

Attachment 2.12-6
Stormwater Drainage Summary
GWF – Henrietta, Kings Co, CA
August 20, 2001

Site Description

The Henrietta site is located in Kings County, CA approximately 10 miles northwest of Lemoore, CA. The property is bounded by 25th Avenue to the west, the PG&E Henrietta Sub-Station to the north, and undeveloped land to the south and east. Elevations on site range from 222.0 feet in the southeastern corner to 225.0 ft in the northwestern corner. The terrain is essentially flat with the steepest grade across the site being 0.14% from the southeastern corner to the northwestern corner. There is an existing ditch along 25th Avenue and along the northern property line approximately 18” deep.

Onsite Drainage

The runoff from the project will be managed with the use of trench drains, shallow ditches, and CHDPE storm piping systems. All of the storm water runoff will be collected into a large, shallow retention pond to the east of the power block that will rely on percolation and evaporation for drainage. The volume of the pond will be determined based on a 10 Year – 10 day storm event (4 inches rainfall – Kings County Public Works Improvement Standards for Private Retention Basins). Peak flows for storm pipes and culverts will be calculated using the Rational Method based on a 25 Yr-24 Hr Storm and will be designed using Mannings Equations.

The area north of the main transformer including the administration building and parking and the switch yard will drain to the north to a series of catch basins along to northern loop road. This area will include the northern loop road that will be super elevated to drain towards the catch basins. The runoff will be collected in the catch basins then carried to the retention basin by HDPE pipes.

The area south of the administration parking and the area within the main loop road that includes the turbines will be crowned in the middle so that runoff will flow to the north to a series of catch basins and to the south to a trench drain. The runoff that will be collected in the catch basins will be carried to the retention basin by HDPE pipes. The runoff collected in the trench drain will be carried to a catch basin south of the turbines and carried to the retention pond by HDPE pipes.

The southern portion of the loop road will be super elevated to drain towards the trench drain.

The entire area east of the eastern most unit will sheet flow over the super elevated loop road to the east into the retention basin.

Offsite Drainage

There is no offsite runoff draining through the property.

Stormwater Drainage Calculations

Objective:

Calculate the stormwater runoff rates for the Site, size the stormwater collection systems (pipes, channels, and culverts), and size the retention basin and check for sediment capacity along with other Best Management Practices.

References:

1. Elements of Urban Stormwater Design, H. Rooney Malcom, PE, NCSU 1995
2. Kings County, California Public Works Improvement Standards Manual
3. Bank and Channel Lining Procedures, New York Department of Transportation, Division of Design and Construction, 1971
4. Hydraulic Design of Highway Culverts, US Department of Transportation, Federal Highway Administration, 1985
5. Multi-Drain Econo-Drain brand Trench Drain Systems

Contents of Calculations

- I Retention Pond Size