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Tiffany K. Wright
twright@rmmenvirolaw.com

March 24, 2014

Via U.S. Mail

Glen Campora, Assistant Deputy Director
Paul McDougal, Program Manager
Department of Housing and Community Development
P.O. Box 952053
Sacramento, CA 94252-2053

Re: County of Humboldt 2014 Draft Housing Element Amendment

Dear Mr. Campora and Mr. McDougall:

Our office represents the McKinleyville Community Services District ("MCSD"). MCSD is responsible for providing wastewater, water, parks and recreation, library and street lighting for the McKinleyville Community Planning Area, located within Humboldt County.

MCSD recently received a copy of the County of Humboldt's 2014 Draft Housing Element and have a comment about the information presented in Attachment J to Housing Element Appendix G. Attachment J contains the "Detail of Infrastructure and Service Needs of Legacy Communities," including McKinleyville. Government Code Section 65583.2(b)(5) requires that a Housing Element include a general description of existing or planned water, sewer, and other dry utilities supply, including the availability and access to distribution facilities. The information discussed in Attachment J relating to the sewer capacity in McKinleyville, however, is inaccurate.

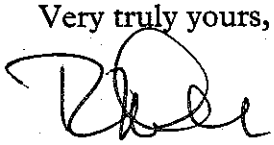
In September 2013, MCSD requested the preparation of an analysis of its future capacity at its wastewater collection system. (MCSD Sewer Capacity Analysis (August 2013), prepared by SHN, Attachment A.) The MCSD Sewer Capacity Analysis focused primarily on the review of the available capacity in the three main gravity transmission lines that convey wastewater from the east side of Highway 101 to the wastewater management facility (WWMF) located west of Highway 101. As all the lateral sewer lines in the service area feed into the main gravity transmission lines, the main gravity transmission lines are the primary limiting factor for the collection system capacity. The amount of available capacity in a sewer system will vary based on the storm event selected for the rainfall-derived infiltration and inflow (RDII) analysis. RDII is the term used to define a sewer's response to rainfall. RDII represents the additional flow in a sewer above the normal dry-weather base sanitary flow due to wet-weather storm events.

The discussion for McKinleyville in Attachment J acknowledges the MCSD Sewer Capacity Analysis prepared by SHN and submitted to the County on September 18, 2013. (Attachment J to Housing Element Appendix G, p. 33.) But the discussion of the MCSD Sewer Capacity Analysis in Attachment J ignores the conclusion of that report that, while there is currently capacity remaining in the three gravity trunk lines that convey wastewater from the east to the west side of Highway 101 under *existing* flow conditions, when a twenty-five year RDII event is considered, *limited capacity is available* to new residential units. Furthermore, RDII is the main cause of sanitary sewer overflows (SSOs) to basements, streets, or nearby streams and it can also cause serious operating problems at wastewater treatment facilities. It is therefore a critical consideration in planning for adequate sewer service. While Attachment J discusses potential wastewater system upgrades identified in the Administrative Draft Wastewater Facilities Plan, including recommended improvements to the collection system network (specifically the central gravity main line and southern gravity main line), only the central gravity mainline upgrade is planned and no improvements are currently funded; thus, implementation cannot be assumed. (Attachment J to Housing Element Appendix G, p. 34.)

Therefore, based on this information, the County's conclusion in Attachment J that "[n]o public health problems or other limitations associated with the McKinleyville CSD wastewater system have been identified" appears to be incorrect. (Attachment J to Housing Element Appendix G, p. 35.) Attachment J inaccurately suggests that MCSD's current system has capacity for future additional residential development.

Under separate cover, MCSD has suggested to the County that it should modify Attachment J to reflect the analysis and findings of the September 18, 2013 MCSD Sewer Capacity Analysis. MCSD is providing these comments to HCD because they implicate the accuracy of the version of the Draft 2014 Housing Element that Humboldt County submitted to HCD on February 6, 2014 and the County's compliance with its requirement under Government Code Section 65583.2(b)(5).

Very truly yours,



Tiffany K. Wright

Enclosure

cc: Kevin R. Hamblin AICP, Director, Humboldt County Community Development Services
Carolyn Ruth, County Counsel, County of Humboldt

Attachment A

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Reference: 011034.150

September 18, 2013

Mr. Greg Orsini, General Manager
McKinleyville Community Services District
PO Box 2037
McKinleyville, CA 95519

Subject: Sewer Capacity Analysis, MCSD Sewer Collection System, McKinleyville, California, Revision 1

Dear Mr. Orsini:

SHN Consulting Engineers & Geologists, Inc. (SHN) has prepared this sewer capacity analysis for the McKinleyville Community Services District (MCSD) wastewater management facility (WWMF) sanitary sewer collection system. This analysis provides information as requested by MCSD to determine the remaining available capacity in the three gravity trunk lines that convey wastewater from the east side of Highway 101 to the west side of Highway 101, where the WWMF is located (Figure 1).

Sewer Capacity Analysis

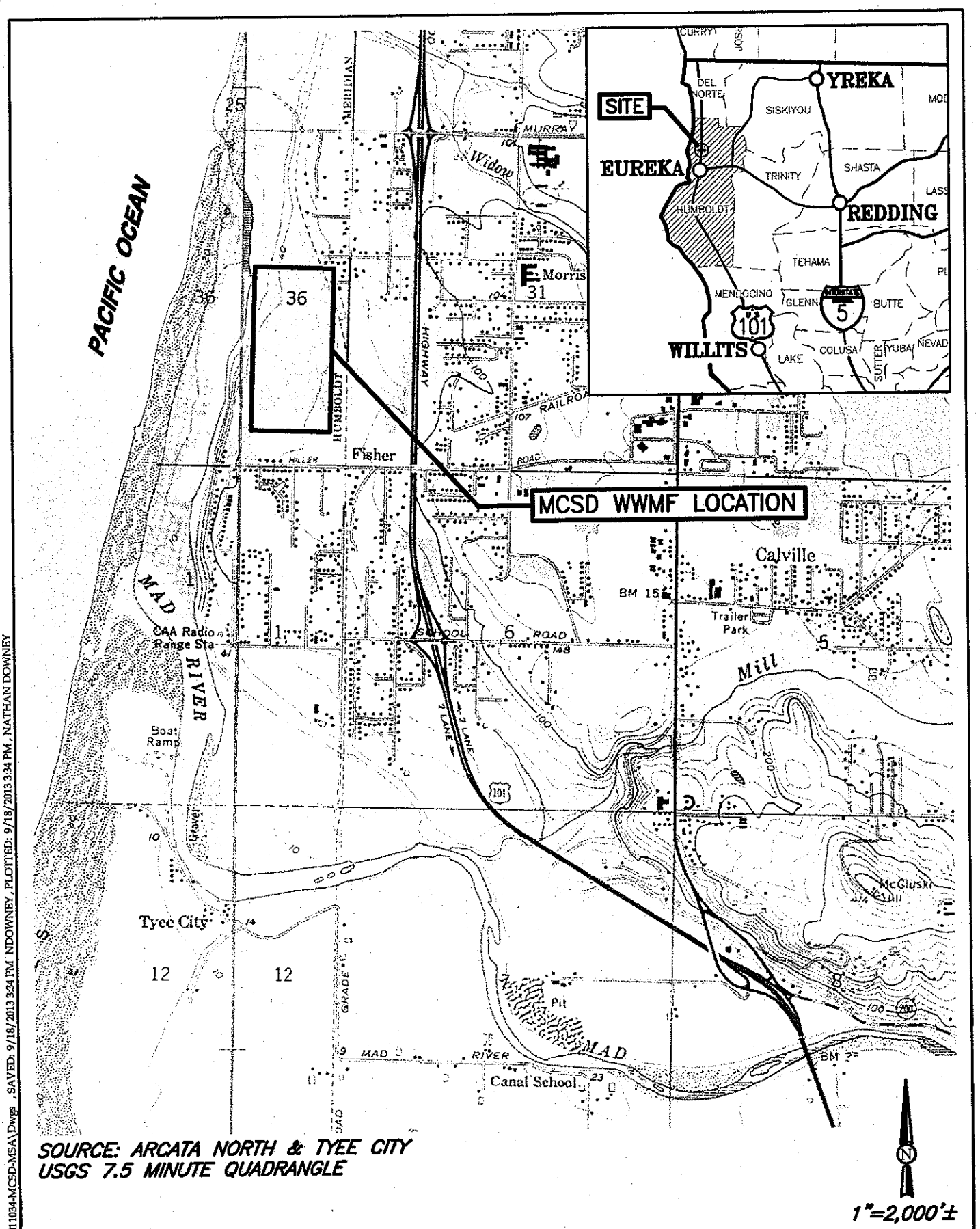
Sewer Model Development

SHN developed a preliminary model of the sanitary sewer collection system as part of the 20-year facility planning process for the WWMF. A complete description of the model development process and the baseline assumptions used in the model setup are presented in the 20 Year Facility Plan for the WWMF (SHN, 2012). Minor adjustments were made to the model in June 2013 to address recent, verified as-built conditions that were not previously reflected in the geographic information system (GIS) data used for the base layer information in the model.

Sewer Model Results – Existing Conditions

SHN used the model to evaluate the existing available capacity in the three gravity trunk lines (referred to as the north, middle, and south crossing locations) under varying flow conditions. Table 1 shows a summary of the hydraulic capacity of the limiting segments for each crossing location. The limiting segments were those sections of the three gravity trunk lines with the lowest design flow capacity.

As shown in Table 1, the limiting segment for the northern crossing has more flow capacity than the downstream pump station, based on firm capacity. Firm capacity is the capacity of the pump station assuming the largest pump is out of service. For the northern crossing location, the total flow capacity was set to the firm capacity of the pump station. For the middle and south crossing locations, the total flow capacity was based on the design flow for the gravity trunk lines.



Consulting Engineers & Geologists, Inc.	McKinleyville Community Services District Wastewater Management Facility McKinleyville, California	Site Location Map SHN 011034.150
	September 2013 | 011034-150-SITE-LCTN	Figure 1

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Table 1
Summary of Limiting Segments
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Model Link	Pipe Diameter (inches)	Slope (%)[1]	Design Flow (gpm)[2]	Pump Station Capacity[3] (gpm)
1	North (Line 2)	1190	15	0.35	1,484	673
3	Middle (Line 5)	1079	10	0.45	573	836
4	South (Line 3)	1182	15	0.20	1,112	1,614

1. %: percent
2. gpm: gallons per minute
3. Pump station capacity estimate is based on firm capacity of the downstream pump station.

Table 2 provides a summary of the estimated remaining available capacity at each crossing location under existing flow conditions with no additional rainfall derived infiltration and inflow (RDII)[1] included in the analysis. Total remaining available capacity was estimated by subtracting the peak flow rate, based on model results, from the total flow capacity. Adjustments were made to account for the average peaking factor (1.34) applied as part of the sanitary time step pattern. The number of equivalent dwelling units (EDUs) that could be serviced with the remaining available capacity was estimated assuming an average dry weather flow of 0.125 gallons per minute (gpm) per EDU. Further description of the methods used to develop the sanitary system time step pattern and dry weather flow allocation are included in the 20 Year Facility Plan (SHN, 2012).

Sewer Model Results—Design Storm Evaluation

MCSD is covered under the California State Water Resources Control Board (SWRCB) statewide general waste discharge requirements (WDRs) for sanitary sewer systems in (Order No. 2006-0003-DWQ). In accordance with the WDRs, MCSD is required to provide adequate capacity in the collection system to convey base flows and peak flows, including flows related to wet weather events. However, the statewide WDRs do not dictate the specific storm interval that shall be used for analysis of a wet weather event.

In the absence of regulatory guidance that would dictate a specific design storm for RDII analyses, three different design storms were evaluated during this analysis: a 5-year, 24-hour event; a 25-year, 24-hour event; and a 100-year, 24-hour event. The estimated remaining available capacity in the system with a 5-year RDII, 25-year RDII, and a 100-year RDII included in the analysis are shown in Tables 3, 4, and 5, respectively.

1 RDII is the term used to define a sewer's response to rainfall. RDII represents the additional flow in a sewer above the normal dry-weather base sanitary flow due to wet-weather storm events.

Table 2
Remaining Capacity Under Existing Flow Conditions without RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	262	411	307	2,456
3	Middle (Line 5)	573	291	281	210	1,680
4	South (Line 3)	1,112	326	786	587	4,694

1. Assumes no rainfall derived infiltration and inflow (RDII).
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.

Table 3
Remaining Capacity Under Existing Flow Conditions with 5-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	596	77	57	458
3	Middle (Line 5)	573	471	101	76	604
4	South (Line 3)	1,112	864	249	186	1,484

1. Includes rainfall derived infiltration and inflow (RDII) based on a 5-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.

Table 4
Remaining Capacity Under Existing Flow Conditions with 25-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	699	-26	---[8]	---
3	Middle (Line 5)	573	527	45	34	270
4	South (Line 3)	1,112	1,027	86	64	511

1. Includes rainfall derived infiltration and inflow (RDII) based on a 25-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.
8. ---: not applicable

Table 5
Remaining Capacity Under Existing Flow Conditions with 100-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	794	-121	---[8]	---
3	Middle (Line 5)	573	580	-7	---	---
4	South (Line 3)	1,112	1,172	-59	---	---

1. Includes rainfall derived infiltration and inflow (RDII) based on a 100-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.
8. ---: not applicable

Conclusions

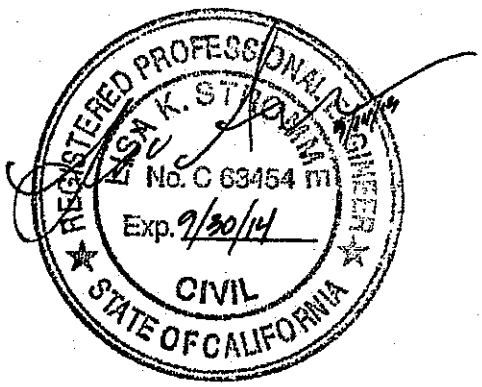
The sewer model analysis results indicate that there is remaining available capacity in the three gravity trunk lines that convey wastewater from the east to the west side of Highway 101 under existing flow conditions without RDII and under existing flow conditions with a 5-year RDII. There is also capacity under existing flow conditions with a 25-year RDII, however it is limited to the middle and southern crossings. The estimated number of EDUs that can be serviced with the remaining available capacity assuming no RDII and assuming a 5-year RDII and a 25-year RDII are shown in Tables 2, 3, and 4, respectively. There is no additional capacity available at any crossing location under the existing flow conditions with the 100-year RDII included in the analysis.

For planning purposes, SHN recommends MCSD use the capacity analysis results based on the 25-year, 24-hour RDII analysis (Figure 2). The 25-year RDII capacity analysis results provide a balance between the higher risk, 5-year RDII capacity analysis, and the more conservative 100-year RDII capacity analysis. Limiting capacity based on the 25-year RDII analysis enables the MCSD to reserve capacity for flows in excess of the 5-year RDII in the system, while allowing for additional development to occur in McKinleyville under existing conditions.

If you have any questions or need additional information, please call me at 707-441-8855.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

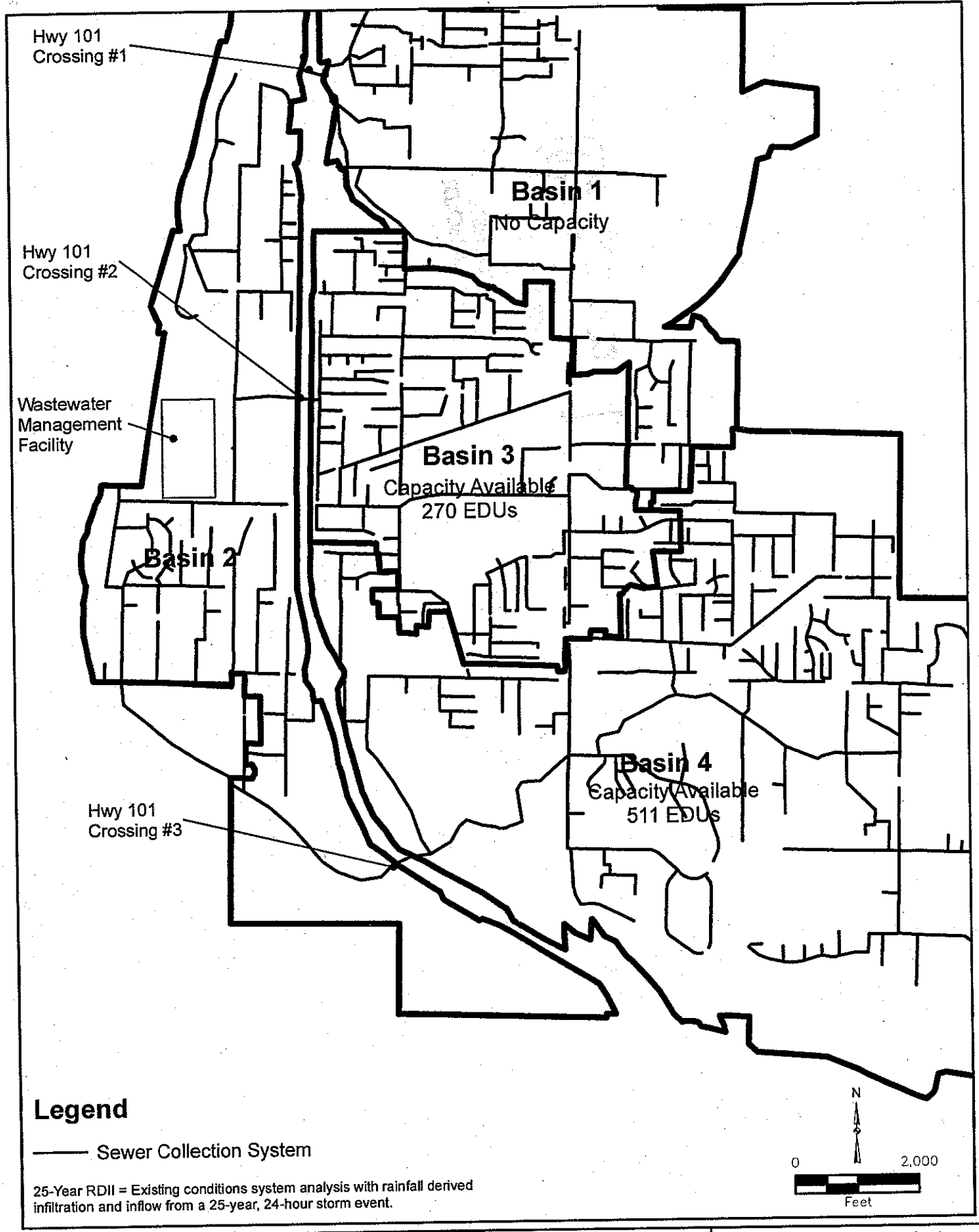


Lisa K. Stromme, PE
Water Resources Engineer

LKS:bmd

References

SHN Consulting Engineers & Geologists, Inc. (January 2012). "Wastewater Facilities Plan Administrative Draft, MCSD Wastewater Management Facility, NPDES Permit No. CA0024490, Order No. WQ2011-0008-DWQ." Eureka, CA:SHN.



SHN Consulting Engineers & Geologists, Inc.	McKinleyville Community Services District Wastewater Management Facility McKinleyville, CA	MCSD Sewer Analysis System Capacity - 25-Year RDII SHN 011034.150
SEPTEMBER 2013	MCSD-GPU-2013.mxd	Figure 2