**40.39**				**0.0264**			**0.0118**	**0.0382**	**0.0382**		**0.0000**	**0.0000**		**0.0382**	**0.0382**
E116.B	116.B	99	EX-SFR	40.56		0.000270 MGD/UNIT	160	270	0.0432		NA NA	0.0000	0.0432		0%	0.0000		100%	0.0432	
E116.B	116.B																			
E116.B	**NODE TOTAL**			**40.56**	**80.95**				**0.0432**			**0.0000**	**0.0432**	**0.0814**		**0.0000**	**0.0000**		**0.0432**	**0.0814**
E125.B	125.B	155	C-CNTR	11.56		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0489	0.0489		0%	0.0000		100%	0.0489	
E125.B																				
E125.B	**NODE TOTAL**			**11.56**	**11.56**				**0.0000**			**0.0489**	**0.0489**	**0.0489**		**0.0000**	**0.0000**		**0.0489**	**0.0489**
E125.C	125.C	122	H-RES	16.52		0.003762 MGD/ACRE		270	0.0621		NA NA	0.0000	0.0621		0%	0.0000		100%	0.0621	
E125.C	125.C	155	C-CNTR	5.11		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0216	0.0216		0%	0.0000		100%	0.0216	
E125.C	**NODE TOTAL**			**21.63**	**21.63**				**0.0621**			**0.0216**	**0.0837**	**0.0837**		**0.0000**	**0.0000**		**0.0837**	**0.0837**
E125.D	125.D	155	C-CNTR	7.60		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0321	0.0321		0%	0.0000		100%	0.0321	
E125.D	125.D	122	H-RES	5.95		0.003762 MGD/ACRE		270	0.0224		NA NA	0.0000	0.0224		0%	0.0000		100%	0.0224	
E125.D	**NODE TOTAL**			**13.55**	**46.74**				**0.0224**			**0.0321**	**0.0545**	**0.1871**		**0.0000**	**0.0000**		**0.0545**	**0.1871**
E117.56	117.56	155	C-CNTR	5.01		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0212	0.0212		0%	0.0000		100%	0.0212	
E117.56	117.56	122	H-RES	5.70		0.003762 MGD/ACRE		270	0.0214		NA NA	0.0000	0.0214		0%	0.0000		100%	0.0214	
E117.56	**NODE TOTAL**			**10.71**	**8,311.54**				**0.0214**			**0.0212**	**0.0426**	**6.1626**		**0.0000**	**0.2363**		**0.0426**	**5.9263**

FLOW GENERATION CALCULATIONS

TABLE E-FG-1

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
						RESIDENTIAL					NON-RESIDENTIAL				DEVELOPED			UNDEVELOPED		
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	PROJECTED FLOW GENERATION RATE	ACTUAL NO. OF SFR DU'S	PROJ FLOW PER SFR DU (G/DAY)	PROJ AVG DAILY FLOW (MGD)	SPECIAL UNITS	PROJECTED FLOW GENERATION RATE	PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	PORTION DE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)	PORTION UNDE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN																				
E124.01	124.01	122	H-RES	3.74		0.003762 MGD/ACRE		270	0.0141		NA NA	0.0000	0.0141		0%	0.0000		100%	0.0141	
E124.01																				
E124.01	**NODE TOTAL**			**3.74**	**8,315.28**				**0.0141**			**0.0000**	**0.0141**	**6.1767**		**0.0000**	**0.2363**		**0.0141**	**5.9404**
E124.C	124.C	155	C-CNTR	9.05		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0382	0.0382		0%	0.0000		100%	0.0382	
E124.C	124.C	123	VH-RES	10.29		0.007700 MGD/ACRE		270	0.0792		NA NA	0.0000	0.0792		0%	0.0000		100%	0.0792	
E124.C	124.C	130	OFFICE	8.85		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0106	0.0106		0%	0.0000		100%	0.0106	
E124.C	124.C	170	OPEN	4.41		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E124.C	124.C	155	C-CNTR	3.76		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0159	0.0159		0%	0.0000		100%	0.0159	
E124.C	**NODE TOTAL**			**36.36**	**36.36**				**0.0792**			**0.0647**	**0.1439**	**0.1439**		**0.0000**	**0.0000**		**0.1439**	**0.1439**
E124.D	124.D	155	C-CNTR	8.93		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0377	0.0377		0%	0.0000		100%	0.0377	
E124.D	124.D	123	VH-RES	17.83		0.007700 MGD/ACRE		270	0.1373		NA NA	0.0000	0.1373		0%	0.0000		100%	0.1373	
E124.D	124.D	130	OFFICE	3.80		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0046	0.0046		0%	0.0000		100%	0.0046	
E124.D	124.D	155	C-CNTR	3.80		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0161	0.0161		0%	0.0000		100%	0.0161	
E124.D	124.D	122	H-RES	7.04		0.003762 MGD/ACRE		270	0.0265		NA NA	0.0000	0.0265		0%	0.0000		100%	0.0265	
E124.D	**NODE TOTAL**			**41.40**	**41.40**				**0.1638**			**0.0584**	**0.2222**	**0.2222**		**0.0000**	**0.0000**		**0.2222**	**0.2222**
E124.E	124.E	122	H-RES	10.47		0.003762 MGD/ACRE		270	0.0394		NA NA	0.0000	0.0394		0%	0.0000		100%	0.0394	
E124.E	124.E	123	VH-RES	7.52		0.007700 MGD/ACRE		270	0.0579		NA NA	0.0000	0.0579		0%	0.0000		100%	0.0579	
E124.E	124.E	155	C-CNTR	7.32		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0309	0.0309		0%	0.0000		100%	0.0309	
E124.E	124.E	170	OPEN	4.65		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
E124.E	124.E	155	C-CNTR	0.78		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0033	0.0033		0%	0.0000		100%	0.0033	
E124.E	**NODE TOTAL**			**30.74**	**30.74**				**0.0973**			**0.0342**	**0.1315**	**0.1315**		**0.0000**	**0.0000**		**0.1315**	**0.1315**
E124.F	124.F	155	C-CNTR	0.74		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0031	0.0031		0%	0.0000		100%	0.0031	
E124.F	124.F	122	H-RES	3.26		0.003762 MGD/ACRE		270	0.0123		NA NA	0.0000	0.0123		0%	0.0000		100%	0.0123	
E124.F	**NODE TOTAL**			**4.00**	**112.50**				**0.0123**			**0.0031**	**0.0154**	**0.5130**		**0.0000**	**0.0000**		**0.0154**	**0.5130**
E124.04	124.04	122	H-RES	3.74		0.003762 MGD/ACRE		270	0.0141		NA NA	0.0000	0.0141		0%	0.0000		100%	0.0141	
E124.04																				
E124.04	**NODE TOTAL**			**3.74**	**8,431.52**				**0.0141**			**0.0000**	**0.0141**	**6.7038**		**0.0000**	**0.2363**		**0.0141**	**6.4675**
(AREAS TRIBUTARY TO LEONARD AVENUE SEWER MAIN N/O PUMP STATION)																				
E164.E	164.E	170	OPEN	15.76		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E164.E	164.E	109	M-RES	33.92		0.001107 MGD/ACRE		270	0.0375		NA NA	0.0000	0.0375		0%	0.0000		100%	0.0375	
E164.E	164.E	122	H-RES	7.00		0.003762 MGD/ACRE		270	0.0263		NA NA	0.0000	0.0263		0%	0.0000		100%	0.0263	
E164.E	**NODE TOTAL**			**56.68**	**56.68**				**0.0638**			**0.0000**	**0.0638**	**0.0638**		**0.0000**	**0.0000**		**0.0638**	**0.0638**
E125.E	125.E	170	OPEN	10.40		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E125.E	125.E	122	H-RES	10.05		0.003762 MGD/ACRE		270	0.0378		NA NA	0.0000	0.0378		0%	0.0000		100%	0.0378	
E125.E	125.E	150	COMM	2.96		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0041	0.0041		0%	0.0000		100%	0.0041	
E125.E	**NODE TOTAL**			**23.41**	**23.41**				**0.0378**			**0.0041**	**0.0419**	**0.0419**		**0.0000**	**0.0000**		**0.0419**	**0.0419**
E164.F	164.F	150	COMM	12.07		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0169	0.0169		0%	0.0000		100%	0.0169	
E164.F	164.F	109	M-RES	12.48		0.001107 MGD/ACRE		270	0.0138		NA NA	0.0000	0.0138		0%	0.0000		100%	0.0138	
E164.F	**NODE TOTAL**			**24.55**	**104.64**				**0.0138**			**0.0169**	**0.0307**	**0.1364**		**0.0000**	**0.0000**		**0.0307**	**0.1364**

FLOW GENERATION CALCULATIONS

TABLE E-FG-1

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN																				
E164.A	164.A	107	R1-7500	75.88		0.000864 MGD/ACRE		270	0.0656		NA NA	0.0000	0.0656		0%	0.0000		100%	0.0656	
E164.A																				
E164.A	**NODE TOTAL**			**75.88**	**75.88**				**0.0656**			**0.0000**	**0.0656**	**0.0656**		**0.0000**	**0.0000**		**0.0656**	**0.0656**
E164.B	164.B	107	R1-7500	10.79		0.000864 MGD/ACRE		270	0.0093		NA NA	0.0000	0.0093		0%	0.0000		100%	0.0093	
E164.B																				
E164.B	**NODE TOTAL**			**10.79**	**86.67**				**0.0093**			**0.0000**	**0.0093**	**0.0749**		**0.0000**	**0.0000**		**0.0093**	**0.0749**
E164.C	164.C	109	M-RES	22.02		0.001107 MGD/ACRE		270	0.0244		NA NA	0.0000	0.0244		0%	0.0000		100%	0.0244	
E164.C																				
E164.C	**NODE TOTAL**			**22.02**	**22.02**				**0.0244**			**0.0000**	**0.0244**	**0.0244**		**0.0000**	**0.0000**		**0.0244**	**0.0244**
E164.D	164.D	109	M-RES	13.52		0.001107 MGD/ACRE		270	0.0150		NA NA	0.0000	0.0150		0%	0.0000		100%	0.0150	
E164.D																				
E164.D	**NODE TOTAL**			**13.52**	**122.21**				**0.0150**			**0.0000**	**0.0150**	**0.1143**		**0.0000**	**0.0000**		**0.0150**	**0.1143**
E125.F	125.F	150	COMM	15.35		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0215	0.0215		0%	0.0000		100%	0.0215	
E125.F	125.F	155	C-CNTR	11.29		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0477	0.0477		0%	0.0000		100%	0.0477	
E125.F	**NODE TOTAL**			**26.64**	**26.64**				**0.0000**			**0.0692**	**0.0692**	**0.0692**		**0.0000**	**0.0000**		**0.0692**	**0.0692**
E164.G	164.G	155	C-CNTR	7.88		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0333	0.0333		0%	0.0000		100%	0.0333	
E164.G	164.G	109	M-RES	11.35		0.001107 MGD/ACRE		270	0.0126		NA NA	0.0000	0.0126		0%	0.0000		100%	0.0126	
E164.G	**NODE TOTAL**			**19.23**	**272.72**				**0.0126**			**0.0333**	**0.0459**	**0.3658**		**0.0000**	**0.0000**		**0.0459**	**0.3658**
E165.A	165.A	109	M-RES	22.98		0.001107 MGD/ACRE		270	0.0254		NA NA	0.0000	0.0254		0%	0.0000		100%	0.0254	
E165.A																				
E165.A	**NODE TOTAL**			**22.98**	**22.98**				**0.0254**			**0.0000**	**0.0254**	**0.0254**		**0.0000**	**0.0000**		**0.0254**	**0.0254**
E165.B	165.B	122	H-RES	5.89		0.003762 MGD/ACRE		270	0.0222		NA NA	0.0000	0.0222		0%	0.0000		100%	0.0222	
E165.B																				
E165.B	**NODE TOTAL**			**5.89**	**301.59**				**0.0222**			**0.0000**	**0.0222**	**0.4134**		**0.0000**	**0.0000**		**0.0222**	**0.4134**
E165.C	165.C	107	R1-7500	9.24		0.000864 MGD/ACRE		270	0.0080		NA NA	0.0000	0.0080		0%	0.0000		100%	0.0080	
E165.C	165.C	170	OPEN	5.74		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		100%	0.0000		0%	0.0000	
E165.C	165.C	109	M-RES	13.00		0.001107 MGD/ACRE		270	0.0144		NA NA	0.0000	0.0144		0%	0.0000		100%	0.0144	
E165.C	165.C	190	EL-SCH	17.30		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
E165.C	**NODE TOTAL**			**45.28**	**45.28**				**0.0224**			**0.0045**	**0.0269**	**0.0269**		**0.0000**	**0.0000**		**0.0269**	**0.0269**
E165.D	165.D	109	M-RES	14.28		0.001107 MGD/ACRE		270	0.0158		NA NA	0.0000	0.0158		0%	0.0000		100%	0.0158	
E165.D	165.D	110	RPC-(SE)	21.65		0.001323 MGD/ACRE		270	0.0286		NA NA	0.0000	0.0286		0%	0.0000		100%	0.0286	
E165.D																				
E165.D	**NODE TOTAL**			**35.93**	**81.21**				**0.0444**			**0.0000**	**0.0444**	**0.0713**		**0.0000**	**0.0000**		**0.0444**	**0.0713**
E166.13	**NODE TOTAL**				**8,814.32**									**7.1885**			**0.2363**			**6.9522**
E166.B	165.B	110	RPC-(SE)	31.45		0.001323 MGD/ACRE		270	0.0416		NA NA	0.0000	0.0416		0%	0.0000		100%	0.0416	
E166.B																				
E166.B	**NODE TOTAL**			**31.45**	**31.45**				**0.0416**			**0.0000**	**0.0416**	**0.0416**		**0.0000**	**0.0000**		**0.0416**	**0.0416**
E166.10	**NODE TOTAL**				**8,845.77**									**7.2301**			**0.2363**			**6.9938**
TOTALS THIS SHEET					**1,287.70**				**1.5211**			**0.4285**		**1.9496**			**0.0000**			**1.9496**
%									**78.02%**			**21.98%**		**100.00%**			**0.00%**			**100.00%**

FLOW GENERATION CALCULATIONS

TABLE E-FG-2

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO HIGHLAND AVENUE ALIGNMENT SEWER MAIN N/O ASHLAN AVENUE																				
E172.A	172.A	107	R1-7500	9.15		0.000864 MGD/ACRE		270	0.0079		NA NA	0.0000	0.0079		0%	0.0000		100%	0.0079	
E172.A																				
E172.A	**NODE TOTAL**			**9.15**	**9.15**				**0.0079**			**0.0000**	**0.0079**	**0.0079**		**0.0000**	**0.0000**		**0.0079**	**0.0079**
E172.B	172.B	107	R1-7500	31.22		0.000864 MGD/ACRE		270	0.0270		NA NA	0.0000	0.0270		0%	0.0000		100%	0.0270	
E172.B																				
E172.B	**NODE TOTAL**			**31.22**	**31.22**				**0.0270**			**0.0000**	**0.0270**	**0.0270**		**0.0000**	**0.0000**		**0.0270**	**0.0270**
E165.E	165.E	107	R1-7500	11.56		0.000864 MGD/ACRE		270	0.0100		NA NA	0.0000	0.0100		0%	0.0000		100%	0.0100	
E165.E																				
E165.E	**NODE TOTAL**			**11.56**	**11.56**				**0.0100**			**0.0000**	**0.0100**	**0.0100**		**0.0000**	**0.0000**		**0.0100**	**0.0100**
E172.C	172.C	107	R1-7500	14.91		0.000864 MGD/ACRE		270	0.0129		NA NA	0.0000	0.0129		0%	0.0000		100%	0.0129	
E172.C																				
E172.C	**NODE TOTAL**			**14.91**	**66.84**				**0.0129**			**0.0000**	**0.0129**	**0.0578**		**0.0000**	**0.0000**		**0.0129**	**0.0578**
E165.F	165.F	107	R1-7500	10.06		0.000864 MGD/ACRE		270	0.0087		NA NA	0.0000	0.0087		0%	0.0000		100%	0.0087	
E165.F	165.F	110	RPC-(SE)	9.99		0.001323 MGD/ACRE		270	0.0132		NA NA	0.0000	0.0132		0%	0.0000		100%	0.0132	
E165.F	**NODE TOTAL**			**20.05**	**20.05**				**0.0219**			**0.0000**	**0.0219**	**0.0219**		**0.0000**	**0.0000**		**0.0219**	**0.0219**
E172.E	172.E	109	M-RES	22.63		0.001107 MGD/ACRE		270	0.0251		NA NA	0.0000	0.0251		0%	0.0000		100%	0.0251	
E172.E	172.E	121	MH-RES	6.95		0.002244 MGD/ACRE		270	0.0156		NA NA	0.0000	0.0156		0%	0.0000		100%	0.0156	
E172.E	**NODE TOTAL**			**29.58**	**29.58**				**0.0407**			**0.0000**	**0.0407**	**0.0407**		**0.0000**	**0.0000**		**0.0407**	**0.0407**
E221.A	221.A	130	OFFICE	35.55		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0427	0.0427		0%	0.0000		100%	0.0427	
E221.A	221.A	122	H-RES	8.55		0.003762 MGD/ACRE		270	0.0322		NA NA	0.0000	0.0322		0%	0.0000		100%	0.0322	
E221.A	**NODE TOTAL**			**44.10**	**44.10**				**0.0322**			**0.0427**	**0.0749**	**0.0749**		**0.0000**	**0.0000**		**0.0749**	**0.0749**
E221.B	221.B	130	OFFICE	51.87		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0622	0.0622		0%	0.0000		100%	0.0622	
E221.B																				
E221.B	**NODE TOTAL**			**51.87**	**51.87**				**0.0000**			**0.0622**	**0.0622**	**0.0622**		**0.0000**	**0.0000**		**0.0622**	**0.0622**
E221.C	**NODE TOTAL**				**95.97**									**0.1371**			**0.0000**			**0.1371**
E221.D	221.D	130	OFFICE	9.25		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0111	0.0111		0%	0.0000		100%	0.0111	
E221.D	221.D	109	M-RES	6.92		0.001107 MGD/ACRE		270	0.0077		NA NA	0.0000	0.0077		0%	0.0000		100%	0.0077	
E221.D	**NODE TOTAL**			**16.17**	**16.17**				**0.0077**			**0.0111**	**0.0188**	**0.0188**		**0.0000**	**0.0000**		**0.0188**	**0.0188**
E221.E	221.E	121	MH-RES	7.93		0.002244 MGD/ACRE		270	0.0178		NA NA	0.0000	0.0178		0%	0.0000		100%	0.0178	
E221.E	221.E	122	H-RES	7.39		0.003762 MGD/ACRE		270	0.0278		NA NA	0.0000	0.0278		0%	0.0000		100%	0.0278	
E221.E	**NODE TOTAL**			**15.32**	**157.04**				**0.0456**			**0.0000**	**0.0456**	**0.2422**		**0.0000**	**0.0000**		**0.0456**	**0.2422**
E221.F	221.F	122	H-RES	6.38		0.003762 MGD/ACRE		270	0.0240		NA NA	0.0000	0.0240		0%	0.0000		100%	0.0240	
E221.F	221.F	155	C-CNTR	5.52		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0233	0.0233		0%	0.0000		100%	0.0233	
E221.F	**NODE TOTAL**			**11.90**	**11.90**				**0.0240**			**0.0233**	**0.0473**	**0.0473**		**0.0000**	**0.0000**		**0.0473**	**0.0473**

FLOW GENERATION CALCULATIONS

TABLE E-FG-2

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO HIGHLAND AVENUE ALIGNMENT SEWER MAIN N/O ASHLAN AVENUE																				
E221.G	221.G	150	COMM	6.43		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0090	0.0090		0%	0.0000		100%	0.0090	
E221.G	221.G	122	H-RES	11.48		0.003762 MGD/ACRE		270	0.0432		NA NA	0.0000	0.0432		0%	0.0000		100%	0.0432	
E221.G	**NODE TOTAL**			**17.91**	**29.81**				**0.0432**			**0.0090**	**0.0522**	**0.0995**		**0.0000**	**0.0000**		**0.0522**	**0.0995**
E172.F	172.F	121	MH-RES	15.31		0.002244 MGD/ACRE		270	0.0344		NA NA	0.0000	0.0344		0%	0.0000		100%	0.0344	
E172.F	172.F	107	R1-7500	31.50		0.000864 MGD/ACRE		270	0.0272		NA NA	0.0000	0.0272		0%	0.0000		100%	0.0272	
E172.F	172.F	110	RPC-(SE)	13.24		0.001323 MGD/ACRE		270	0.0175		NA NA	0.0000	0.0175		0%	0.0000		100%	0.0175	
E172.F	**NODE TOTAL**			**60.05**	**246.90**				**0.0791**			**0.0000**	**0.0791**	**0.4208**		**0.0000**	**0.0000**		**0.0791**	**0.4208**
E172.D	**NODE TOTAL**				**333.79**									**0.5005**			**0.0000**			**0.5005**
E171.A	171.A	110	RPC-(SE)	26.95		0.001323 MGD/ACRE		270	0.0357		NA NA	0.0000	0.0357		0%	0.0000		100%	0.0357	
E171.A																				
E171.A	**NODE TOTAL**			**26.95**	**26.95**				**0.0357**			**0.0000**	**0.0357**	**0.0357**		**0.0000**	**0.0000**		**0.0357**	**0.0357**
E171.B	171.B	110	RPC-(SE)	32.80		0.001323 MGD/ACRE		270	0.0434		NA NA	0.0000	0.0434		0%	0.0000		100%	0.0434	
E171.B																				
E171.B	**NODE TOTAL**			**32.80**	**59.75**				**0.0434**			**0.0000**	**0.0434**	**0.0791**		**0.0000**	**0.0000**		**0.0434**	**0.0791**
E171.C	171.C	110	RPC-(SE)	12.32		0.001323 MGD/ACRE		270	0.0163		NA NA	0.0000	0.0163		0%	0.0000		100%	0.0163	
E171.C																				
E171.C	**NODE TOTAL**			**12.32**	**405.86**				**0.0163**			**0.0000**	**0.0163**	**0.5959**		**0.0000**	**0.0000**		**0.0163**	**0.5959**
E166.D	166.D	110	RPC-(SE)	34.96		0.001323 MGD/ACRE		270	0.0463		NA NA	0.0000	0.0463		0%	0.0000		100%	0.0463	
E166.D	166.D	150	COMM	5.01		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0070	0.0070		0%	0.0000		100%	0.0070	
E166.D	**NODE TOTAL**			**39.97**	**39.97**				**0.0463**			**0.0070**	**0.0533**	**0.0533**		**0.0000**	**0.0000**		**0.0533**	**0.0533**
E171.D	171.D	110	RPC-(SE)	44.83		0.001323 MGD/ACRE		270	0.0593		NA NA	0.0000	0.0593		0%	0.0000		100%	0.0593	
E171.D																				
E171.D	**NODE TOTAL**			**44.83**	**490.66**				**0.0593**			**0.0000**	**0.0593**	**0.7085**		**0.0000**	**0.0000**		**0.0593**	**0.7085**
TOTALS THIS SHEET					**490.66**				**0.5532**			**0.1553**		**0.7085**			**0.0000**			**0.7085**
%									**78.08%**			**21.92%**		**100.00%**			**0.00%**			**100.00%**

FLOW GENERATION CALCULATIONS

TABLE E-FG-3

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
						RESIDENTIAL					NON-RESIDENTIAL					DEVELOPED			UNDEVELOPED	
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	PROJECTED FLOW GENERATION RATE	ACTUAL NO. OF SFR DU'S	PROJ FLOW PER SFR DU (G/DAY)	PROJ AVG DAILY FLOW (MGD)	SPECIAL UNITS	PROJECTED FLOW GENERATION RATE	PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	PORTION DE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)	PORTION UNDE-VELOPED (%)	PROJ AVG DAILY FLOW (MGD)	ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN & LEONARD AVENUE SEWER MAINS S/O PROPOSED PUMP STATION																				
(AREAS TRIBUTARY TO LEONARD AVENUE SEWER MAIN S/O PROPOSED PROPOSED PUMP STATION)																				
E168.A	168.A	107	R1-7500	72.29		0.000864 MGD/ACRE		270	0.0625		NA NA	0.0000	0.0625		0%	0.0000		100%	0.0625	
E168.A	168.A	100	AG-RES	68.66		0.000014 MGD/ACRE		270	0.0010		NA NA	0.0000	0.0010		0%	0.0000		100%	0.0010	
E168.A	**NODE TOTAL**			**140.95**	**140.95**				**0.0635**			**0.0000**	**0.0635**	**0.0635**		**0.0000**	**0.0000**		**0.0635**	**0.0635**
E119.B	119.B	103	VL-RES	34.03		0.000540 MGD/ACRE		270	0.0184		NA NA	0.0000	0.0184		0%	0.0000		100%	0.0184	
E119.B	119.B	107	R1-7500	32.47		0.000864 MGD/ACRE		270	0.0281		NA NA	0.0000	0.0281		0%	0.0000		100%	0.0281	
E119.B	**NODE TOTAL**			**66.50**	**66.50**				**0.0465**			**0.0000**	**0.0465**	**0.0465**		**0.0000**	**0.0000**		**0.0465**	**0.0465**
E122.A	122.A	107	R1-7500	16.79		0.000864 MGD/ACRE		270	0.0145		NA NA	0.0000	0.0145		0%	0.0000		100%	0.0145	
E122.A																				
E122.A	**NODE TOTAL**			**16.79**	**83.29**				**0.0145**			**0.0000**	**0.0145**	**0.0610**		**0.0000**	**0.0000**		**0.0145**	**0.0610**
E122.B	122.B	107	R1-7500	45.24		0.000864 MGD/ACRE		270	0.0391		NA NA	0.0000	0.0391		0%	0.0000		100%	0.0391	
E122.B	122.B	121	MH-RES	14.96		0.002244 MGD/ACRE		270	0.0336		NA NA	0.0000	0.0336		0%	0.0000		100%	0.0336	
E122.B	**NODE TOTAL**			**60.20**	**143.49**				**0.0727**			**0.0000**	**0.0727**	**0.1337**		**0.0000**	**0.0000**		**0.0727**	**0.1337**
E167.A	167.A	107	R1-7500	20.07		0.000864 MGD/ACRE		270	0.0173		NA NA	0.0000	0.0173		0%	0.0000		100%	0.0173	
E167.A																				
E167.A	**NODE TOTAL**			**20.07**	**304.51**				**0.0173**			**0.0000**	**0.0173**	**0.2145**		**0.0000**	**0.0000**		**0.0173**	**0.2145**
E166.04	**NODE TOTAL**				**1,409.22**									**1.5948**			**0.0000**			**1.5948**
E166.06	**NODE TOTAL**				**10,254.99**									**8.8249**			**0.2363**			**8.5886**
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O LEONARD AVENUE)																				
E223.A	223.A	107	R1-7500	16.10		0.000864 MGD/ACRE		270	0.0139		NA NA	0.0000	0.0139		0%	0.0000		100%	0.0139	
E223.A																				
E223.A	**NODE TOTAL**			**16.10**	**16.10**				**0.0139**			**0.0000**	**0.0139**	**0.0139**		**0.0000**	**0.0000**		**0.0139**	**0.0139**
E223.B	223.B	130	OFFICE	16.69		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0200	0.0200		0%	0.0000		100%	0.0200	
E223.B	223.B	107	R1-7500	9.04		0.000864 MGD/ACRE		270	0.0078		NA NA	0.0000	0.0078		0%	0.0000		100%	0.0078	
E223.B																				
E223.B	**NODE TOTAL**			**25.73**	**41.83**				**0.0078**			**0.0200**	**0.0278**	**0.0417**		**0.0000**	**0.0000**		**0.0278**	**0.0417**
E223.C	223.C	107	R1-7500	35.20		0.000864 MGD/ACRE		270	0.0304		NA NA	0.0000	0.0304		0%	0.0000		100%	0.0304	
E223.C																				
E223.C	**NODE TOTAL**			**35.20**	**35.20**				**0.0304**			**0.0000**	**0.0304**	**0.0304**		**0.0000**	**0.0000**		**0.0304**	**0.0304**
E222.A	222.A	130	OFFICE	17.87		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0214	0.0214		0%	0.0000		100%	0.0214	
E222.A	222.A	170	OPEN	16.29		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
E222.A	**NODE TOTAL**			**34.16**	**34.16**				**0.0000**			**0.0214**	**0.0214**	**0.0214**		**0.0000**	**0.0000**		**0.0214**	**0.0214**
E223.D	**NODE TOTAL**				**111.19**									**0.0935**			**0.0000**			**0.0935**

FLOW GENERATION CALCULATIONS

TABLE E-FG-3

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN & LEONARD AVENUE SEWER MAINS S/O PROPOSED PUMP STATION																				
E170.B	170.B	107	R1-7500	22.93		0.000864 MGD/ACRE		270	0.0198		NA NA	0.0000	0.0198		0%	0.0000		100%	0.0198	
E170.B	170.B	100	AG-RES	10.05		0.000014 MGD/ACRE		270	0.0001		NA NA	0.0000	0.0001		0%	0.0000		100%	0.0001	
E170.B	170.B	190	EL-SCH	17.26		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		0%	0.0000		100%	0.0045	
E170.B	**NODE TOTAL**			**50.24**	**50.24**				**0.0199**			**0.0045**	**0.0244**	**0.0244**		**0.0000**	**0.0000**		**0.0244**	**0.0244**
E222.B	222.B	130	OFFICE	21.85		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0262	0.0262		0%	0.0000		100%	0.0262	
E222.B																				
E222.B	**NODE TOTAL**			**21.85**	**21.85**				**0.0000**			**0.0262**	**0.0262**	**0.0262**		**0.0000**	**0.0000**		**0.0262**	**0.0262**
E222.C	222.C	155	C-CNTR	11.06		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0467	0.0467		0%	0.0000		100%	0.0467	
E222.C	222.C	150	COMM	4.97		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0070	0.0070		0%	0.0000		100%	0.0070	
E222.C	**NODE TOTAL**			**16.03**	**37.88**				**0.0000**			**0.0537**	**0.0537**	**0.0799**		**0.0000**	**0.0000**		**0.0537**	**0.0799**
E222.D	222.D	110	RPC-(SE)	2.68		0.001323 MGD/ACRE		270	0.0035		NA NA	0.0000	0.0035		0%	0.0000		100%	0.0035	
E222.D																				
E222.D	**NODE TOTAL**			**2.68**	**40.56**				**0.0035**			**0.0000**	**0.0035**	**0.0834**		**0.0000**	**0.0000**		**0.0035**	**0.0834**
E222.E	222.E	155	C-CNTR	5.19		NA NA		270	0.0000		0.004226 MGD/ACRE	0.0219	0.0219		0%	0.0000		100%	0.0219	
E222.E	222.E	122	H-RES	8.51		0.003762 MGD/ACRE		270	0.0320		NA NA	0.0000	0.0320		0%	0.0000		100%	0.0320	
E222.E	**NODE TOTAL**			**13.70**	**13.70**				**0.0320**			**0.0219**	**0.0539**	**0.0539**		**0.0000**	**0.0000**		**0.0539**	**0.0539**
E222.F	222.F	110	RPC-(SE)	5.52		0.001323 MGD/ACRE		270	0.0073		NA NA	0.0000	0.0073		0%	0.0000		100%	0.0073	
E222.F																				
E222.F	**NODE TOTAL**			**5.52**	**59.78**				**0.0073**			**0.0000**	**0.0073**	**0.1446**		**0.0000**	**0.0000**		**0.0073**	**0.1446**
E222.G	222.G	130	OFFICE	18.22		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0219	0.0219		0%	0.0000		100%	0.0219	
E222.G	222.G	122	H-RES	9.70		0.003762 MGD/ACRE		270	0.0365		NA NA	0.0000	0.0365		0%	0.0000		100%	0.0365	
E222.G	222.G	130	OFFICE	5.73		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0069	0.0069		0%	0.0000		100%	0.0069	
E222.G	**NODE TOTAL**			**33.65**	**33.65**				**0.0365**			**0.0288**	**0.0653**	**0.0653**		**0.0000**	**0.0000**		**0.0653**	**0.0653**
E222.H	222.H	110	RPC-(SE)	12.15		0.001323 MGD/ACRE		270	0.0161		NA NA	0.0000	0.0161		0%	0.0000		100%	0.0161	
E222.H	222.H	130	OFFICE	24.04		NA NA		270	0.0000		0.001200 MGD/ACRE	0.0288	0.0288		0%	0.0000		100%	0.0288	
E222.H	**NODE TOTAL**			**36.19**	**129.62**				**0.0161**			**0.0288**	**0.0449**	**0.2548**		**0.0000**	**0.0000**		**0.0449**	**0.2548**
E170.C	170.C	107	R1-7500	9.14		0.000864 MGD/ACRE		270	0.0079		NA NA	0.0000	0.0079		0%	0.0000		100%	0.0079	
E170.C	170.C	170	OPEN	6.42		NA NA		270	0.0000		0.000000 MGD/ACRE	0.0000	0.0000		0%	0.0000		100%	0.0000	
E170.C	**NODE TOTAL**			**15.56**	**306.61**				**0.0079**			**0.0000**	**0.0079**	**0.3806**		**0.0000**	**0.0000**		**0.0079**	**0.3806**
E171.F	171.F	110	RPC-(SE)	28.16		0.001323 MGD/ACRE		270	0.0373		NA NA	0.0000	0.0373		0%	0.0000		100%	0.0373	
E171.F																				
E171.F	**NODE TOTAL**			**28.16**	**28.16**				**0.0373**			**0.0000**	**0.0373**	**0.0373**		**0.0000**	**0.0000**		**0.0373**	**0.0373**
E170.D	170.D	107	R1-7500	22.81		0.000864 MGD/ACRE		270	0.0197		NA NA	0.0000	0.0197		0%	0.0000		100%	0.0197	
E170.D																				
E170.D	**NODE TOTAL**			**22.81**	**357.58**				**0.0197**			**0.0000**	**0.0197**	**0.4376**		**0.0000**	**0.0000**		**0.0197**	**0.4376**

FLOW GENERATION CALCULATIONS

TABLE E-FG-3

AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

Except where otherwise noted, latest update of % Developed was as of 2rd quarter, 2008.

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	RESIDENTIAL ACTUAL NO. OF SFR DU'S	RESIDENTIAL PROJ FLOW PER SFR DU (G/DAY)	RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	NON-RESIDENTIAL SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	NON-RESIDENTIAL PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO ASHLAN & LEONARD AVENUE SEWER MAINS S/O PROPOSED PUMP STATION																				
E167.D	167.D	107	R1-7500	35.57		0.000864 MGD/ACRE		270	0.0307		NA NA	0.0000	0.0307		0%	0.0000		100%	0.0307	
E167.D	167.D	100	AG-RES	28.65		0.000014 MGD/ACRE		270	0.0004		NA NA	0.0000	0.0004		0%	0.0000		100%	0.0004	
E167.D	**NODE TOTAL**			**64.22**	**64.22**				**0.0311**			**0.0000**	**0.0311**	**0.0311**		**0.0000**	**0.0000**		**0.0311**	**0.0311**
E170.A	170.A	107	R1-7500	51.51		0.000864 MGD/ACRE		270	0.0445		NA NA	0.0000	0.0445		0%	0.0000		100%	0.0445	
E170.A																				
E170.A	**NODE TOTAL**			**51.51**	**51.51**				**0.0445**			**0.0000**	**0.0445**	**0.0445**		**0.0000**	**0.0000**		**0.0445**	**0.0445**
E167.E	167.E	107	R1-7500	10.05		0.000864 MGD/ACRE		270	0.0087		NA NA	0.0000	0.0087		0%	0.0000		100%	0.0087	
E167.E																				
E167.E	**NODE TOTAL**			**10.05**	**125.78**				**0.0087**			**0.0000**	**0.0087**	**0.0843**		**0.0000**	**0.0000**		**0.0087**	**0.0843**
E167.F	167.F	110	RPC-(SE)	80.48		0.001323 MGD/ACRE		270	0.1065		NA NA	0.0000	0.1065		0%	0.0000		100%	0.1065	
E167.F	167.F	107	R1-7500	50.21		0.000864 MGD/ACRE		270	0.0434		NA NA	0.0000	0.0434		0%	0.0000		100%	0.0434	
E167.F	**NODE TOTAL**			**130.69**	**1,104.71**				**0.1499**			**0.0000**	**0.1499**	**1.3803**		**0.0000**	**0.0000**		**0.1499**	**1.3803**
TOTALS THIS SHEET					**918.56**				**0.6810**			**0.2053**		**0.8863**			**0.0000**			**0.8863**
%									**76.84%**			**23.16%**		**100.00%**			**0.00%**			**100.00%**

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-1
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN											
(AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAINS W/O LEONARD AVE.)											
N132.A	N132.03	1,160	2.2359	24	0.00285	7.8088	1.71	0.55	4.5718	2.3359	48.9%
N132.03	N130.A	4,888	2.2359	24	0.00200	6.5415	1.71	0.55	3.8299	1.5940	58.4%
N130.A	N129.A	2,379	2.2359	24	0.00200	6.5415	1.71	0.55	3.8299	1.5940	58.4%
N129.A	N129.B	2,643	2.2359	24	0.00200	6.5415	1.71	0.55	3.8299	1.5940	58.4%
N129.B	N128.A	604	2.2359	24	0.00200	6.5415	1.71	0.55	3.8299	1.5940	58.4%
N128.A	N127.A	2,600	5.2805	36	0.00100	13.6376	1.71	0.55	7.9845	2.7040	66.1%
N127.A	E114.01	2,654	5.2805	36	0.00102	13.7666	1.71	0.55	8.0600	2.7795	65.5%
E163.A	E163.C	1,049	0.0547	8	0.00240	0.3828	2.00	0.50	0.1913	0.1366	28.6%
E163.B	E163.C	480	0.0022	8	0.00500	0.5525	2.00	0.50	0.2761	0.2739	0.8%
E163.C	E126.A	3,055	0.0827	8	0.00240	0.3828	2.00	0.50	0.1913	0.1086	43.2%
E163.D	E126.A	694	0.0178	8	0.00300	0.4280	2.00	0.50	0.2139	0.1961	8.3%
E126.A	E126.B	877	0.1069	10	0.00240	0.6940	2.00	0.50	0.3469	0.2400	30.8%
E126.B	E114.01	1,769	0.1227	10	0.00240	0.6940	2.00	0.50	0.3469	0.2242	35.4%
E115.A	E114.01	2,466	0.0281	8	0.00240	0.3828	2.00	0.50	0.1913	0.1632	14.7%
E114.01	E116.07	2,659	5.4716	36	0.00104	13.8891	1.71	0.55	8.1317	2.6601	67.3%
E115.B	E115.C	1,327	0.0691	8	0.00240	0.3828	2.00	0.50	0.1913	0.1222	36.1%
E115.C	E116.07	1,995	0.0797	10	0.00200	0.6335	2.00	0.50	0.3166	0.2369	25.2%
E163.E	E126.D	1,452	0.0286	8	0.00298	0.4265	2.00	0.50	0.2132	0.1846	13.4%
E163.F	E126.D	667	0.0125	8	0.00349	0.4616	2.00	0.50	0.2307	0.2182	5.4%
E126.D	E116.07	2,654	0.1815	10	0.00240	0.6940	2.00	0.50	0.3469	0.1654	52.3%

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-1
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN											
E116.07	E117.56	2,661	5.8515	42	0.00100	20.5714	1.71	0.55	12.0440	6.1925	48.6%
E116.A	E116.B	676	0.0382	8	0.00240	0.3828	2.00	0.50	0.1913	0.1531	20.0%
E116.B	E117.56	1,982	0.0814	10	0.00200	0.6335	2.00	0.50	0.3166	0.2352	25.7%
E125.B	E125.D	1,568	0.0489	8	0.00300	0.4280	2.00	0.50	0.2139	0.1650	22.9%
E125.C	E125.D	647	0.0837	8	0.00300	0.4280	2.00	0.50	0.2139	0.1302	39.1%
E125.D	E117.56	991	0.1871	10	0.00240	0.6940	2.00	0.50	0.3469	0.1598	53.9%
E117.56	E124.01	2,636	6.1626	42	0.00100	20.5714	1.71	0.55	12.0440	5.8814	51.2%
E124.01	E124.04	1,538	6.1767	42	0.00100	20.5714	1.71	0.55	12.0440	5.8673	51.3%
E124.C	E124.F	890	0.1439	10	0.00379	0.8716	2.00	0.50	0.4356	0.2917	33.0%
E124.D	E124.F	370	0.2222	10	0.00300	0.7759	2.00	0.50	0.3878	0.1656	57.3%
E124.E	E124.F	444	0.1315	8	0.00416	0.5039	2.00	0.50	0.2518	0.1203	52.2%
E124.F	E124.04	434	0.5130	15	0.00300	2.2877	1.71	0.55	1.3394	0.8264	38.3%
E124.04	E166.13	1,106	6.7038	42	0.00100	20.5714	1.71	0.55	12.0440	5.3402	55.7%
(AREAS TRIBUTARY TO LEONARD AVENUE SEWER MAIN N/O PUMP STATION)											
E164.E	E164.F	968	0.0638	8	0.00300	0.4280	2.00	0.50	0.2139	0.1501	29.8%
E125.E	E164.F	661	0.0419	8	0.00451	0.5247	2.00	0.50	0.2623	0.2204	16.0%
E164.F	E164.G	1,337	0.1364	10	0.00426	0.9251	2.00	0.50	0.4624	0.3260	29.5%
E164.A	E164.B	2,152	0.0656	8	0.00465	0.5326	2.00	0.50	0.2662	0.2006	24.6%
E164.B	E164.D	1,240	0.0749	8	0.00300	0.4280	2.00	0.50	0.2139	0.1390	35.0%
E164.C	E164.D	675	0.0244	8	0.00300	0.4280	2.00	0.50	0.2139	0.1895	11.4%

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-1
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO DEWOLF AVENUE & GETTYSBURG AVENUE SEWER MAIN											
E164.D	E164.G	945	0.1143	10	0.00240	0.6940	2.00	0.50	0.3469	0.2326	33.0%
E125.F	E164.G	2,228	0.0692	8	0.00300	0.4280	2.00	0.50	0.2139	0.1447	32.4%
E164.G	E165.B	1,309	0.3658	15	0.00200	1.8679	1.71	0.55	1.0936	0.7278	33.4%
E165.A	E165.B	845	0.0254	8	0.00369	0.4746	2.00	0.50	0.2372	0.2118	10.7%
E165.B	E166.13	1,324	0.4134	15	0.00416	2.6939	1.71	0.55	1.5772	1.1638	26.2%
E165.C	E165.D	1,034	0.0269	8	0.00388	0.4867	2.00	0.50	0.2432	0.2163	11.1%
E165.D	E166.13	1,539	0.0713	10	0.00305	0.7825	2.00	0.50	0.3911	0.3198	18.2%
E166.13	E166.10	1,174	7.1885	42	0.00207	29.6163	1.71	0.55	17.3396	10.1511	41.5%
E166.B	E166.10	1,173	0.0416	8	0.00300	0.4280	2.00	0.50	0.2139	0.1723	19.4%
E166.10	E166.06	1,167	7.2301	42	0.00100	20.5714	1.71	0.55	12.0440	4.8139	60.0%

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-2
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO HIGHLAND AVENUE ALIGNMENT SEWER MAIN N/O ASHLAN AVENUE											
E172.A	E172.C	1,772	0.0079	8	0.00471	0.5360	2.00	0.50	0.2679	0.2600	2.9%
E172.B	E172.C	1,737	0.0270	8	0.00250	0.3904	2.00	0.50	0.1951	0.1681	13.8%
E165.E	E172.C	572	0.0100	8	0.00400	0.4942	2.00	0.50	0.2470	0.2370	4.0%
E172.C	E172.D	1,322	0.0578	8	0.00300	0.4280	2.00	0.50	0.2139	0.1561	27.0%
E165.F	E172.D	561	0.0219	8	0.00400	0.4942	2.00	0.50	0.2470	0.2251	8.9%
E172.E	E221.E	1,220	0.0407	8	0.00240	0.3828	2.00	0.50	0.1913	0.1506	21.3%
E221.A	E221.C	1,233	0.0749	8	0.00323	0.4441	2.00	0.50	0.2219	0.1470	33.7%
E221.B	E221.C	1,576	0.0622	8	0.00411	0.5009	2.00	0.50	0.2504	0.1882	24.8%
E221.C	E221.E	292	0.1371	10	0.00325	0.8076	2.00	0.50	0.4036	0.2665	34.0%
E221.D	E221.E	964	0.0188	8	0.00615	0.6127	2.00	0.50	0.3062	0.2874	6.1%
E221.E	E172.F	1,271	0.2422	12	0.00200	1.0302	2.00	0.50	0.5149	0.2727	47.0%
E221.F	E221.G	1,180	0.0473	8	0.00400	0.4942	2.00	0.50	0.2470	0.1997	19.2%
E221.G	E172.F	561	0.0995	8	0.00579	0.5944	2.00	0.50	0.2971	0.1976	33.5%
E172.F	E172.D	2,402	0.4208	15	0.00160	1.6707	1.71	0.55	0.9782	0.5574	43.0%
E172.D	E171.C	661	0.5005	15	0.00160	1.6707	1.71	0.55	0.9782	0.4777	51.2%
E171.A	E171.B	1,018	0.0357	8	0.00300	0.4280	2.00	0.50	0.2139	0.1782	16.7%
E171.B	E171.C	1,496	0.0791	8	0.00255	0.3947	2.00	0.50	0.1973	0.1182	40.1%
E171.C	E171.D	1,165	0.5959	15	0.00170	1.7221	1.71	0.55	1.0083	0.4124	59.1%
E166.D	E171.D	1,172	0.0533	8	0.00243	0.3853	2.00	0.50	0.1926	0.1393	27.7%
E171.D	E167.F	2,186	0.7085	15	0.00170	1.7221	1.71	0.55	1.0083	0.2998	70.3%

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-3
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ASHLAN & LEONARD AVENUE SEWER MAINS S/O PROPOSED PUMP STATION											
(AREAS TRIBUTARY TO LEONARD AVENUE SEWER MAIN S/O PROPOSED PROPOSED PUMP STATION)											
E168.A	E167.A	1,631	0.0635	10	0.00294	0.7683	2.00	0.50	0.3840	0.3205	16.5%
E119.B	E122.A	2,368	0.0465	8	0.00240	0.3828	2.00	0.50	0.1913	0.1448	24.3%
E122.A	E122.B	542	0.0610	8	0.00240	0.3828	2.00	0.50	0.1913	0.1303	31.9%
E122.B	E167.A	1,323	0.1337	10	0.00200	0.6335	2.00	0.50	0.3166	0.1829	42.2%
E167.A	E166.04	1,323	0.2145	12	0.00142	0.8684	2.00	0.50	0.4340	0.2195	49.4%
E166.04	E166.06	307	1.5948	36	0.00120	14.9392	1.71	0.55	8.7465	7.1517	18.2%
E166.06	P. S.	315	8.8249	42	0.00200	29.0923	1.71	0.55	17.0328	8.2079	51.8%
(AREAS TRIBUTARY TO ASHLAN AVENUE SEWER MAIN E/O LEONARD AVENUE)											
E223.A	E223.B	1,167	0.0139	8	0.00240	0.3828	2.00	0.50	0.1913	0.1774	7.3%
E223.B	E223.D	1,323	0.0417	12	0.00240	1.1285	2.00	0.50	0.5640	0.5223	7.4%
E222.A	E223.D	976	0.0214	8	0.00350	0.4622	2.00	0.50	0.2310	0.2096	9.3%
E223.C	E223.D	1,159	0.0304	8	0.00240	0.3828	2.00	0.50	0.1913	0.1609	15.9%
E223.D	E170.C	1,322	0.0935	12	0.00240	1.1285	2.00	0.50	0.5640	0.4705	16.6%
E222.B	E222.C	1,094	0.0262	8	0.00600	0.6052	2.00	0.50	0.3025	0.2763	8.7%
E222.C	E222.D	1,321	0.0799	8	0.00300	0.4280	2.00	0.50	0.2139	0.1340	37.4%
E222.D	E222.F	348	0.0834	8	0.00300	0.4280	2.00	0.50	0.2139	0.1305	39.0%
E222.E	E222.F	1,181	0.0539	8	0.00428	0.5115	2.00	0.50	0.2556	0.2017	21.1%
E222.F	E222.H	603	0.1446	10	0.00240	0.6940	2.00	0.50	0.3469	0.2023	41.7%
E222.G	E222.H	1,607	0.0653	8	0.00300	0.4280	2.00	0.50	0.2139	0.1486	30.5%
E222.H	E170.C	1,325	0.2548	12	0.00200	1.0302	2.00	0.50	0.5149	0.2601	49.5%

SEWER HYDRAULIC CALCULATIONS

TABLE E-HY-3
AREAS TRIBUTARY TO SE SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO ASHLAN & LEONARD AVENUE SEWER MAINS S/O PROPOSED PUMP STATION											
E170.B	E170.C	1,818	0.0244	8	0.00240	0.3828	2.00	0.50	0.1913	0.1669	12.8%
E170.C	E170.D	989	0.3806	15	0.00150	1.6177	1.71	0.55	0.9471	0.5665	40.2%
E171.F	E170.D	1,027	0.0373	8	0.00300	0.4280	2.00	0.50	0.2139	0.1766	17.4%
E170.D	E167.F	1,539	0.4376	15	0.00150	1.6177	1.71	0.55	0.9471	0.5095	46.2%
E167.D	E167.E	1,170	0.0311	8	0.00240	0.3828	2.00	0.50	0.1913	0.1602	16.3%
E170.A	E167.E	1,709	0.0445	8	0.00340	0.4557	2.00	0.50	0.2278	0.1833	19.5%
E167.E	E167.F	1,325	0.0843	8	0.00240	0.3828	2.00	0.50	0.1913	0.1070	44.1%
E167.F	E166.04	2,644	1.3803	24	0.00100	4.6255	1.71	0.55	2.7081	1.3278	51.0%

SAMPLE CALCULATIONS

TABLE 1. SAMPLE WASTEWATER FLOW GENERATION PROJECTION CRITERIA

LAND USE CODE	1993 CLOVIS GENERAL PLAN LAND USE DESIGNATION ABBREVIATION	1993 CLOVIS GENERAL PLAN LAND USE DESIGNATION	RANGE OF RESIDENTIAL DENSITIES			DESIGN RESIDENTIAL FLOW GENERATION RATE	PROJECTED FLOW GENERATION RATE
			LOW	MAXIMUM	PROJECTED		
			(DU/ACRE)	(DU/ACRE)	(DU/ACRE)	(GPU/DAY)	(ALL AREAS ARE GROSS)
99	EX-SFR	EXISTING SINGLE FAMILY RESIDENTIAL					0.000270 MGD/UNIT
100	AG-RES	AGRICULTURAL	0.05	0.05	0.05	270	0.000014 MGD/ACRE
101	R-RES	RURAL	0.50	0.50	0.50	270	0.000135 MGD/ACRE
103	VL-RES	VERY LOW RESIDENTIAL	0.60	2.00	2.00	270	0.000540 MGD/ACRE
106	L-RES	LOW RESIDENTIAL	2.10	4.00	2.70	270	0.000729 MGD/ACRE
107	R1-7500	LOW RESIDENTIAL (7,500)	2.40	3.50	3.20	270	0.000864 MGD/ACRE
109	M-RES	MEDIUM RESIDENTIAL	4.10	7.00	4.10	270	0.001107 MGD/ACRE
121	MH-RES	MEDIUM-HIGH RESIDENTIAL	7.10	15.00	10.20	220	0.002244 MGD/ACRE
122	H-RES	HIGH RESIDENTIAL	15.10	25.00	17.10	220	0.003762 MGD/ACRE
123	VILL-CTR	VILLAGE CENTER	15.10	25.00	17.10	220	0.003762 MGD/ACRE
130	OFFICE	OFFICE					0.001200 MGD/ACRE
140	INDUST	INDUSTRIAL, EMPLOYMENT CENTER					0.001000 MGD/ACRE
150	COMM	COMMERCIAL					0.001400 MGD/ACRE
170	OPEN	OPEN SPACE, PARKS, BASIN, ETC.					0.000000 MGD/ACRE
180	HOSPTL	HOSPITAL					0.000300 MGD/BED
190	EL-SCH	ELEMENTARY SCHOOL					0.000006 MGD/STUDENT
191	MI-SCH	MIDDLE SCHOOL					0.000014 MGD/STUDENT
192	HI-SCH	HIGH SCHOOL					0.000016 MGD/STUDENT

TABLE 2. SAMPLE PIPE HYDRAULIC DESIGN CRITERIA						
DIAMETER (INCHES)	MAXIMUM DESIGN DEPTH OF FLOW FOR AVERAGE FLOW (d/D)	DESIGN MINIMUM PEAKING FACTOR	MAXIMUM ALLOWABLE % OF AVG CAPACITY USEABLE BY PROJECTED FLOW	MAXIMUM DESIGN DEPTH OF FLOW FOR PEAK FLOW (d/D)	DESIGN MANNING'S N	MINIMUM PIPE SLOPE (FT/FT)
6	0.44	2.50	100%	0.82	0.013	0.0040
8	0.50	2.00	100%	0.82	0.013	0.0024
10	0.50	2.00	100%	0.82	0.013	0.0020
12	0.50	2.00	100%	0.82	0.013	0.0014
15	0.55	1.71	100%	0.82	0.013	0.0012
18	0.55	1.71	100%	0.82	0.013	0.0010
21	0.55	1.71	100%	0.82	0.013	0.0010
24	0.55	1.71	100%	0.82	0.013	0.0010
27	0.55	1.71	100%	0.82	0.013	0.0010
30	0.55	1.71	100%	0.82	0.013	0.0010
33	0.55	1.71	100%	0.82	0.013	0.0010
36	0.55	1.71	100%	0.82	0.013	0.0010
39	0.55	1.71	100%	0.82	0.013	0.0010
42	0.55	1.71	100%	0.82	0.013	0.0010

FLOW GENERATION CALCULATIONS

TABLE S-FG-SAMPLE 1

AREAS TRIBUTARY TO "SAMPLE" SERVICE AREA

Except where otherwise noted, latest update of % Developed was as of "Insert Date"

NA = NOT APPLICABLE

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NODE NO.	TRIBUTARY DESIGNATION	LAND USE CODE	LAND USE DESIG-NATION (ABBREV)	GROSS AREA (ACRES)	ACCUM. GROSS AREA (ACRES)	RESIDENTIAL PROJECTED FLOW GENERATION RATE	ACTUAL NO. OF SFR DU'S	PROJ FLOW PER SFR DU (G/DAY)	PROJ AVG DAILY FLOW (MGD)	SPECIAL UNITS	NON-RESIDENTIAL PROJECTED FLOW GENERATION RATE	PROJ AVG DAILY FLOW (MGD)	PROJ AVG DAILY FLOW (MGD)	TOT. ACCUM. PROJ AVG DAILY FLOW (MGD)	DEVELOPED PORTION DE-VELOPED (%)	DEVELOPED PROJ AVG DAILY FLOW (MGD)	DEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)	UNDEVELOPED PORTION UNDE-VELOPED (%)	UNDEVELOPED PROJ AVG DAILY FLOW (MGD)	UNDEVELOPED ACCUM. PROJ AVG DAILY FL (MGD)
AREAS TRIBUTARY TO "INSERT" AVENUE SEWER MAIN																				
S20.1	20.1	107	R1-7500	80.73		0.000864 MGD/ACRE		270	0.0698		NA NA	0.0000	0.0698		0%	0.0000		100%	0.0698	
S20.1	20.1	99	EX-SFR	30.96		0.000270 MGD/UNIT	108	270	0.0292		NA NA	0.0000	0.0292		65%	0.0190		35%	0.0102	
S20.1	**NODE TOTAL**			**111.69**	**111.69**				**0.0990**			**0.0000**	**0.0990**	**0.0990**		**0.0190**	**0.0190**		**0.0800**	**0.0800**
S20.2	20.2	106	L-RES	40.28		0.000729 MGD/ACRE		270	0.0294		NA NA	0.0000	0.0294		0%	0.0000		100%	0.0294	
S20.2	20.2	150	COMM	11.16		NA NA		270	0.0000		0.001400 MGD/ACRE	0.0156	0.0156		45%	0.0070		55%	0.0086	
S20.2	**NODE TOTAL**			**51.44**	**51.44**				**0.0294**			**0.0156**	**0.0450**	**0.0450**		**0.0070**	**0.0070**		**0.0380**	**0.0380**
S20.5	20.5	190	EL-SCH	15.80		NA NA		270	0.0000	750	0.000006 MGD/STUDENT	0.0045	0.0045		60%	0.0027		40%	0.0018	
S20.5	20.5	107	R1-7500	75.60		0.000864 MGD/ACRE		270	0.0653		NA NA	0.0000	0.0653		0%	0.0000		100%	0.0653	
S20.5	**NODE TOTAL**			**91.40**	**254.53**				**0.0653**			**0.0045**	**0.0698**	**0.2138**		**0.0027**	**0.0287**		**0.0671**	**0.1851**
▲ INSERT	▲ INSERT	▲ INSERT FROM TABLE 1	▲ AUTO-CALC	▲ INSERT	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ INSERT IF ANY	▲ CONSTANT	▲ AUTO-CALC	▲ INSERT IF ANY	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ INSERT	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC	▲ AUTO-CALC

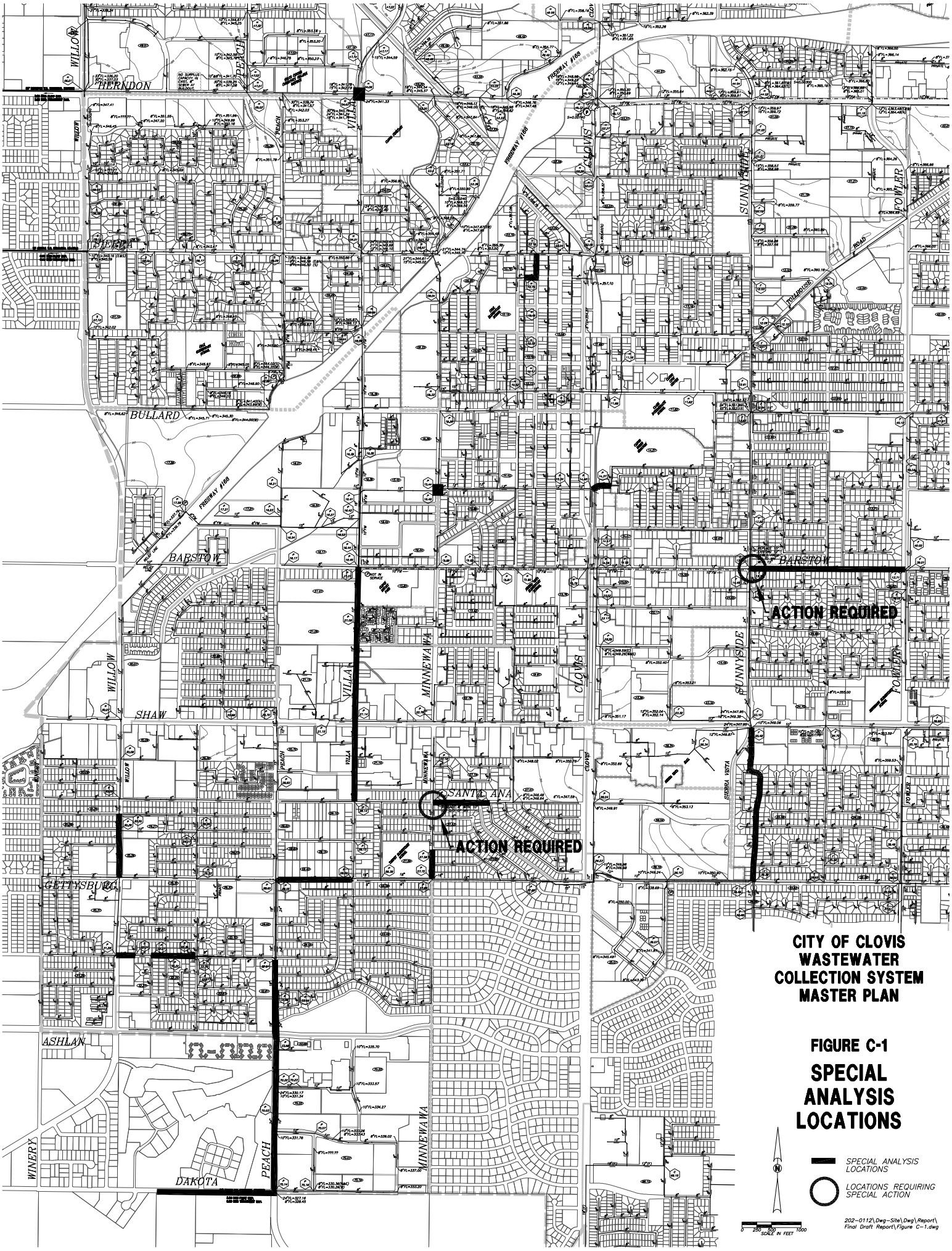
SEWER HYDRAULIC CALCULATIONS

TABLE S-HY-SAMPLE 1
AREAS TRIBUTARY TO "SAMPLE" SERVICE AREA SEWER SYSTEM

A	B	C	D	E	F	G	H	I	J	K	L
PIPE SEGMENT		LENGTH	PROJECTED	PIPE	PIPE	DESIGN	DESIGN	MAXIMUM	DESIGN	PROJECTED	% DESIGN
UP-STREAM NODE	DOWN-STREAM NODE	(FEET)	AVERAGE DAILY FLOW (MGD)	DIAMETER (IN)	SLOPE (FT/FT)	PEAK FLOW CAPACITY (MGD)	MINIMUM PEAKING FACTOR	DESIGN AVG FLOW DEPTH (d/D)	AVERAGE FLOW CAPACITY (MGD)	ULTIMATE UNUSED CAPACITY (MGD)	FLOW CAPACITY UTILIZED
AREAS TRIBUTARY TO "INSERT" AVENUE SEWER MAIN											
S20.1	S20.5	2,394	0.0990	8	0.00340	0.4556	2.00	0.50	0.2277	0.1287	43.5%
S20.2	S20.5	1,038	0.0450	8	0.00340	0.4556	2.00	0.50	0.2277	0.1827	19.8%
S20.5	S20.7	2,652	0.2138	10	0.00240	0.6940	2.00	0.50	0.3469	0.1331	61.6%
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
INSERT LINK FROM FG SHEET	INSERT LINK FROM FG SHEET	INSERT	INSERT LINK FROM FG SHEET	INSERT	INSERT	AUTO-CALC	AUTO-CALC	AUTO-CALC	AUTO-CALC	AUTO-CALC	AUTO-CALC

APPENDIX C

ANALYSIS OF POTENTIAL CAPACITY RESTRICTIONS



CITY OF CLOVIS WASTEWATER COLLECTION SYSTEM MASTER PLAN

FIGURE C-1

SPECIAL ANALYSIS LOCATIONS

SPECIAL ANALYSIS LOCATIONS

LOCATIONS REQUIRING SPECIAL ACTION

0 250 500 1000
SCALE IN FEET

202-0112\Dwg-Site\Dwg\Report\
Final Draft Report\Figure C-1.dwg

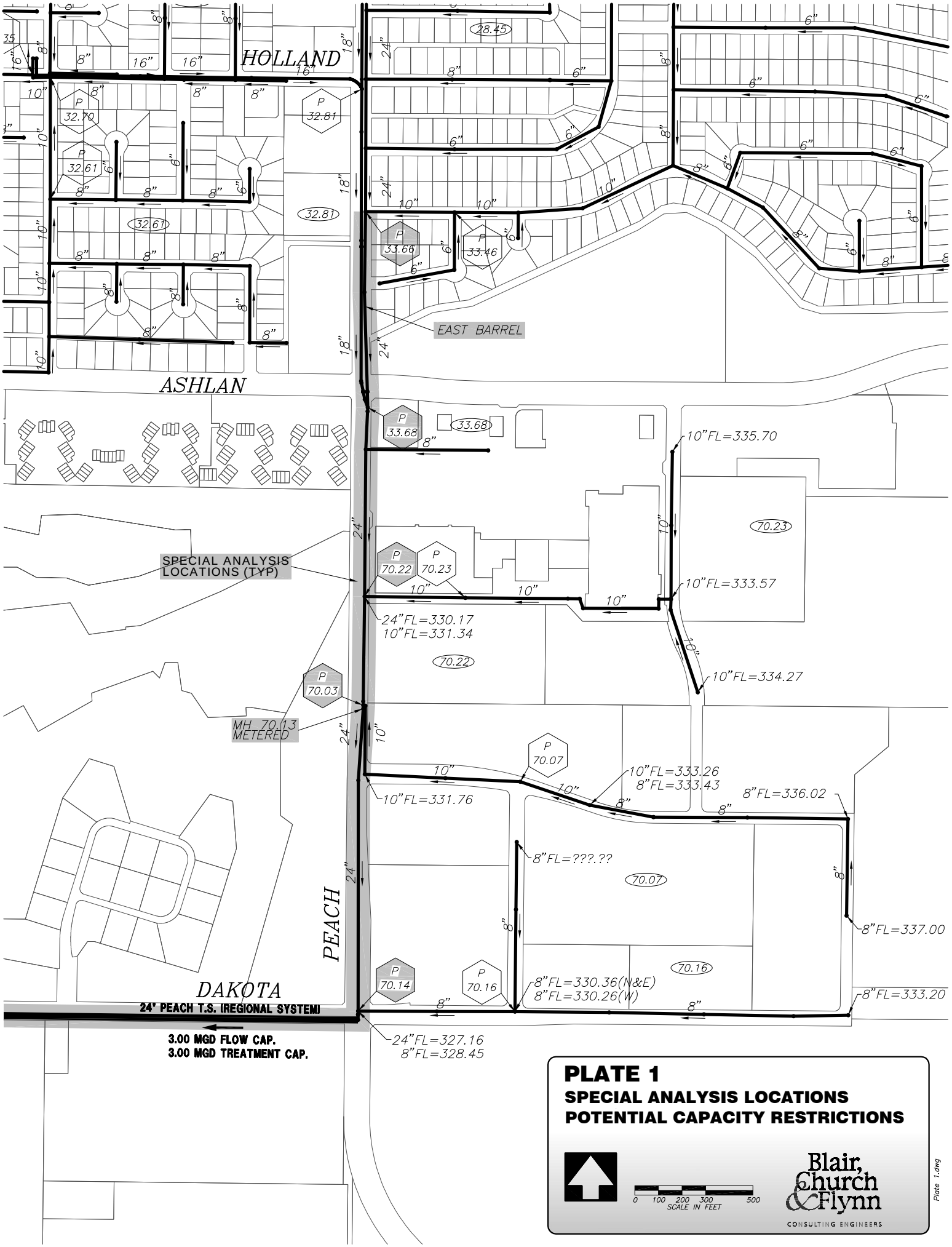


PLATE 1

SPECIAL ANALYSIS LOCATIONS
POTENTIAL CAPACITY RESTRICTIONS

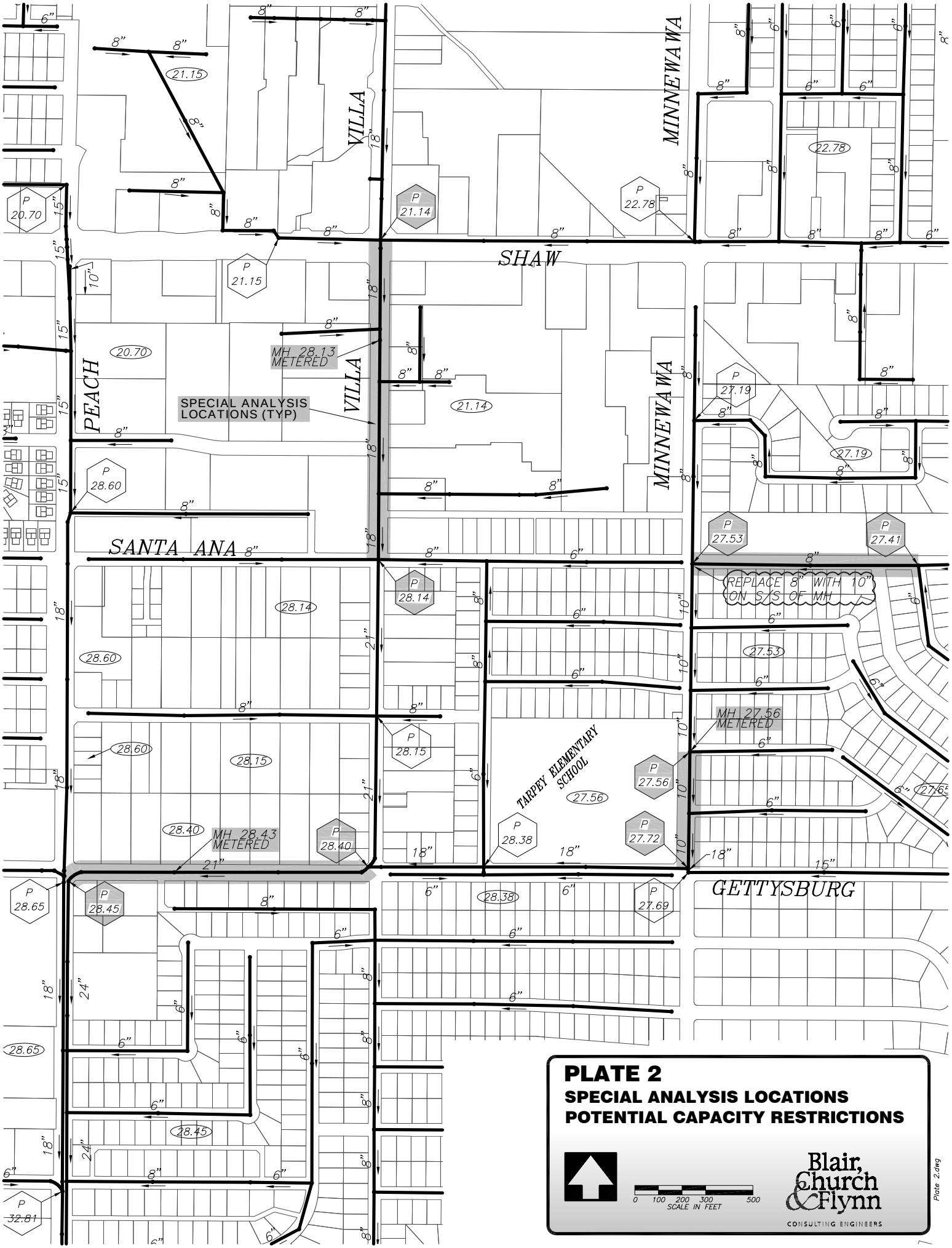


PLATE 2

SPECIAL ANALYSIS LOCATIONS

POTENTIAL CAPACITY RESTRICTIONS

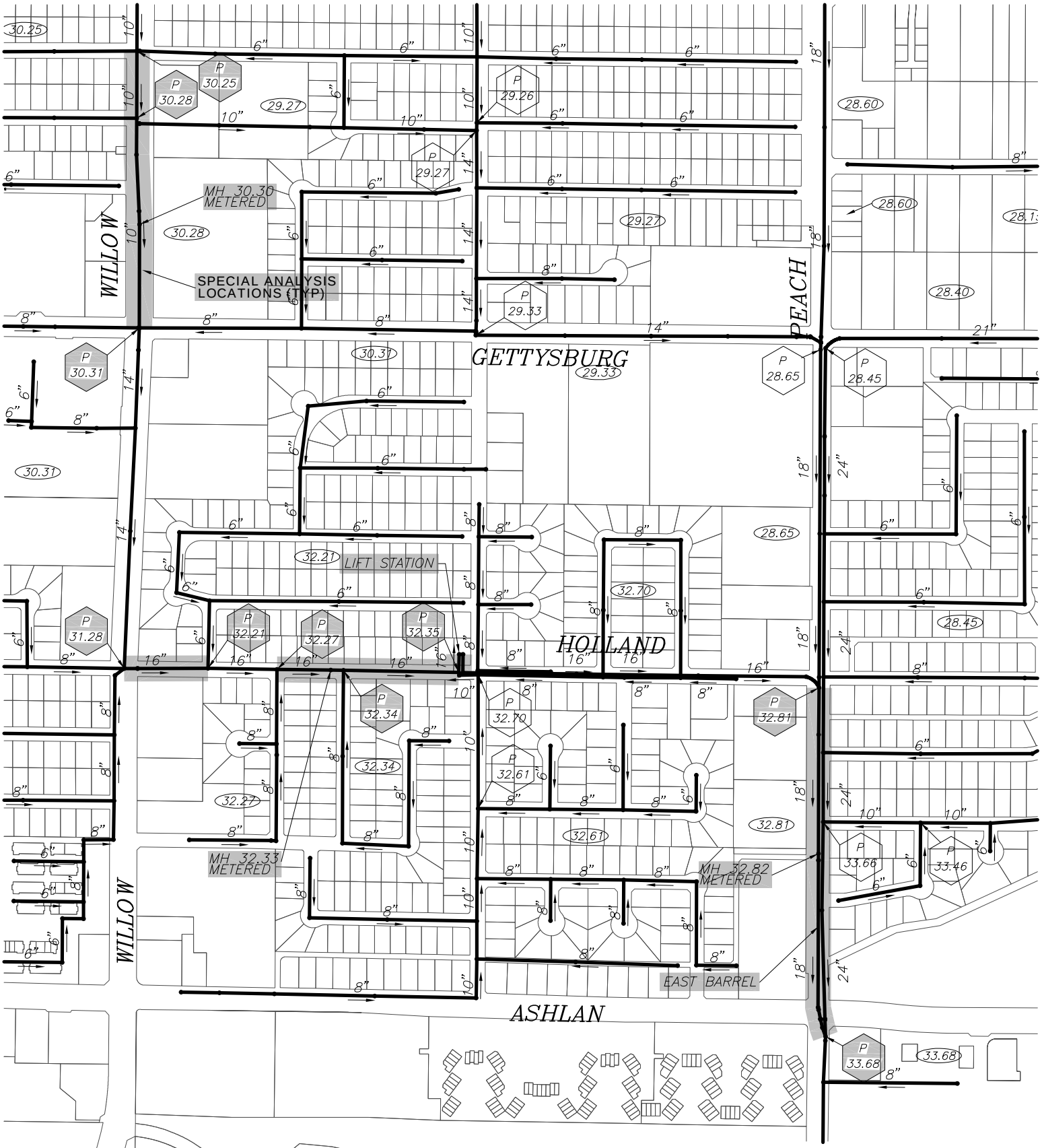


PLATE 3

SPECIAL ANALYSIS LOCATIONS
POTENTIAL CAPACITY RESTRICTIONS

Scale: 1"=600'

0 100 200 300 500
SCALE IN FEET

Blair, Church & Flynn
CONSULTING ENGINEERS

Plate 3.dwg

PLATE 4

SPECIAL ANALYSIS LOCATIONS

POTENTIAL CAPACITY RESTRICTIONS

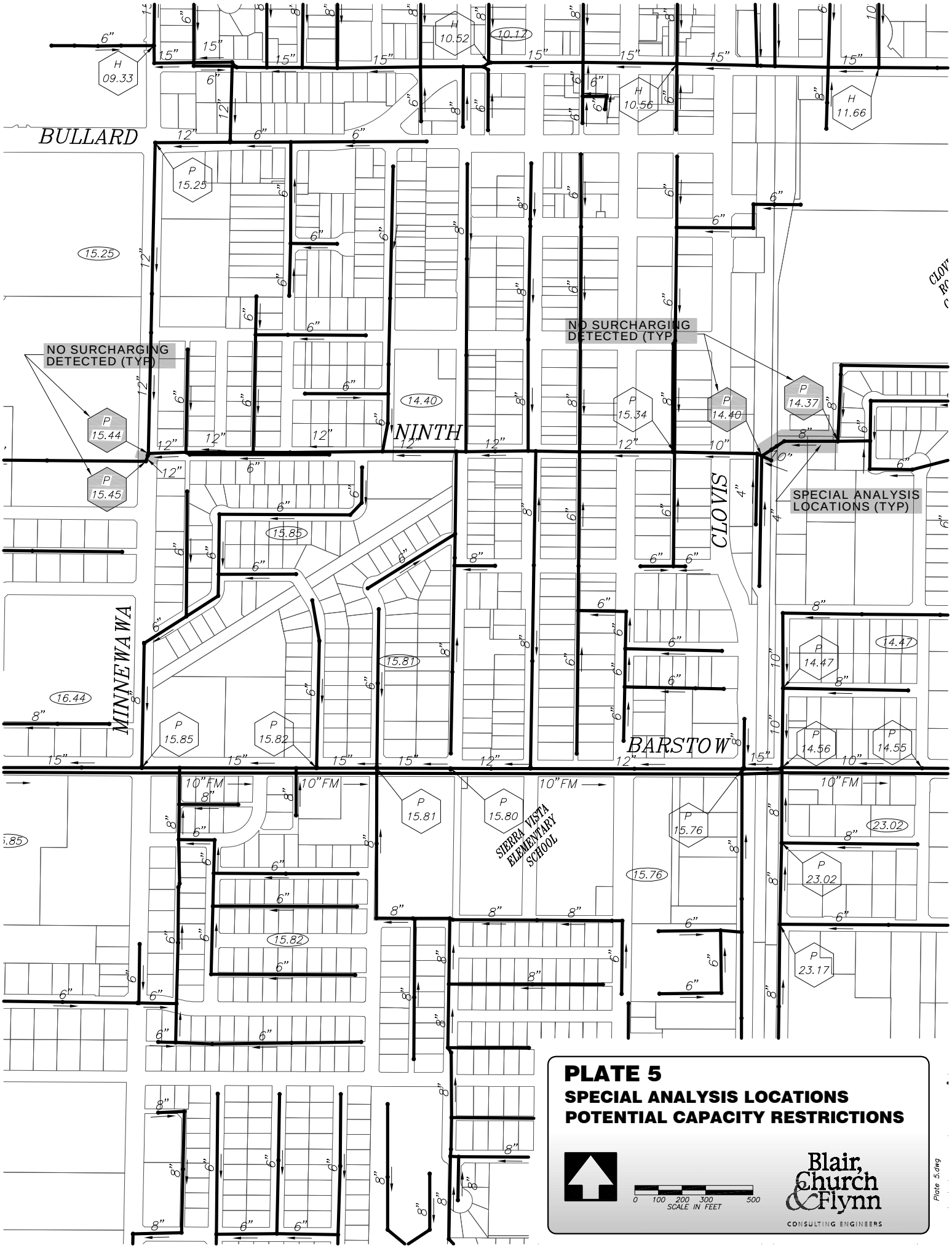


PLATE 5

SPECIAL ANALYSIS LOCATIONS POTENTIAL CAPACITY RESTRICTIONS

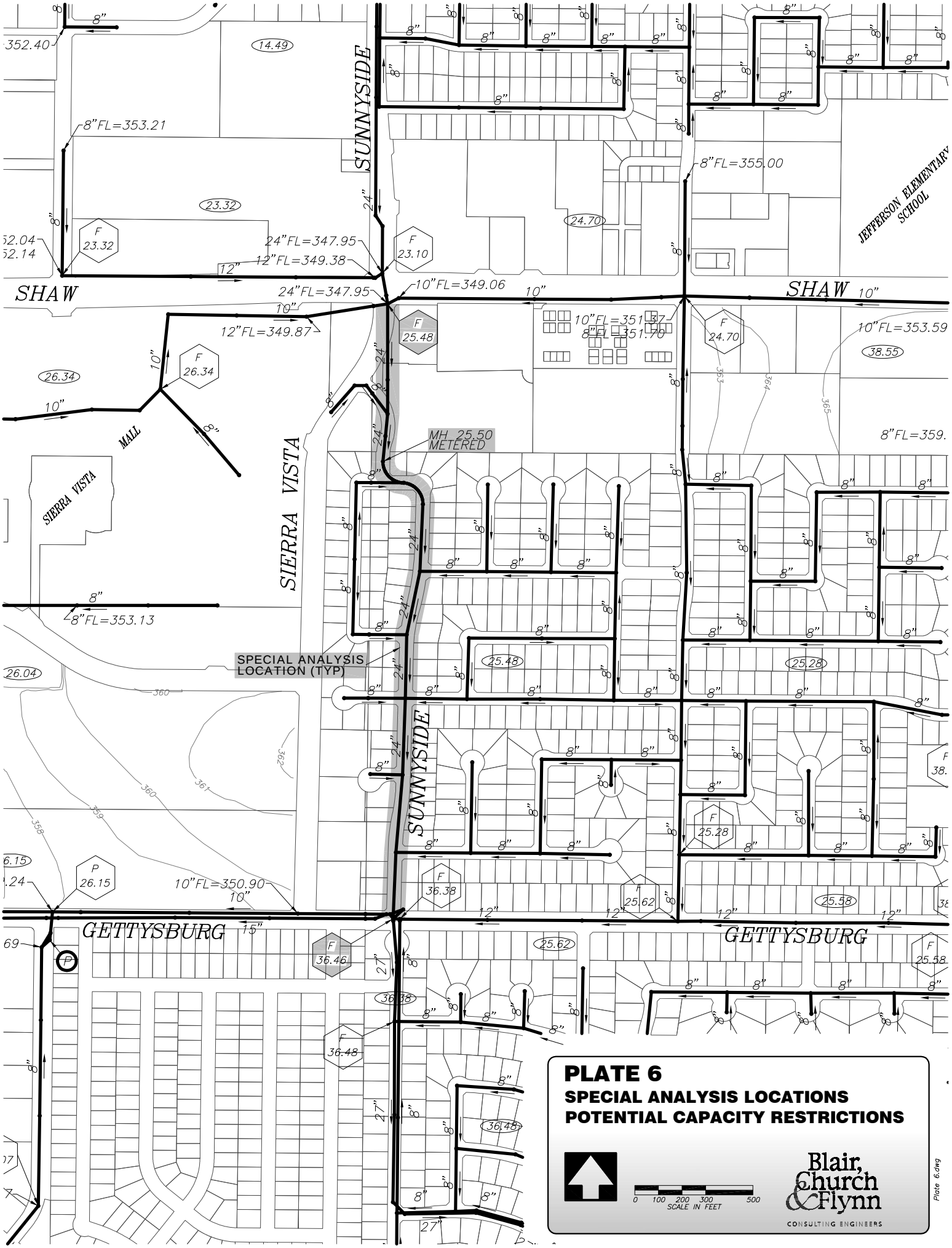


PLATE 6

SPECIAL ANALYSIS LOCATIONS

POTENTIAL CAPACITY RESTRICTIONS

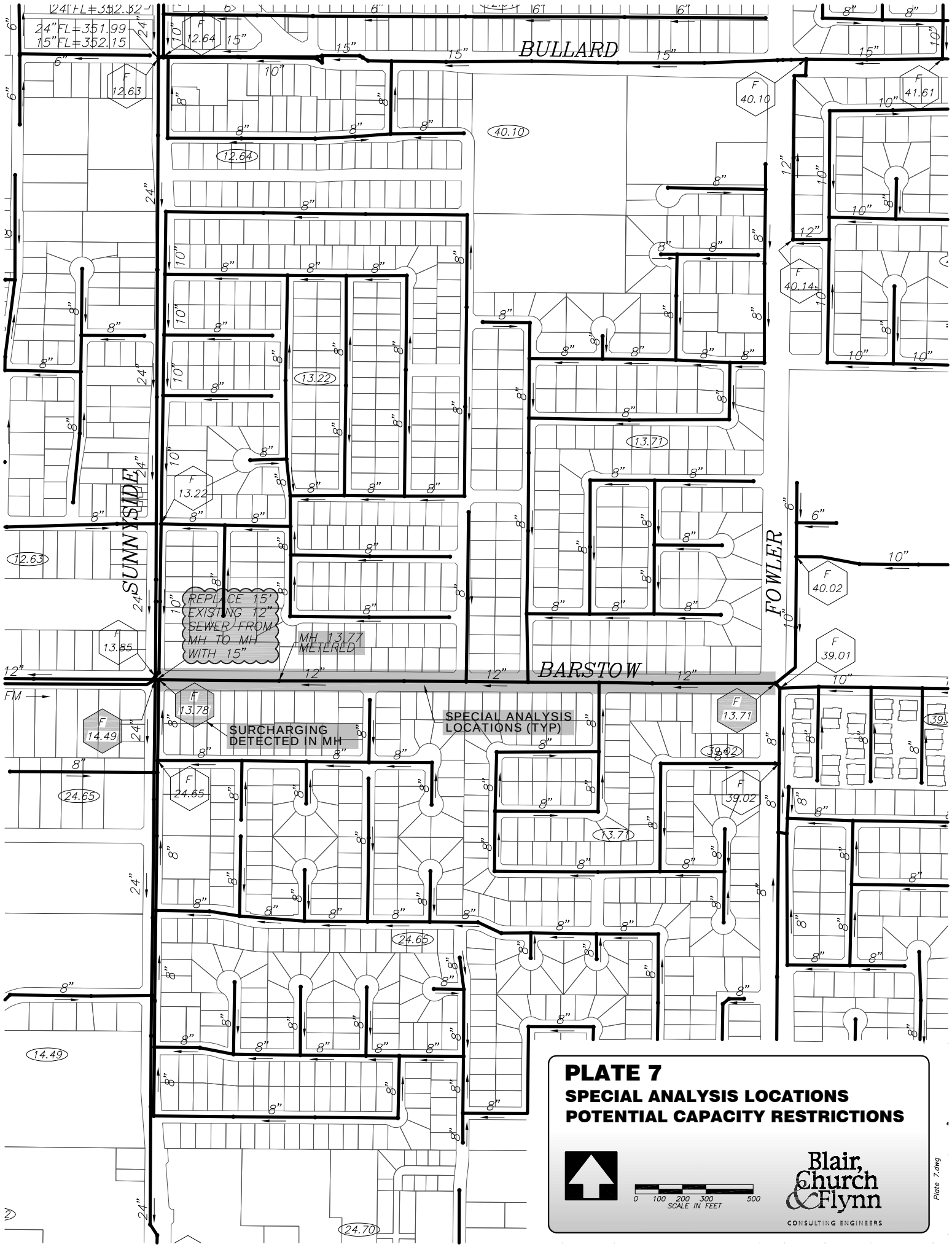


PLATE 7

SPECIAL ANALYSIS LOCATIONS POTENTIAL CAPACITY RESTRICTIONS

0 100 200 300 500
SCALE IN FEET

Blair, Church & Flynn
CONSULTING ENGINEERS

Plate 7.dwg

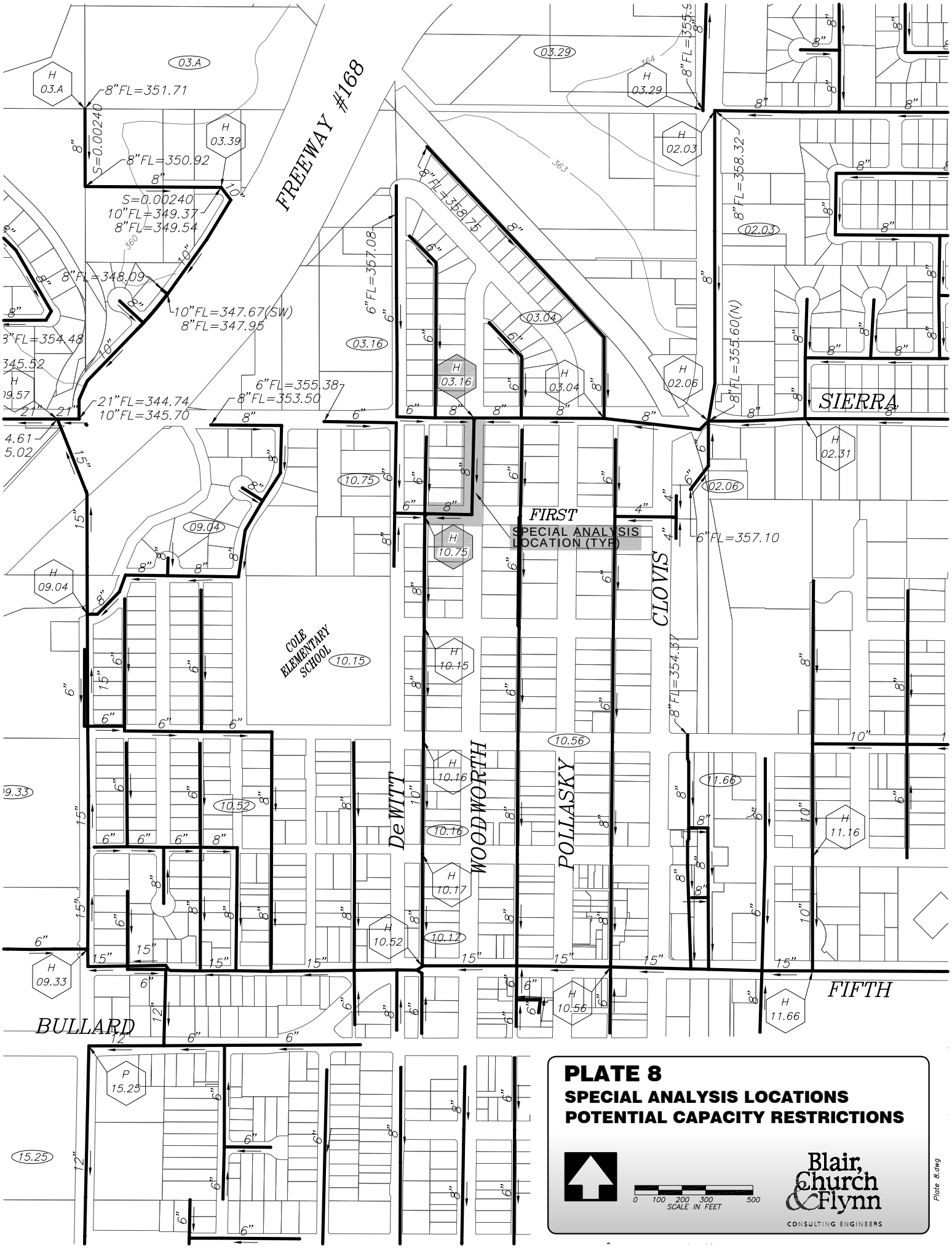


PLATE 8

SPECIAL ANALYSIS LOCATIONS
POTENTIAL CAPACITY RESTRICTIONS

Blair, Church & Flynn
CONSULTING ENGINEERS

Plate 8.dwg

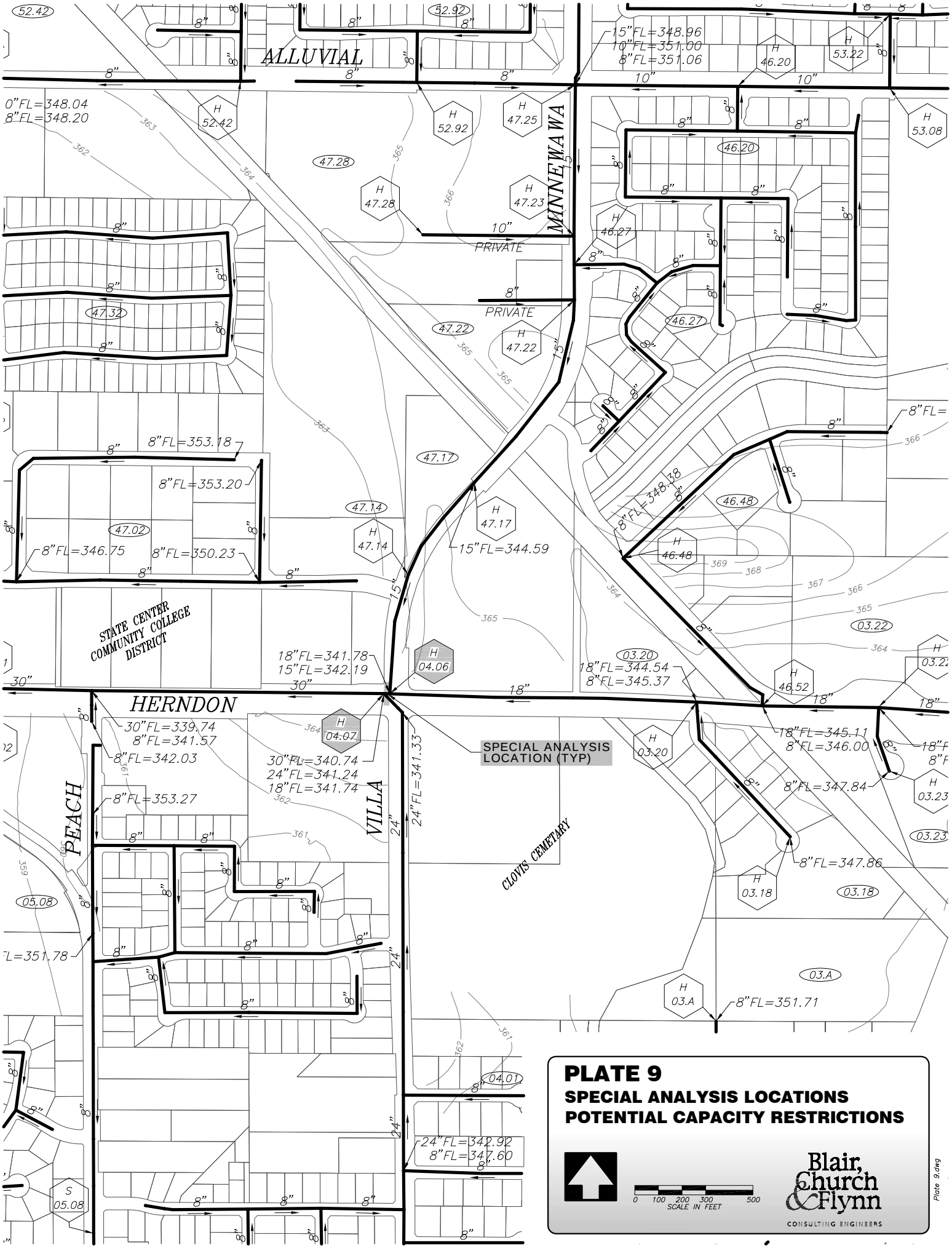


PLATE 9

SPECIAL ANALYSIS LOCATIONS POTENTIAL CAPACITY RESTRICTIONS

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P33-66 TO MH P33-68

EAST BARREL PEACH AVENUE, SWIFT TO ASHLAN AVENUE

BASED UPON METERING AT MH 70-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 1

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000800	**24**	**2.422**	2.12	0.55	**1.71**	**4.137**	2.32	0.82	**Design values for sewer capacity per GIS**
		2.544	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.122	← Raw, unadjusted						Projected unused capacity at buildout
		-5.0%	← Raw, unadjusted						Projected unused capacity at buildout
		2.141	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000800	24				**1.39**				Peaking factor from relevant metering
	METERING ADJUSTMENT	**2.976**	← Effective average flow capacity		**1.39**	**4.137**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.432	← Prior to calibration adjustment						Projected unused capacity at buildout
		14.5%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.559	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.985	← After calibration adjustment						Adjusted buildout flow per calibration
		0.991	← After calibration adjustment						**Projected unused capacity at buildout**
		33.3%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		1.856	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		1.120	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		37.6%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert link to peaking factor from relevent metering		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P33-68 TO MH P70-22

PEACH AVENUE, ASHLAN AVENUE TO 800'± SOUTH

BASED UPON METERING AT MH 70-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 1

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**24**	**2.708**	2.37	0.55	**1.71**	**4.626**	2.60	0.82	**Design values for sewer capacity per GIS**
		3.884	← Raw, unadjusted						Buildout flow per modeling calculations
		-1.176	← Raw, unadjusted						Projected unused capacity at buildout
		-43.4%	← Raw, unadjusted						Projected unused capacity at buildout
		3.416	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	24	2.048	2.21	**0.466**	**1.39**	**2.844**	2.39	**0.567**	Existing flow per metering of 05/2004
	METERING ADJUSTMENT	1.280	← At time of metering		1.39	1.782			Remaining capacity at indicated peaking factor
		3.328	← Effective average flow capacity		**1.39**	**4.626**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.556	← Prior to calibration adjustment						Projected unused capacity at buildout
		-16.7%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.892	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		2.992	← After calibration adjustment						Adjusted buildout flow per calibration
		0.336	← After calibration adjustment						**Projected unused capacity at buildout**
		10.1%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		2.863	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.465	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		14.0%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has nominal marginal capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P70-22 TO MH P70-03

PEACH AVENUE, 800'± SOUTH OF ASHLAN AVENUE TO METER

BASED UPON METERING AT MH 70-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 1

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**24**	**2.708**	2.37	0.55	**1.71**	**4.626**	2.60	0.82	**Design values for sewer capacity per GIS**
		3.982	← Raw, unadjusted						Buildout flow per modeling calculations
		-1.274	← Raw, unadjusted						Projected unused capacity at buildout
		-47.0%	← Raw, unadjusted						Projected unused capacity at buildout
		3.489	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	24	2.048	2.21	**0.466**	**1.39**	**2.844**	2.39	**0.567**	Existing flow per metering of 05/2004
	METERING ADJUSTMENT	1.280	← At time of metering		1.39	1.782			Remaining capacity at indicated peaking factor
		3.328	← Effective average flow capacity		**1.39**	**4.626**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.654	← Prior to calibration adjustment						Projected unused capacity at buildout
		-19.6%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.911	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		3.071	← After calibration adjustment						Adjusted buildout flow per calibration
		0.257	← After calibration adjustment						**Projected unused capacity at buildout**
		7.7%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		2.942	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.386	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		11.6%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has nominal marginal capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P70-03 TO MH P70-14
PEACH AVENUE, METER TO DAKOTA AVENUE
BASED UPON METERING AT MH 70-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 1

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001600	**24**	**3.426**	2.99	0.55	**1.71**	**5.851**	3.28	0.82	**Design values for sewer capacity per GIS**
		4.033	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.607	← Raw, unadjusted						Projected unused capacity at buildout
		-17.7%	← Raw, unadjusted						Projected unused capacity at buildout
		3.520	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001600	24	2.590	2.79	**0.466**	**1.39**	**3.597**	3.03	**0.567**	Existing flow per metering of 05/2004
	METERING ADJUSTMENT	1.619	← At time of metering		1.39	2.254			Remaining capacity at indicated peaking factor
		4.209	← Effective average flow capacity		**1.39**	**5.851**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.176	← Prior to calibration adjustment						Projected unused capacity at buildout
		4.2%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.919	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		3.114	← After calibration adjustment						Adjusted buildout flow per calibration
		1.095	← After calibration adjustment						**Projected unused capacity at buildout**
		26.0%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		2.985	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		1.224	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		29.1%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P70-14 TO REGIONAL SYSTEM
DAKOTA AVENUE WEST OF PEACH AVENUE
BASED UPON METERING AT MH 70-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 1

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001500	**24**	**3.317**	2.90	0.55	**1.71**	**5.665**	3.18	0.82	**Design values for sewer capacity per GIS**
		4.060	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.743	← Raw, unadjusted						Projected unused capacity at buildout
		-22.4%	← Raw, unadjusted						Projected unused capacity at buildout
		3.547	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001500	24	2.508	2.70	**0.466**	**1.39**	**3.483**	2.93	**0.567**	Existing flow per metering of 05/2004
	METERING ADJUSTMENT	1.568	← At time of metering		1.39	2.182			Remaining capacity at indicated peaking factor
		4.076	← Effective average flow capacity		**1.39**	**5.665**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.016	← Prior to calibration adjustment						Projected unused capacity at buildout
		0.4%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.926	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		3.134	← After calibration adjustment						Adjusted buildout flow per calibration
		0.942	← After calibration adjustment						**Projected unused capacity at buildout**
		23.1%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		3.005	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		1.071	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		26.3%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P27-41 TO MH P27-53
SANTA ANA AVENUE EAST OF MINNEWAWA AVENUE
NO METERING

REFER TO PLATE 2

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**8**	**0.123**	1.09	0.50	**2.01**	**0.247**	1.25	0.82	**Design values for sewer capacity per GIS**
		0.143	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.020	← Raw, unadjusted						Projected unused capacity at buildout
		-16.3%	← Raw, unadjusted						Projected unused capacity at buildout
		0.106	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	8								
	METERING ADJUSTMENT								
									No metering this location
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.028	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.115	← After calibration adjustment						Adjusted buildout flow per calibration
		0.008	← After calibration adjustment						**Projected unused capacity at buildout**
		6.5%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach has nominal marginal capacity for projected buildout flow. This reach should be monitored, particularly if there are any upstream planned land use changes from those assumed. Assumed slope is slightly flatter than actual GIS slope reported in this reach (used upstream flatter slope), which should add to conservatism.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P27-56 TO MH P27-72
MINNEWAWA AVENUE, RIALTO AVENUE TO GETTYSBURG AVENUE
METERING AT MH 27-56 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN WAS QUESTIONABLE

REFER TO PLATE 2

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**10**	**0.224**	1.27	0.50	**2.00**	**0.448**	1.45	0.82	**Design values for sewer capacity per GIS**
		0.246	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.022	← Raw, unadjusted						Projected unused capacity at buildout
		-9.8%	← Raw, unadjusted						Projected unused capacity at buildout
		0.210	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	10								
	METERING ADJUSTMENT								
									No metering adjustment because of questionable meter data
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.055	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.191	← After calibration adjustment						Adjusted buildout flow per calibration
		0.033	← After calibration adjustment						**Projected unused capacity at buildout**
		14.7%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach has nominal marginal capacity for projected buildout flow.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P21-14 TO MH P28-14

VILLA AVENUE, SHAW AVENUE TO SANTA ANA AVENUE

BASED UPON METERING AT MH 28-13 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 2

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000800	**18**	**1.125**	1.75	0.55	**1.71**	**1.921**	1.92	0.82	**Design values for sewer capacity per GIS**
		1.694	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.569	← Raw, unadjusted						Projected unused capacity at buildout
		-50.6%	← Raw, unadjusted						Projected unused capacity at buildout
		1.516	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000800	18	0.889	1.65	**0.478**	**1.44**	**1.284**	1.80	**0.598**	Existing flow per metering of 12/2003
	METERING ADJUSTMENT	0.445	← At time of metering		1.44	0.637			Remaining capacity at indicated peaking factor
		1.334	← Effective average flow capacity		**1.44**	**1.921**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.360	← Prior to calibration adjustment						Projected unused capacity at buildout
		-27.0%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.396	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.298	← After calibration adjustment						Adjusted buildout flow per calibration
		0.036	← After calibration adjustment						**Projected unused capacity at buildout**
		2.7%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		1.169	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.165	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		12.4%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has nominal marginal capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P28-40 TO MH P28-45

GETTYSBURG AVENUE, VILLA AVENUE TO PEACH AVENUE

BASED UPON METERING AT MH 28-43 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 2

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000800	**21**	**1.697**	1.94	0.55	**1.71**	**2.898**	2.12	0.82	**Design values for sewer capacity per GIS**
		2.365	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.668	← Raw, unadjusted						Projected unused capacity at buildout
		-39.4%	← Raw, unadjusted						Projected unused capacity at buildout
		1.962	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000800	21	1.662	1.93	**0.543**	**1.33**	**2.215**	2.05	**0.655**	Existing flow per metering of 11/2003
	METERING ADJUSTMENT	0.517	← At time of metering		1.33	0.683			Remaining capacity at indicated peaking factor
		2.179	← Effective average flow capacity		**1.33**	**2.898**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.186	← Prior to calibration adjustment						Projected unused capacity at buildout
		-8.5%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.512	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.853	← After calibration adjustment						Adjusted buildout flow per calibration
		0.326	← After calibration adjustment						**Projected unused capacity at buildout**
		15.0%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		1.724	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.455	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		20.9%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon metering and adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Metered peaking factor is unusally low. Safety factor would be ability to increase upstream diversion, if needed. Used metering in downstream reach with similar slope to determine effective peaking factor.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P30-25 TO MH P30-28

WILLOW AVENUE, SAN GABRIEL AVENUE TO RIALTO AVENUE

BASED UPON METERING AT MH 30-30 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.002500	**10**	**0.354**	2.01	0.50	**2.00**	**0.708**	2.29	0.82	**Design values for sewer capacity per GIS**
		0.364	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.010	← Raw, unadjusted						Projected unused capacity at buildout
		-2.8%	← Raw, unadjusted						Projected unused capacity at buildout
		0.345	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.002500	10				**1.75**				Peaking factor from relevant metering
	METERING ADJUSTMENT	**0.405**	← Effective average flow capacity		**1.75**	**0.708**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.041	← Prior to calibration adjustment						Projected unused capacity at buildout
		10.0%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.090	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.274	← After calibration adjustment						Adjusted buildout flow per calibration
		0.131	← After calibration adjustment						**Projected unused capacity at buildout**
		32.3%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon metering and adjustments, this reach has capacity for projected buildout flow.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert link to peaking factor from relevant metering		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P30-28 TO MH P30-31
WILLOW AVENUE, RIALTO AVENUE TO GETTYSBURG AVENUE
BASED UPON METERING AT MH 30-30 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.002300	**10**	**0.340**	1.93	0.50	**2.00**	**0.679**	2.19	0.82	**Design values for sewer capacity per GIS**
		0.408	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.068	← Raw, unadjusted						Projected unused capacity at buildout
		-20.0%	← Raw, unadjusted						Projected unused capacity at buildout
		0.388	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.002300	10	0.373	1.97	**0.529**	**1.75**	**0.651**	2.19	**0.785**	Existing flow per metering of 12/2003
	METERING ADJUSTMENT	0.015	← At time of metering		1.75	0.028			Remaining capacity at indicated peaking factor
		0.388	← Effective average flow capacity		**1.75**	**0.679**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.020	← Prior to calibration adjustment						Projected unused capacity at buildout
		-5.2%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.101	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.307	← After calibration adjustment						Adjusted buildout flow per calibration
		0.081	← After calibration adjustment						**Projected unused capacity at buildout**
		20.9%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable
CONCLUSIONS									
Based upon metering and adjustments, this reach has nominal marginal capacity for projected buildout flow.									

Insert data in this cell

Insert flow depth in formula utilizing metering data

Italic entry Insert link to modeling calculations

All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P31-28 TO MH P32-21

HOLLAND AVENUE, WILLOW AVENUE TO 326' EAST

BASED UPON METERING AT MH 32-33 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000400	**16**	**0.581**	1.14	0.55	**1.71**	**0.992**	1.25	0.82	**Design values for sewer capacity per GIS**
		0.612	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.031	← Raw, unadjusted						Projected unused capacity at buildout
		-5.3%	← Raw, unadjusted						Projected unused capacity at buildout
		0.587	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000400	16	0.304	0.97	**0.380**	**1.50**	**0.457**	1.08	**0.477**	Existing flow per metering of 10/2003
	METERING ADJUSTMENT	0.357	← At time of metering		1.50	0.535			Remaining capacity at indicated peaking factor
		0.661	← Effective average flow capacity		**1.50**	**0.992**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.049	← Prior to calibration adjustment						Projected unused capacity at buildout
		7.5%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.153	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.459	← After calibration adjustment						Adjusted buildout flow per calibration
		0.202	← After calibration adjustment						**Projected unused capacity at buildout**
		30.6%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable
CONCLUSIONS									
Based upon metering and calibration adjustment, this reach has capacity for projected buildout flow.									

Insert data in this cell

Insert flow depth in formula utilizing metering data

Italic entry Insert link to modeling calculations

All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P32-27 TO MH P32-34

HOLLAND AVENUE, ADLER AVENUE TO TIMMY AVENUE

BASED UPON METERING AT MH 32-33 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000500	**16**	**0.649**	1.28	0.55	**1.71**	**1.109**	1.40	0.82	**Design values for sewer capacity per GIS**
		0.672	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.023	← Raw, unadjusted						Projected unused capacity at buildout
		-3.5%	← Raw, unadjusted						Projected unused capacity at buildout
		0.647	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000500	16	0.340	1.08	**0.380**	**1.50**	**0.511**	1.20	**0.477**	Existing flow per metering of 10/2003
	METERING ADJUSTMENT	0.399	← At time of metering		1.50	0.598			Remaining capacity at indicated peaking factor
		0.739	← Effective average flow capacity		**1.50**	**1.109**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.067	← Prior to calibration adjustment						Projected unused capacity at buildout
		9.1%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.169	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.503	← After calibration adjustment						Adjusted buildout flow per calibration
		0.236	← After calibration adjustment						**Projected unused capacity at buildout**
		32.0%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable
CONCLUSIONS									
Based upon metering and calibration adjustment, this reach has capacity for projected buildout flow.									

Insert data in this cell

Insert flow depth in formula utilizing metering data

Italic entry Insert link to modeling calculations

All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P32-34 TO MH P32-35
HOLLAND AVENUE, TIMMY AVENUE TO LIFT STATION
BASED UPON METERING AT MH 32-33 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000500	**16**	**0.649**	1.28	0.55	**1.71**	**1.109**	1.40	0.82	**Design values for sewer capacity per GIS**
		0.686	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.037	← Raw, unadjusted						Projected unused capacity at buildout
		-5.7%	← Raw, unadjusted						Projected unused capacity at buildout
		0.662	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000500	16	0.340	1.08	**0.380**	**1.50**	**0.511**	1.20	**0.477**	Existing flow per metering of 10/2003
	METERING ADJUSTMENT	0.399	← At time of metering		1.50	0.598			Remaining capacity at indicated peaking factor
		0.739	← Effective average flow capacity		**1.50**	**1.109**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.053	← Prior to calibration adjustment						Projected unused capacity at buildout
		7.2%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.173	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.513	← After calibration adjustment						Adjusted buildout flow per calibration
		0.226	← After calibration adjustment						**Projected unused capacity at buildout**
		30.6%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon metering and calibration adjustment, this reach has capacity for projected buildout flow.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P32-81 TO MH P33-68

PEACH AVENUE, HOLLAND AVENUE TO ASHLAN AVENUE (WEST BARREL)

BASED UPON METERING AT MH 32.82 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 3

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000600	**18**	**0.974**	1.51	0.55	**1.71**	**1.664**	1.66	0.82	**Design values for sewer capacity per GIS**
		1.335	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.361	← Raw, unadjusted						Projected unused capacity at buildout
		-37.1%	← Raw, unadjusted						Projected unused capacity at buildout
		1.270	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000600	18	0.748	1.42	**0.470**	**1.43**	**1.069**	1.55	**0.583**	Existing flow per metering of 12/2003
	METERING ADJUSTMENT	0.416	← At time of metering		1.43	0.595			Remaining capacity at indicated peaking factor
		1.164	← Effective average flow capacity		**1.43**	**1.664**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.171	← Prior to calibration adjustment						Projected unused capacity at buildout
		-14.7%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.331	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.004	← After calibration adjustment						Adjusted buildout flow per calibration
		0.160	← After calibration adjustment						**Projected unused capacity at buildout**
		13.7%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable
CONCLUSIONS									
Based upon metering and adjustments, this reach has nominal marginal capacity for projected buildout flow. Metered peaking factor is unusally low.									

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P21-01 TO MH P21-08
VILLA AVENUE, BARSTOW AVENUE TO BEVERLY AVENUE ALIGNMENT
NO METERING

REFER TO PLATE 4

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**18**	**1.257**	1.95	0.55	**1.71**	**2.148**	2.14	0.82	**Design values for sewer capacity per GIS**
		1.279	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.022	← Raw, unadjusted						Projected unused capacity at buildout
		-1.8%	← Raw, unadjusted						Projected unused capacity at buildout
		1.123	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	18								
	METERING ADJUSTMENT								
									No metering this location.
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.293	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.986	← After calibration adjustment						Adjusted buildout flow per calibration
		0.271	← After calibration adjustment						**Projected unused capacity at buildout**
		21.6%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		0.857	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.400	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		31.8%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Safety factor would be ability to increase upstream diversion, if needed.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P21-08 TO MH P21-14
VILLA AVENUE, BEVERLY AVENUE ALIGNMENT TO SHAW AVENUE
NO METERING

REFER TO PLATE 4

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**18**	**1.257**	1.95	0.55	**1.71**	**2.148**	2.14	0.82	**Design values for sewer capacity per GIS**
		1.422	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.165	← Raw, unadjusted						Projected unused capacity at buildout
		-13.1%	← Raw, unadjusted						Projected unused capacity at buildout
		1.261	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	18								
	METERING ADJUSTMENT								**No metering this location.**
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.329	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.093	← After calibration adjustment						Adjusted buildout flow per calibration
		0.164	← After calibration adjustment						**Projected unused capacity at buildout**
		13.0%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT	*0.174*							Diversion to Fowler Trunk Sewer
		0.129							Adjusted diversion for calibration %
		0.964	← After calibration adjustment & flow diversion						Buildout flow after diversion (per modeling)
		0.293	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**
		23.3%	← After calibration adjustment & flow diversion						**Projected unused capacity at buildout**

CONCLUSIONS

Based upon adjustments, this reach has capacity for projected buildout flow after planned diversion of flow to Fowler Trunk Sewer (via Barstow/Villa Pump Station). Safety factor would be ability to increase upstream diversion, if needed.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P14.37 TO MH P14-40
NINTH STREET ALIGNMENT EAST OF CLOVIS AVENUE
NO METERING, BUT CHECKED FOR EVIDENCE OF MH SURCHARGING

REFER TO PLATE 5

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000620	**8**	**0.097**	0.86	0.50	**2.01**	**0.195**	0.98	0.82	**Design values for sewer capacity per GIS**
		0.113	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.016	← Raw, unadjusted						Projected unused capacity at buildout
		-16.5%	← Raw, unadjusted						Projected unused capacity at buildout
		0.097	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000620	8								
	METERING ADJUSTMENT								
									No metering this location. Manholes inspected, no surcharging detected.
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.025	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.088	← After calibration adjustment						Adjusted buildout flow per calibration
		0.009	← After calibration adjustment						**Projected unused capacity at buildout**
		9.3%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach has nominal marginal capacity for projected buildout flow. This reach should be monitored, particularly if there are any upstream planned land use changes from those assumed.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P15-44 TO MH P15-45
MINNEWAWA AVENUE AT NINTH STREET
NO METERING, BUT CHECKED FOR EVIDENCE OF MH SURCHARGING

REFER TO PLATE 5

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000700	**12**	**0.305**	1.20	0.50	**2.00**	**0.609**	1.37	0.82	**Design values for sewer capacity per GIS**
		0.342	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.037	← Raw, unadjusted						Projected unused capacity at buildout
		-12.1%	← Raw, unadjusted						Projected unused capacity at buildout
		0.310	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000700	12								
	METERING ADJUSTMENT								
									No metering this location. Manholes inspected, no surcharging detected.
	CALIBRATION ADJUSTMENT	*-26.1%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.081	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.261	← After calibration adjustment						Adjusted buildout flow per calibration
		0.044	← After calibration adjustment						**Projected unused capacity at buildout**
		14.4%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach has nominal marginal capacity for projected buildout flow. This reach should be monitored, particularly if there are any upstream planned land use changes from those assumed.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P25-48 TO MH P36-46

SUNNYSIDE AVENUE, SHAW AVENUE TO GETTYSBURG AVENUE

BASED UPON METERING AT MH 25-50 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 6

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.000700	**24**	**2.266**	1.98	0.55	**1.71**	**3.870**	2.17	0.82	**Design values for sewer capacity per GIS**
		2.680	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.414	← Raw, unadjusted						Projected unused capacity at buildout
		-18.3%	← Raw, unadjusted						Projected unused capacity at buildout
		2.230	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.000700	24	1.542	1.80	**0.439**	**1.69**	**2.599**	2.04	**0.600**	Existing flow per metering of 12/2003
	METERING ADJUSTMENT	0.748	← At time of metering		1.69	1.271			Remaining capacity at indicated peaking factor
		2.290	← Effective average flow capacity		**1.69**	**3.870**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		-0.390	← Prior to calibration adjustment						Projected unused capacity at buildout
		-17.0%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-29.0%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.646	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		2.034	← After calibration adjustment						Adjusted buildout flow per calibration
		0.256	← After calibration adjustment						**Projected unused capacity at buildout**
		11.2%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon metering and calibration adjustment, this reach has marginal capacity for projected buildout flow. Reach should be monitored. Should capacity be approached, some flow could be diverted to the Armstrong Interceptor at several key points along Armstrong Avenue.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P13-71 TO MH P13-78

BARSTOW AVENUE, FOWLER AVENUE TO EAST OF SUNNYSIDE AVENUE

BASED UPON METERING AT MH 13-77 TO DETERMINE EFFECTIVE PEAKING FACTOR IN SEWER MAIN

REFER TO PLATE 7

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**12**	**0.364**	1.43	0.50	**2.00**	**0.728**	1.63	0.82	**Design values for sewer capacity per GIS**
		0.429	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.065	← Raw, unadjusted						Projected unused capacity at buildout
		-17.9%	← Raw, unadjusted						Projected unused capacity at buildout
		0.427	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	12	0.400	1.47	**0.529**	**1.49**	**0.596**	1.60	**0.688**	Existing flow per metering of 11/2003
	METERING ADJUSTMENT	0.089	← At time of metering		1.49	0.132			Remaining capacity at indicated peaking factor
		0.489	← Effective average flow capacity		**1.49**	**0.728**			**Calculated flow capacity of sewer (use design peak flow value as basis)**
		0.060	← Prior to calibration adjustment						Projected unused capacity at buildout
		12.2%	← Prior to calibration adjustment						Projected unused capacity at buildout
	CALIBRATION ADJUSTMENT	*-29.0%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.124	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.305	← After calibration adjustment						Adjusted buildout flow per calibration
		0.184	← After calibration adjustment						**Projected unused capacity at buildout**
		37.6%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon metering and calibration adjustment, this reach has capacity for projected buildout flow.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P13-78 TO MH P14-49
BARSTOW AVENUE, EAST OF SUNNYSIDE AVENUE TO SUNNYSIDE AVENUE
NO METERING

REFER TO PLATE 7

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001000	**12**	**0.364**	1.43	0.50	**2.00**	**0.728**	1.63	0.82	**Design values for sewer capacity per GIS**
		0.523	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.159	← Raw, unadjusted						Projected unused capacity at buildout
		-43.7%	← Raw, unadjusted						Projected unused capacity at buildout
		0.518	← Raw, unadjusted						Current flow per modeling calculations
FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001000	12								
	METERING ADJUSTMENT								
									No metering this location
	CALIBRATION ADJUSTMENT	*-29.0%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.150	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.373	← After calibration adjustment						Adjusted buildout flow per calibration
		-0.009	← After calibration adjustment						**Projected unused capacity at buildout**
		-2.5%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach indicates a lack of capacity for projected buildout flow. Additionally, surcharging has been detected in MH 13-78, which may be due to unusual peak flow from Lamonica Stadium. It is recommended that this 15' reach be replaced with 15" pipe.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P03-16 TO MH P10-75
WOODWORTH AVENUE SOUTH OF SIERRA AVENUE TO FIRST & DeWITT AVENUES
NO METERING

REFER TO PLATE 8

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.001690	**8**	**0.161**	1.43	0.50	**2.00**	**0.321**	1.62	0.82	**Design values for sewer capacity per GIS**
		0.163	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.002	← Raw, unadjusted						Projected unused capacity at buildout
		-1.2%	← Raw, unadjusted						Projected unused capacity at buildout
		0.129	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.001690	8								
	METERING ADJUSTMENT								
									No metering this location.
	CALIBRATION ADJUSTMENT	*-30.3%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.039	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		0.124	← After calibration adjustment						Adjusted buildout flow per calibration
		0.037	← After calibration adjustment						**Projected unused capacity at buildout**
		23.0%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

CONCLUSIONS

Based upon calibration adjustment, this reach has nominal capacity for projected buildout flow.

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

SUPPLEMENTAL HYDRAULIC CALCULATIONS FOR POTENTIALLY IMPACTED SEWERS

MH P04-06 TO MH P04-07
HERNDON AVENUE AT MINNEWAWA AVENUE
NO METERING

REFER TO PLATE 9

DESIGN VALUES			
AVERAGE FLOW CAPACITY DEPTH (d/D)			0.55
PEAK FLOW CAPACITY DEPTH (d/D)			0.82
MANNING'S N			0.0130
DIAMETER (IN)	MINIMUM PEAKING FACTOR		MAXIMUM d/D AT AVG. FLOW
6	2.50		0.44
8-12	2.00		0.50
15-42	1.71		0.55

DESIGN VALUES FROM MODELING CALCULATIONS USING GIS DATA (UNADJUSTED)									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG DSN FL VELOCITY (FPS)	AVG FL CAPACITY DEPTH (d/D)	PEAKING FACTOR	PEAK FLOW CAPACITY (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL CAPACITY DEPTH (d/D)	COMMENT
0.002000	**18**	**1.778**	2.76	0.55	**1.71**	**3.037**	3.03	0.82	**Design values for sewer capacity per GIS**
		1.848	← Raw, unadjusted						Buildout flow per modeling calculations
		-0.070	← Raw, unadjusted						Projected unused capacity at buildout
		-3.9%	← Raw, unadjusted						Projected unused capacity at buildout
		1.390	← Raw, unadjusted						Current flow per modeling calculations

FLOW METERING AND CALCULATED VALUES FROM METERING; OTHER ADJUSTMENTS									
SLOPE (FT/FT)	PIPE DIAM (IN)	AVG FLOW (MGD)	AVG FLOW VELOCITY (FPS)	AVG FL DEPTH (d/D)	INDICATED PEAKING FACTOR	PEAK FLOW (MGD)	PEAK DSN FL VELOCITY (FPS)	PK FL DEPTH (d/D)	COMMENT
0.002000	18								
	METERING ADJUSTMENT								
									No metering this location.
	CALIBRATION ADJUSTMENT	*-30.3%*	← From summary calculations for Service Area						Adjustment of current flow per calibration
		-0.421	← Apply to unadjusted buildout flow						Adjustment to modeled current flow
		1.427	← After calibration adjustment						Adjusted buildout flow per calibration
		0.351	← After calibration adjustment						**Projected unused capacity at buildout**
		19.7%	← After calibration adjustment						**Projected unused capacity at buildout**
	FLOW DIVERSION ADJUSTMENT								
									Flow diversion adjustment not applicable

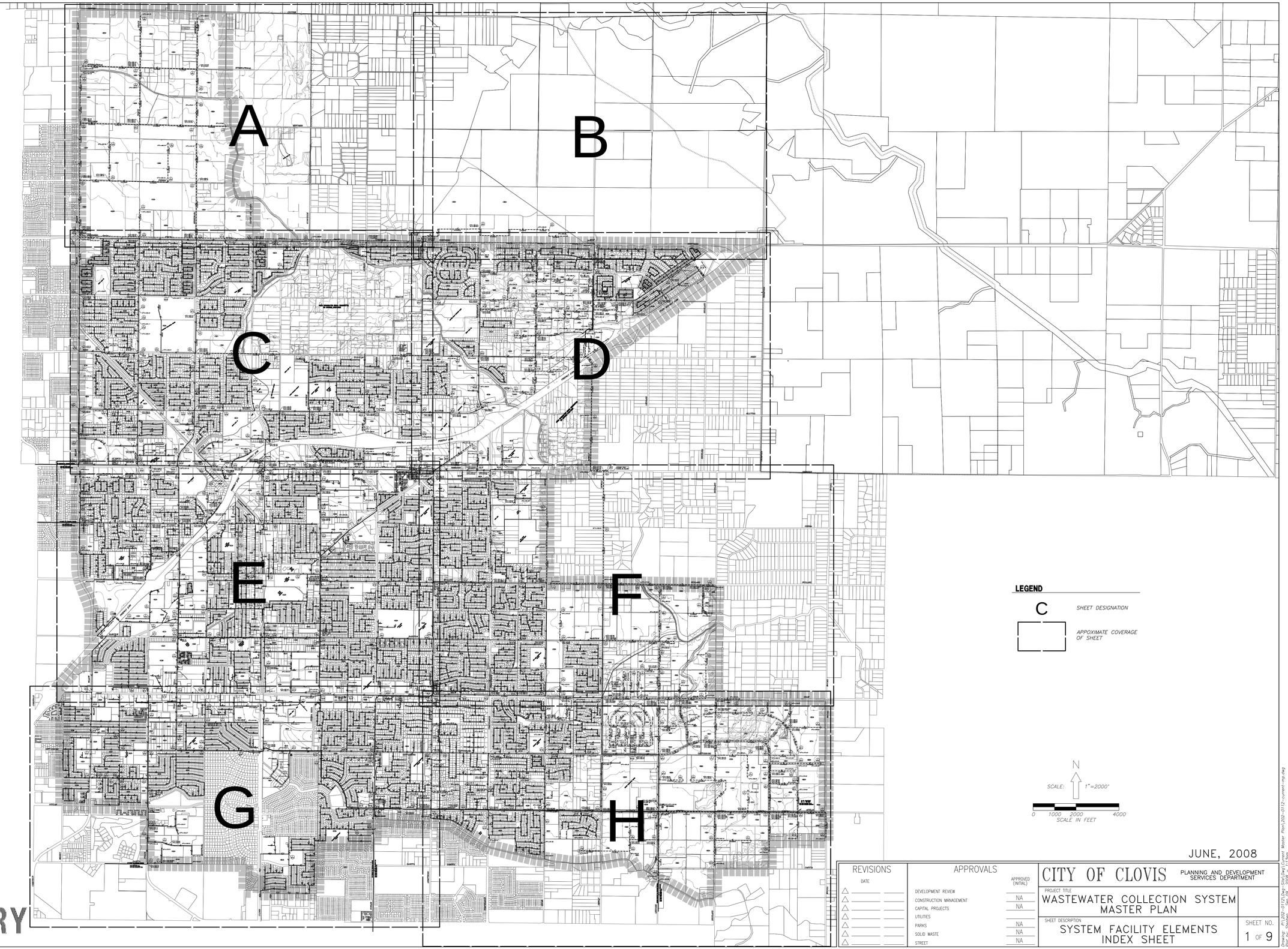
CONCLUSIONS

Based upon calibration adjustment, this reach has nominal capacity for projected buildout flow (including the flow from the area which is master planned to be diverted to the Fowler Service Area by way of the Armstrong Interceptor).

	Insert data in this cell	*Italic entry*	Insert link to modeling calculations
	Insert flow depth in formula utilizing metering data		All unshaded cells autocalculate.

APPENDIX D

MASTER PLAN PLATS – SYSTEM FACILITY ELEMENTS



LEGEND

C — SHEET DESIGNATION

APPOXIMATE COVERAGE OF SHEET

N

SCALE: 1"=2000'

0 1000 2000 4000
SCALE IN FEET

JUNE, 2008

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS INDEX SHEET

SHEET NO. 1 OF 9

PRELIMINARY

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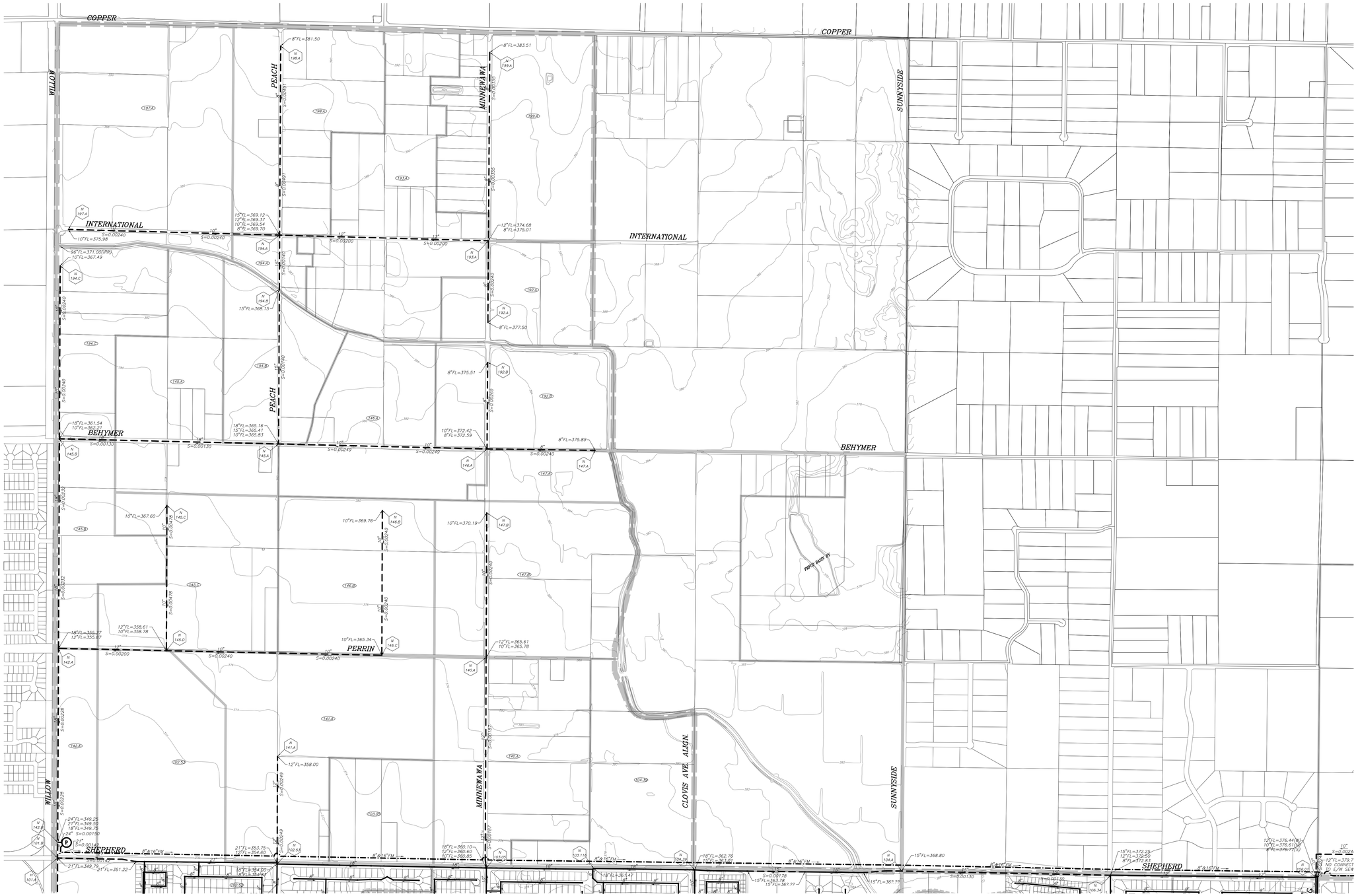

JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER (12" SIERRA T.S. REGIONAL SYSTEM; 0.50 MGD FLOW CAP.; 0.50 MGD TREATMENT CAP.)
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS	
DATE	

APPROVALS	APPROVED (INITIAL)
DEVELOPMENT REVIEW	
CONSTRUCTION MANAGEMENT	NA
CAPITAL PROJECTS	NA
UTILITIES	
PARKS	NA
SOLID WASTE	NA
STREET	NA

CITY OF CLOVIS
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
SYSTEM FACILITY ELEMENTS SHEET A

SHEET NO. 2 OF 9

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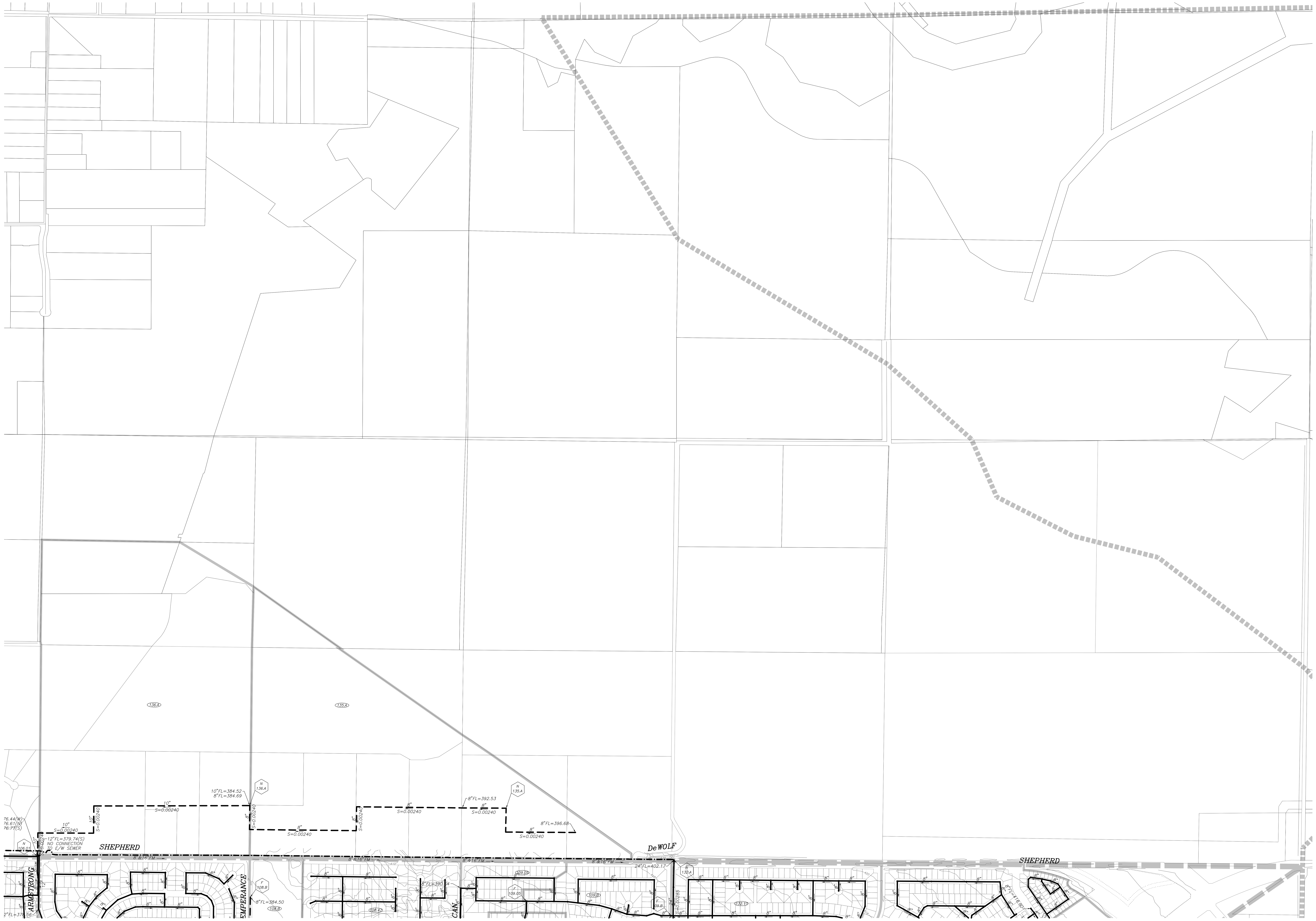

JUNE, 2008

LEGEND

EXISTING SEWER LINE	CLOVIS SPHERE OF INFLUENCE BOUNDARY
PROPOSED SEWER LINE	TRUNK SEWER SERVICE AREA BOUNDARY
EXISTING FORCE MAIN	SUBSERVICE AREA BOUNDARY
PROPOSED FORCE MAIN	CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
EXISTING PUMP STATION	12" SIERRA T.S. (REGIONAL SYSTEM) REGIONAL TRUNK SEWER
PROPOSED PUMP STATION	0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. CONTRACT CAPACITY (ADF)

- NODE DESIGNATION
  - TRUNK SEWER SYSTEM INDICATOR
  - MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

PRELIMINARY

REVISIONS	APPROVALS	APPROVED (INITIAL)
DATE	DEVELOPMENT REVIEW	
	CONSTRUCTION MANAGEMENT	NA
	CAPITAL PROJECTS	NA
	UTILITIES	
	PARKS	NA
	SOLID WASTE	NA
	STREET	NA

CITY OF CLOVIS
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
SYSTEM FACILITY ELEMENTS SHEET B

SHEET NO. 3 OF 9

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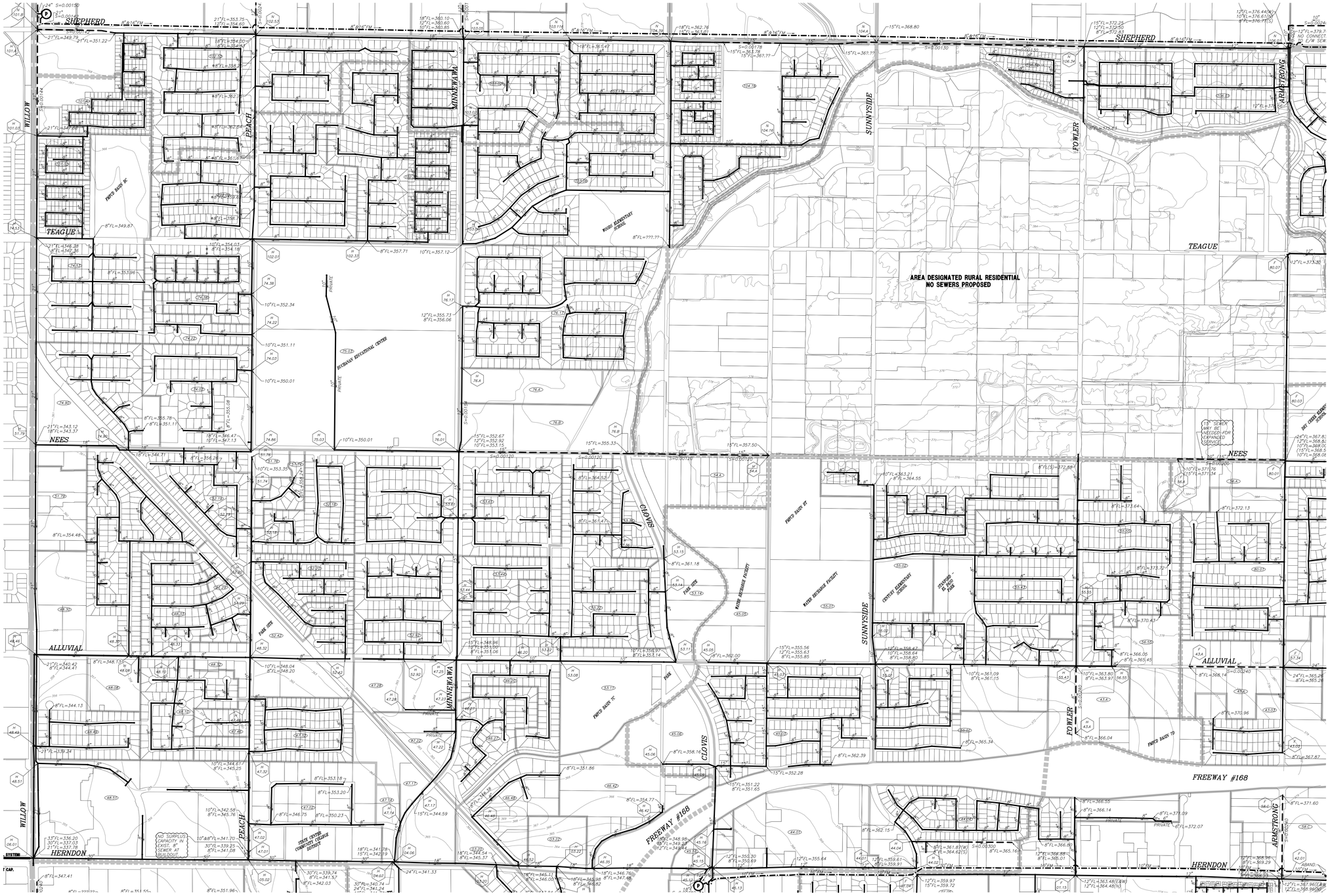

JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS	
DATE	
△	
△	
△	
△	
△	
△	
△	

APPROVALS	APPROVED (INITIAL)
DEVELOPMENT REVIEW	
CONSTRUCTION MANAGEMENT	NA
CAPITAL PROJECTS	NA
UTILITIES	
PARKS	NA
SOLID WASTE	NA
STREET	NA

CITY OF CLOVIS
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
SYSTEM FACILITY ELEMENTS SHEET C

SHEET NO. 4 OF 9

Drawing: P:\1202-01\01\Dwg-Dsn\Current Master Plan\1202-01\P-current-map.dwg
Plot by: Stephen Sep 05, 2008 - 10:51am

JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS SHEET D

SHEET NO. 5 OF 9

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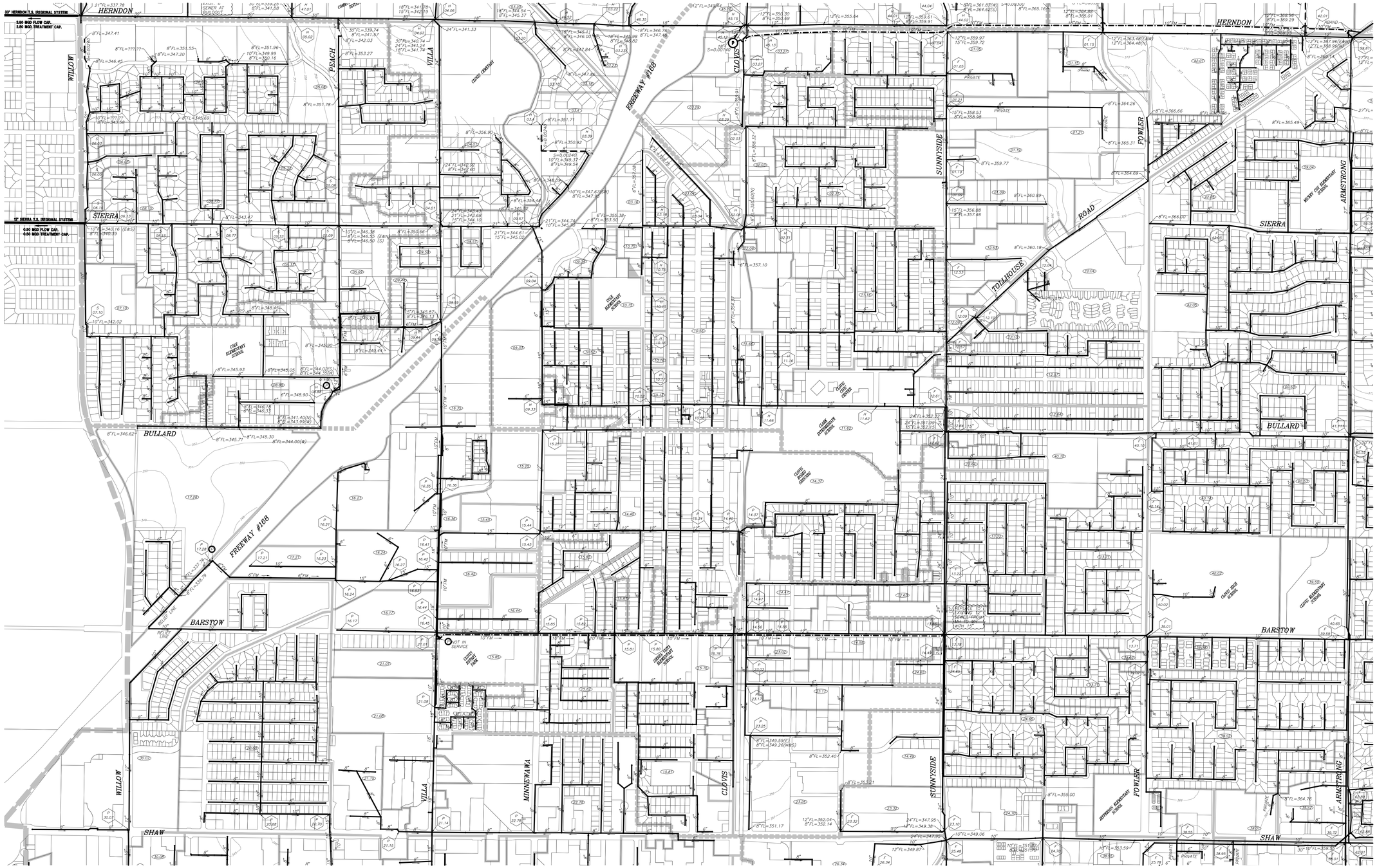

JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE (S=0.00240)
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER (12" SIERRA T.S. (REGIONAL SYSTEM); 0.50 MGD FLOW CAP.; 0.50 MGD TREATMENT CAP.)
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION / TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

PRELIMINARY

REVISIONS	
DATE	

APPROVALS	APPROVED (INITIAL)
DEVELOPMENT REVIEW	
CONSTRUCTION MANAGEMENT	NA
CAPITAL PROJECTS	NA
UTILITIES	
PARKS	NA
SOLID WASTE	NA
STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS SHEET E

SHEET NO. 6 OF 9

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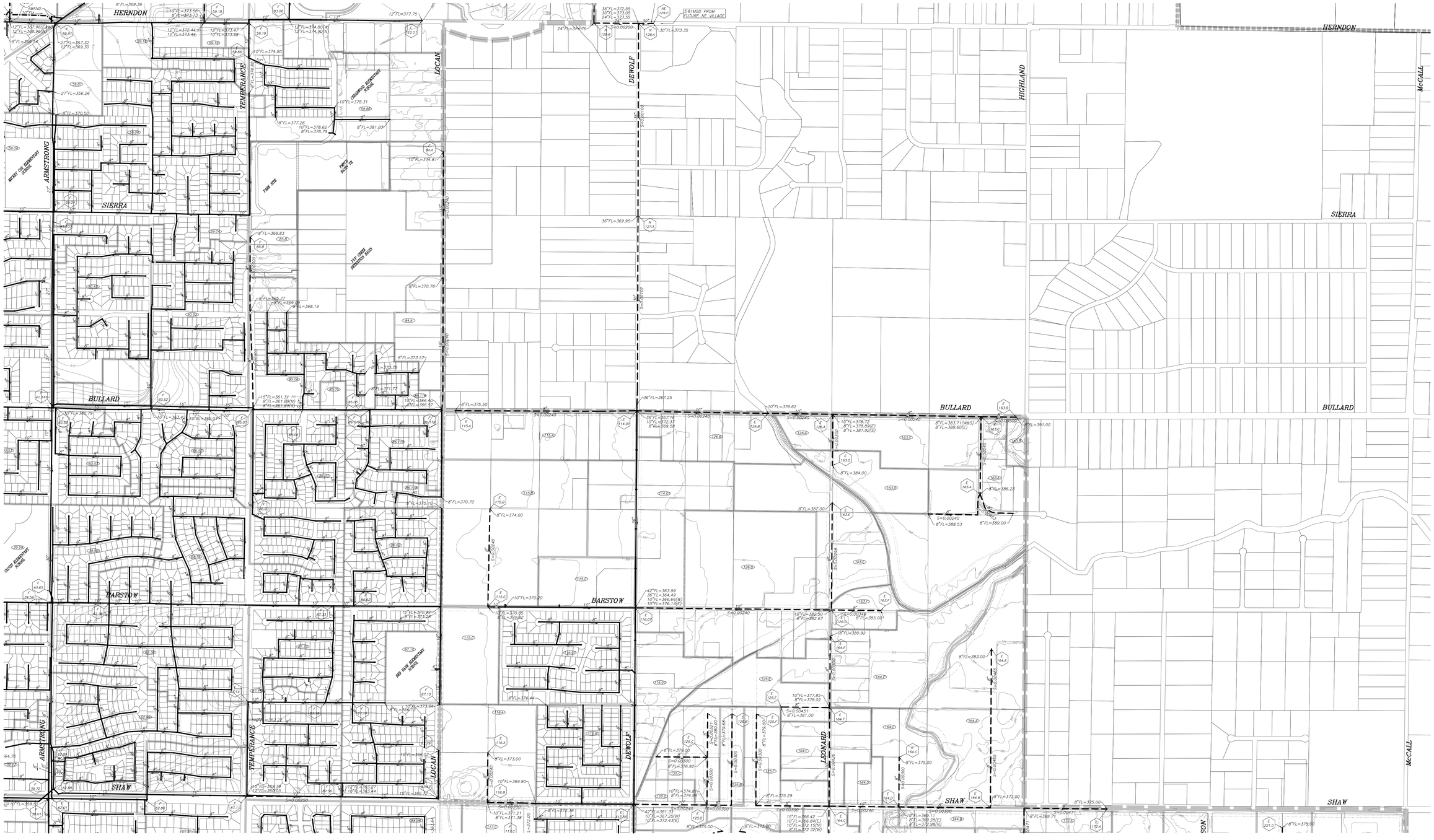

JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS SHEET F

SHEET NO. 7 OF 9

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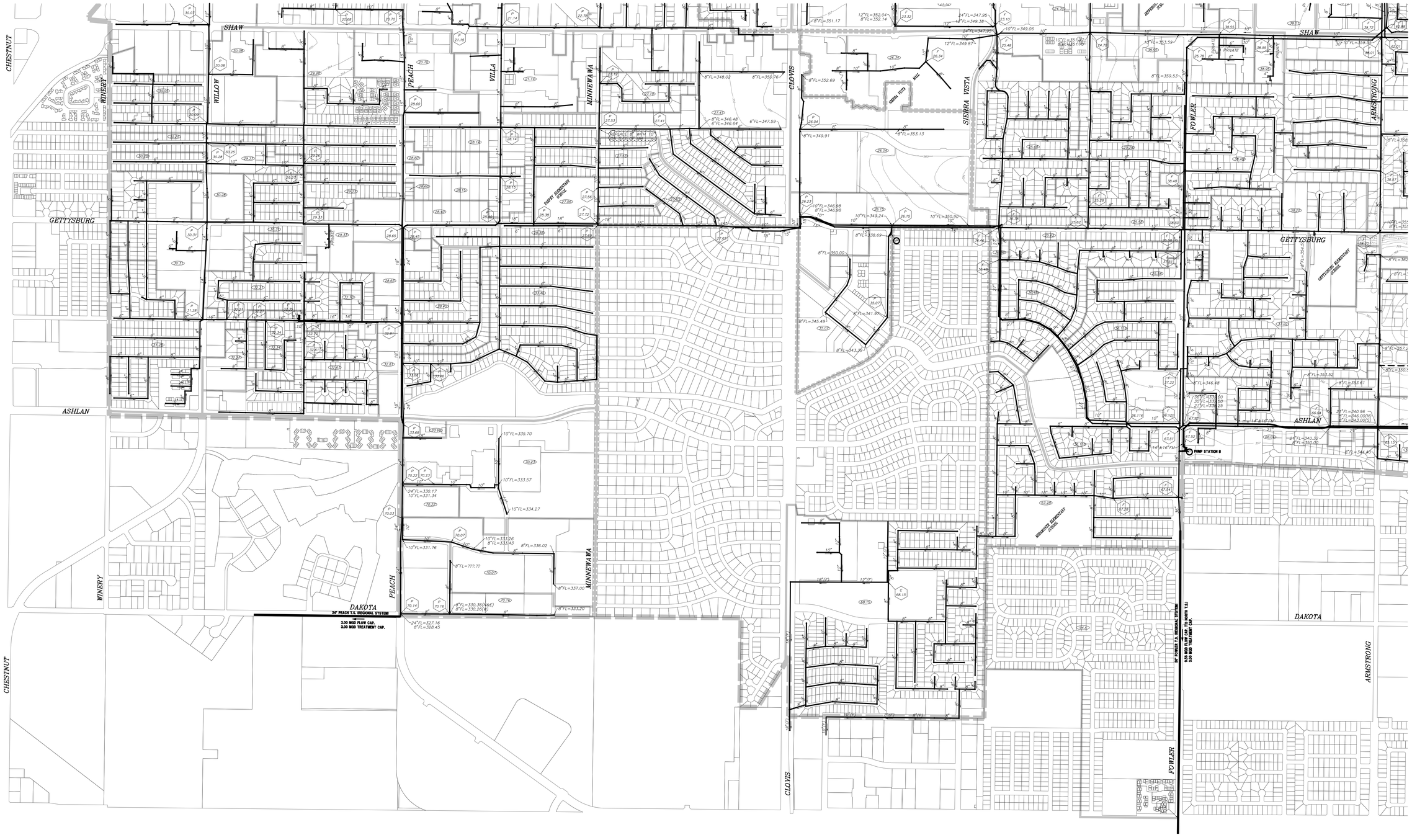

JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

PRELIMINARY

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS SHEET G

SHEET NO. 8 OF 9

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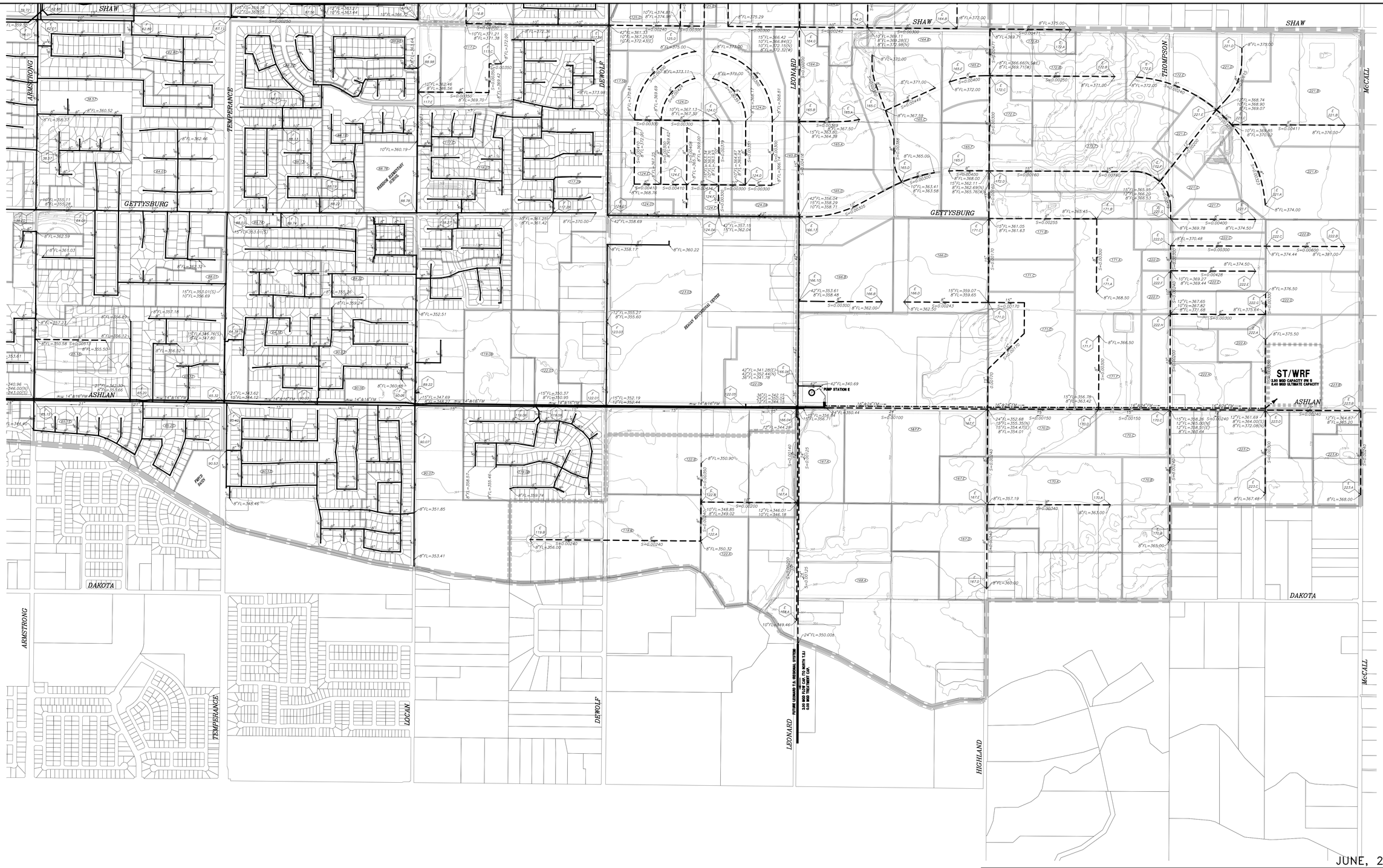


JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

PRELIMINARY

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

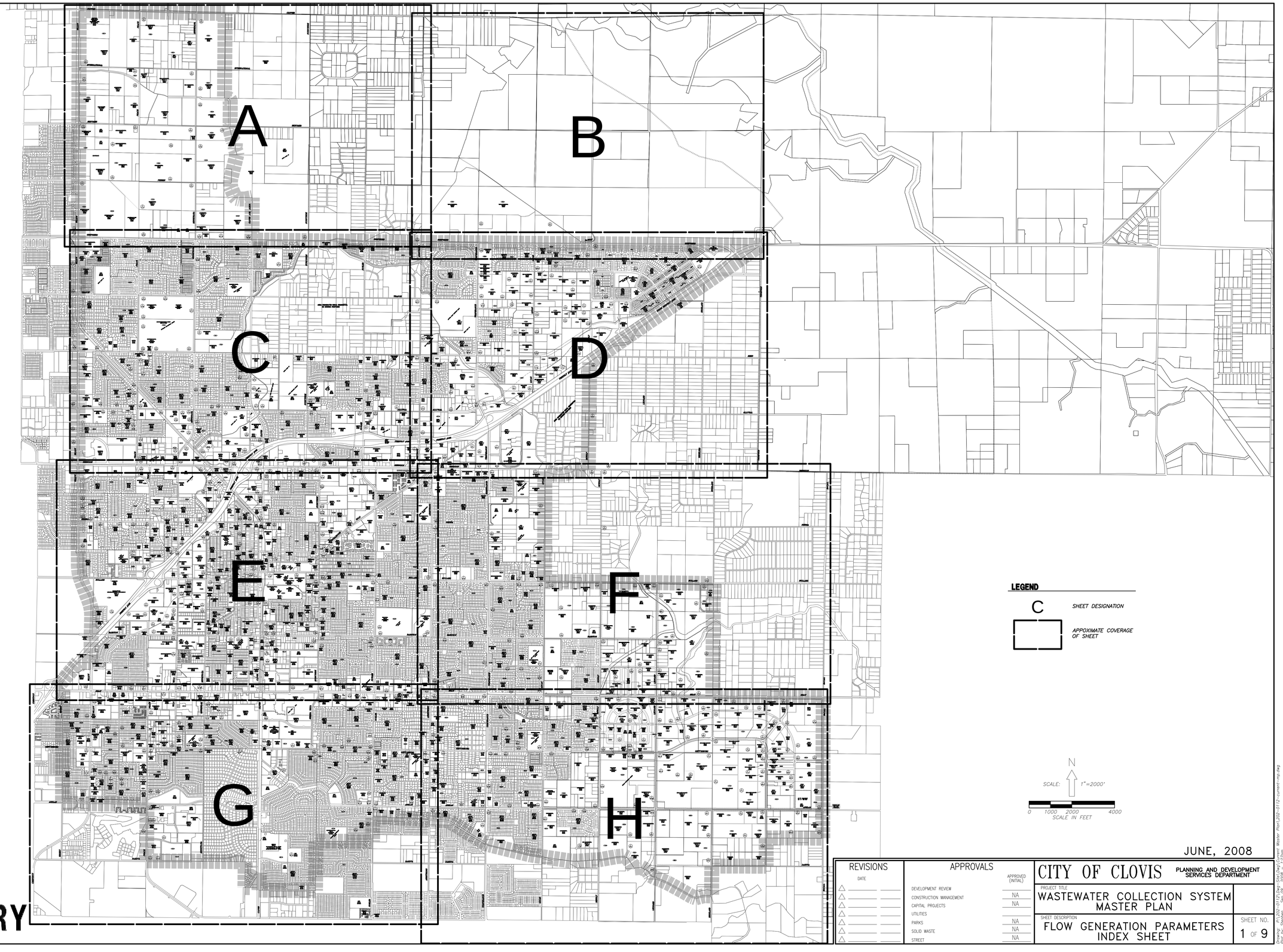
SHEET DESCRIPTION: SYSTEM FACILITY ELEMENTS SHEET H

SHEET NO. 9 OF 9

Drawing: H:\202-0172\Dwg\Current Master Plan\202-0172-current-map.dwg
Plot by: Stephen Sep 03, 2008 - 1:03pm

APPENDIX E

MASTER PLAN PLATS – FLOW GENERATION PARAMETERS



PRELIMINARY

JUNE, 2008

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS

PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
FLOW GENERATION PARAMETERS INDEX SHEET

SHEET NO.
1 OF 9

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Plot by: Stephen Sep 09, 2008 - 1:27pm

JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET A

SHEET NO. 2 OF 9

Drawing: P:\1202-01\12\Dwg-Dsn\Dwg\Current Master Plan\202-0112-current-map.dwg
Plot by: Stephen Sep 09, 2008 - 10:07am

JUNE, 2008

LEGEND

	EXISTING SEWER LINE		CLOVIS SPHERE OF INFLUENCE BOUNDARY		NODE DESIGNATION
S=0.00240	PROPOSED SEWER LINE		TRUNK SEWER SERVICE AREA BOUNDARY		TRUNK SEWER SYSTEM INDICATOR MANHOLE DESIGNATION
	EXISTING FORCE MAIN		SUBSERVICE AREA BOUNDARY		SUBSERVICE AREA DESIGNATION
	PROPOSED FORCE MAIN		CLOVIS GENERAL PLAN DESIGNATION BOUNDARY		EXISTING PARCEL
	EXISTING PUMP STATION	12" SIERRA T.S. (REGIONAL SYSTEM)	REGIONAL TRUNK SEWER		SE SPECIFIC PLAN FEATURE
P	PROPOSED PUMP STATION	0.50 MGD FLOW CAP. 0.50 MGD TREATMENT CAP.	CONTRACT CAPACITY (ADF)		SURFACE ELEVATION CONTOUR (APPROX)

PRELIMINARY

N

0 100 300 600 1200
SCALE IN FEET

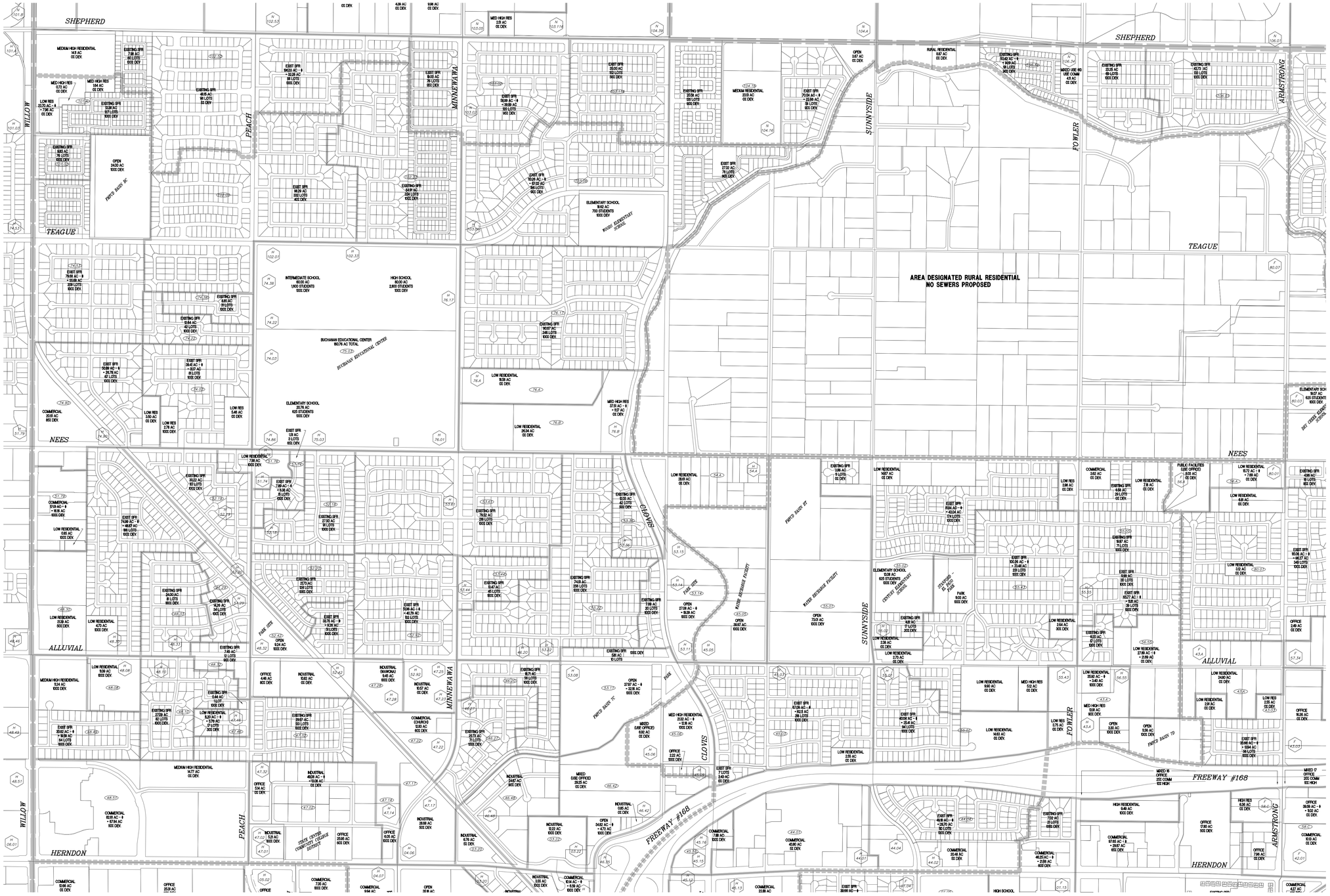
REVISIONS	APPROVALS		
DATE		APPROVED (INITIAL)	
	DEVELOPMENT REVIEW		
	CONSTRUCTION MANAGEMENT	NA	
	CAPITAL PROJECTS	NA	
	UTILITIES		
	PARKS	NA	
	SOLID WASTE	NA	
	STREET	NA	

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
FLOW GENERATION PERAMETERS SHEET B

SHEET NO. 3 OF 9



JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.50 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR — MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET C

SHEET NO. 4 OF 9

Drawing: P:\1222-01\12\Dwg-Dsn\Dwg\Current Master Plan\202-0712-current-map.dwg
Plot by: Stephen Sep 09, 2008 - 10:10am

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

JUNE, 2008

REVISIONS	APPROVALS	APPROVED (INITIAL)
DATE	DEVELOPMENT REVIEW	
	CONSTRUCTION MANAGEMENT	NA
	CAPITAL PROJECTS	NA
	UTILITIES	
	PARKS	NA
	SOLID WASTE	NA
	STREET	NA

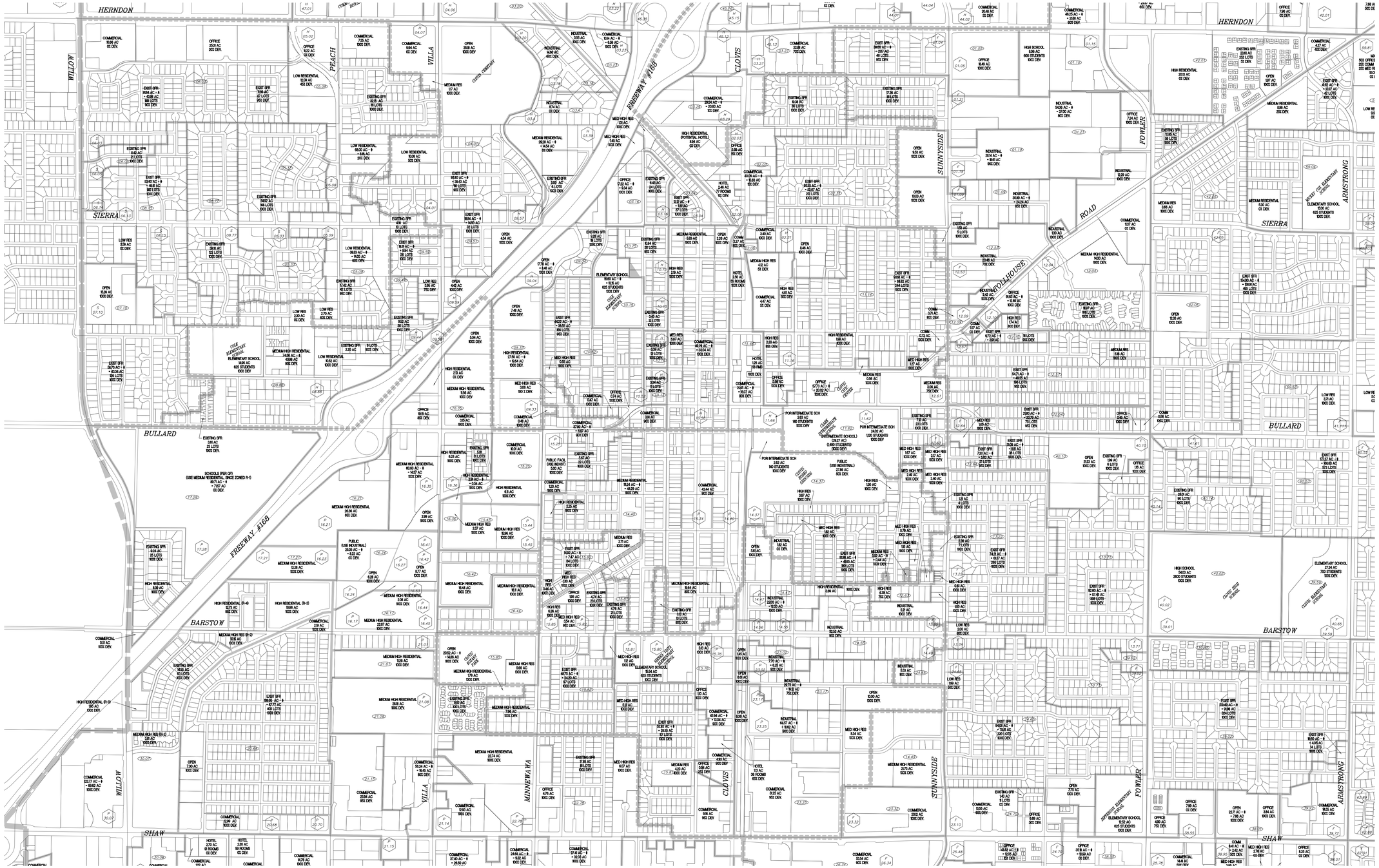
CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET D

SHEET NO. 5 OF 9

Drawing: P:\2202-0112\Dwg-Sld\Dwg\Current Master Plan\2202-0112-current-mp.dwg
Plot by: Stephen Sep 05, 2008 - 10:12am



JUNE, 2008

PRELIMINARY

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.A. REGIONAL SYSTEM — 0.50 MGD FLOW CAP., 0.00 MGD TREATMENT CAP.
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET E

SHEET NO. 6 OF 9

Drawing: P:\1202-01\12-Dev-Doc-Dwg\Sewer Master Plan\1202-0112-current-mp.dwg
Plot by: Stephen Sep 05, 2008 - 10:14am

JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

PRELIMINARY

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS	
DATE	

APPROVALS	APPROVED (INITIAL)
DEVELOPMENT REVIEW	
CONSTRUCTION MANAGEMENT	NA
CAPITAL PROJECTS	NA
UTILITIES	
PARKS	NA
SOLID WASTE	NA
STREET	NA

CITY OF CLOVIS
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE
WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION
FLOW GENERATION PERAMETERS SHEET F

SHEET NO. 7 OF 9

Drawing: P:\2007-0112\Dwg\2007-0112-current-master.dwg
Plot by: Stephen Sep 05, 2008 - 10:18am

JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- 12" SIERRA T.S. REGIONAL SYSTEM — REGIONAL TRUNK SEWER
- 0.50 MGD FLOW CAP. / 0.00 MGD TREATMENT CAP. — CONTRACT CAPACITY (ADF)
- NODE DESIGNATION — TRUNK SEWER SYSTEM INDICATOR / MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

N

0 100 300 600 1200
SCALE IN FEET

PRELIMINARY

REVISIONS		
DATE		
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APPROVALS	APPROVED (INITIAL)
DEVELOPMENT REVIEW	
CONSTRUCTION MANAGEMENT	NA
CAPITAL PROJECTS	NA
UTILITIES	
PARKS	NA
SOLID WASTE	NA
STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET G

SHEET NO. 8 OF 9

Drawing: P:\1202-01\12-Dev\Dev\Current Master Plan\202-0112-current-map.dwg
Plot by: Stephen Sep 09, 2008 - 10:20am

JUNE, 2008

LEGEND

- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PUMP STATION
- PROPOSED PUMP STATION
- CLOVIS SPHERE OF INFLUENCE BOUNDARY
- TRUNK SEWER SERVICE AREA BOUNDARY
- SUBSERVICE AREA BOUNDARY
- CLOVIS GENERAL PLAN DESIGNATION BOUNDARY
- REGIONAL TRUNK SEWER
- CONTRACT CAPACITY (ADF)
- NODE DESIGNATION
- TRUNK SEWER SYSTEM INDICATOR
- MANHOLE DESIGNATION
- SUBSERVICE AREA DESIGNATION
- EXISTING PARCEL
- SE SPECIFIC PLAN FEATURE
- SURFACE ELEVATION CONTOUR (APPROX)

PRELIMINARY

N

0 100 300 600 1200
SCALE IN FEET

REVISIONS		APPROVALS	APPROVED (INITIAL)
DATE		DEVELOPMENT REVIEW	
		CONSTRUCTION MANAGEMENT	NA
		CAPITAL PROJECTS	NA
		UTILITIES	
		PARKS	NA
		SOLID WASTE	NA
		STREET	NA

CITY OF CLOVIS — PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

PROJECT TITLE: WASTEWATER COLLECTION SYSTEM MASTER PLAN

SHEET DESCRIPTION: FLOW GENERATION PERAMETERS SHEET H

SHEET NO. 9 OF 9

Drawing: H:\202-0112\Dwg\Civil\Dwg\Current Master Plan\202-0112-current-mp.dwg
Plot by: Stephen Sep 03, 2008 - 1:24pm