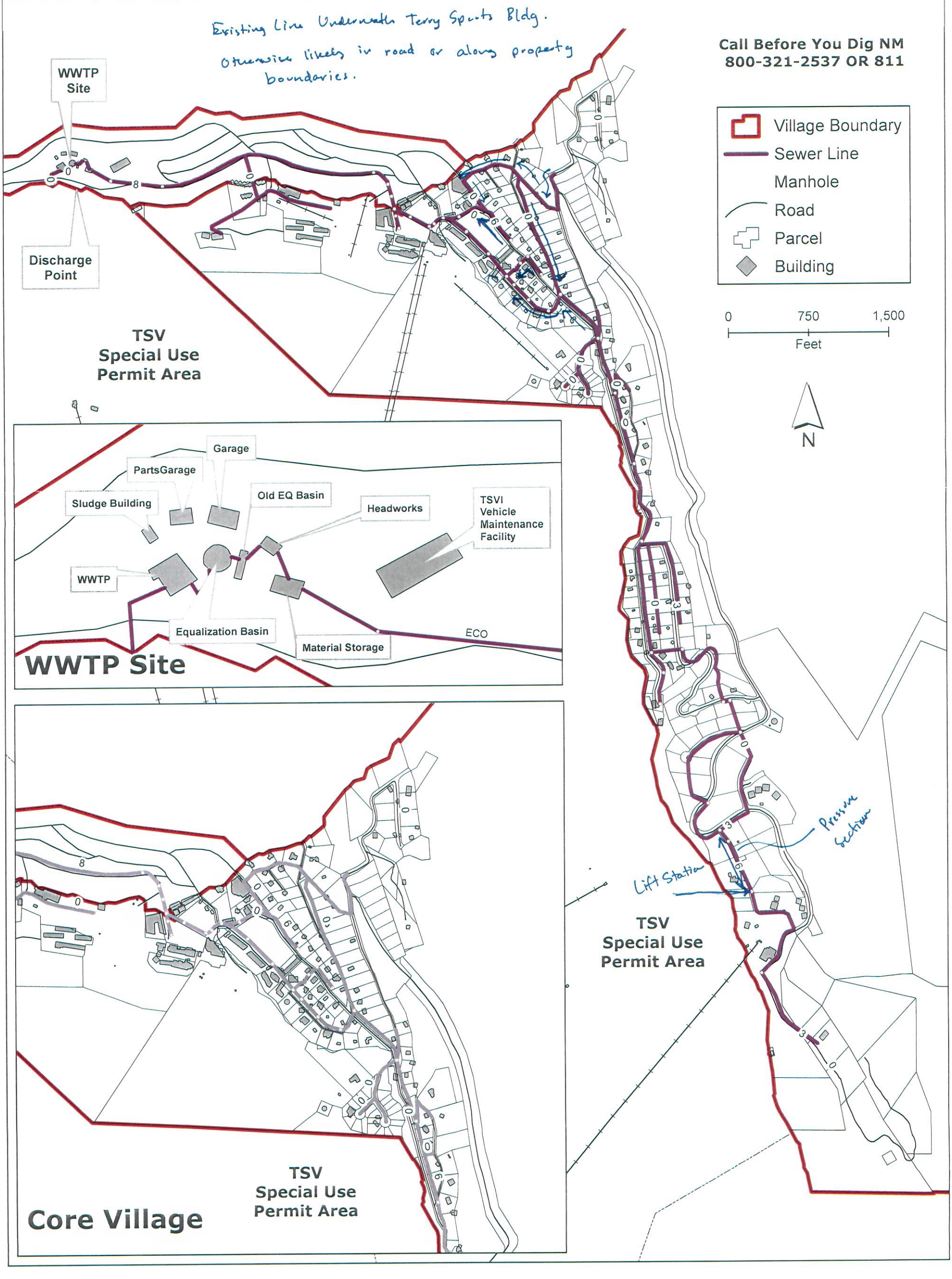
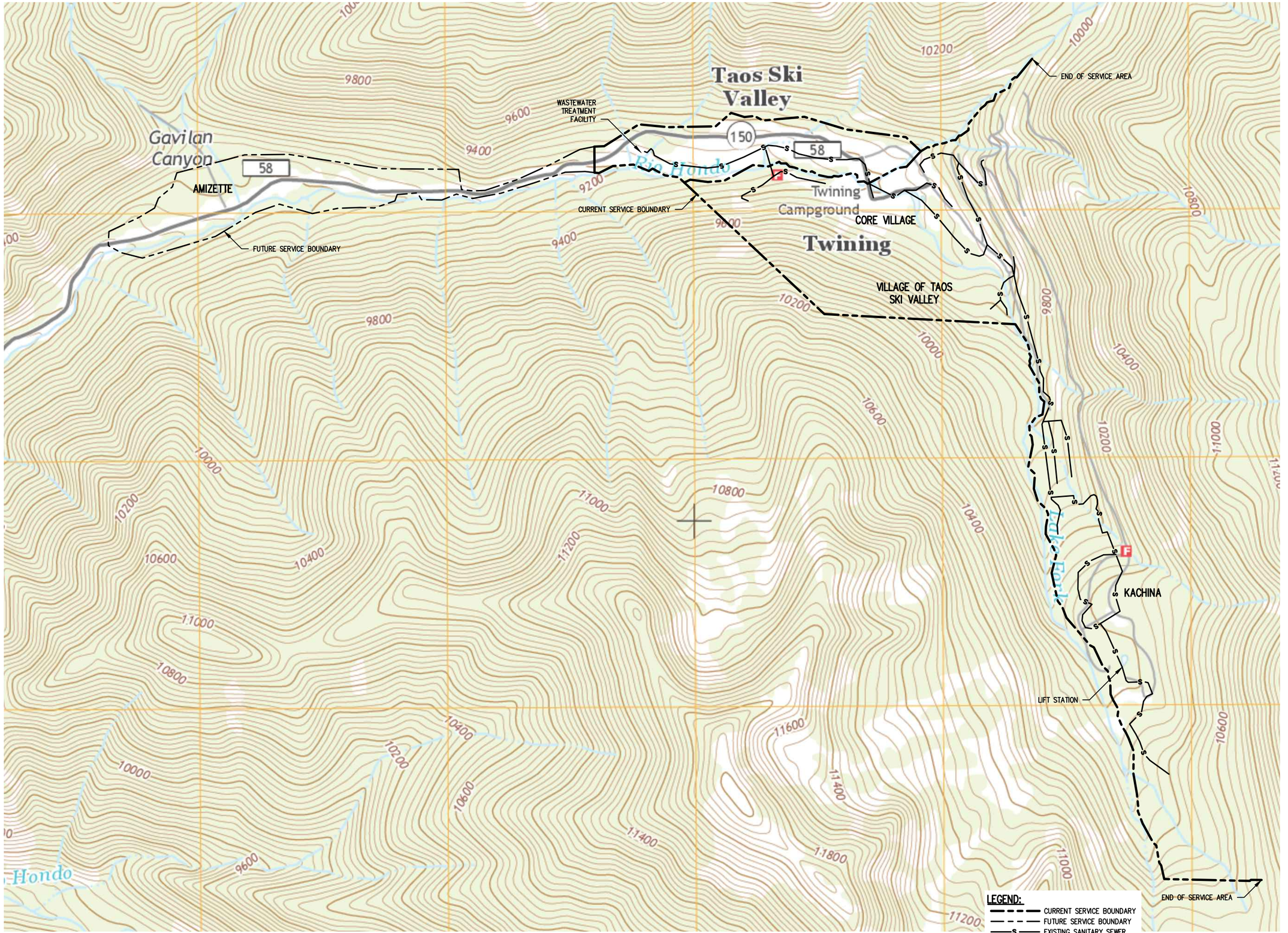
APPENDIX A.1
WWTF SERVICE AREA

Sewer Utility - Existing Conditions

The Village operates and maintains the wastewater treatment plant and approximately 3.5 miles of sewer lines. The plant was first constructed in 1982 and improved in 2004 with an intended capacity of 200,000 gallons per day. Maximum daily flow capacity is approximately 115,000 gallons per day (gpd) during the winter ski season. The plant is located on Ocean Boulevard within the US Forest Service Special Permit Area. It uses a conventional activated sludge system with integrated fixed film aeration. Treated water (effluent) is discharged into the Rio Hondo, which is described as a high quality mountain stream, requiring an advanced treatment process to maintain water quality standards. The discharge permit from the New Mexico Environment Department for the discharge of treated wastewater from the plant into the Rio Hondo expires in September, 2016. Discharge permits are renewed every five years. The Village currently transports the solid sludge to the landfill in Rio Rancho.

There are approximately 40 buildings with private septic tanks. All wastewater in Amizette is stored in vaults until it is pumped and trucked to the Town of Taos wastewater treatment plant.



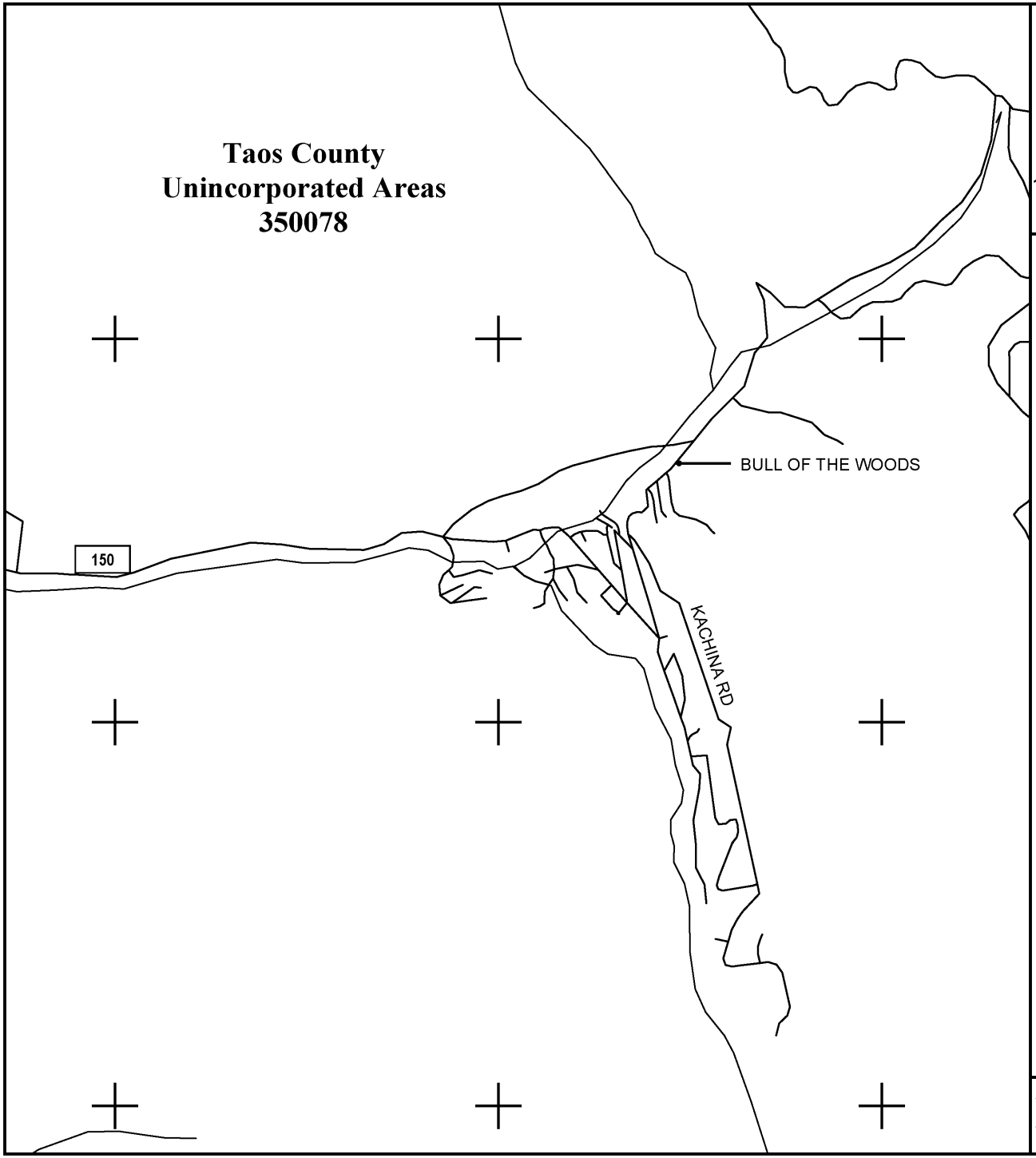


VILLAGE OF TAOS SKI AREA
WASTEWATER TREATMENT FACILITY PRELIMINARY ENGINEERING REPORT
CURRENT AND FUTURE SERVICE AREA

W:\VTSV-S14-01.32 - WWTP\PER FIGURES\FIGURE LAST SAVED:4/12/2016 8:35 AM LAST PLOTTED: 4/12/2016 8:35 AM BY: KEITH

©COPYRIGHT FEI Engineers, Inc.

APPENDIX A.2
FEMA FIRM



MAP SCALE 1" = 2000'

1000 0 2000 4000

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0675E

FIRM

FLOOD INSURANCE RATE MAP

TAOS COUNTY, NEW MEXICO

AND INCORPORATED AREAS

PANEL 675 OF 1250

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
TAOS COUNTY	350078	0675	E
TAOS PUEBLO	350015	0675	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
35055C0675E

EFFECTIVE DATE
OCTOBER 6, 2010

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov


FEMA NFHL
PANEL
35007C0800D
eff. 11/4/2010
PANEL
AREA OF MINIMAL FLOOD HAZARD Zone X
Village of Taos Ski Valley WWTF
150
Ocean Blvd
© 2015 Google
Google earth
REFERENCE LAYERS
NFHL Data Available
FIRM Panel Boundary
LOMR Boundary
SPECIAL FLOOD HAZARD AREAS
1% Annual Chance Flood Hazard
Zone A, AE, A99, AO, AH, AR, V, VE
Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard
Zone X
Future Conditions 1% Annual Chance Flood Hazard Zone X
Area with Reduced Flood Risk due to Levee Zone X
NO SCREEN
Areas Outside the 0.2% Annual Chance Floodplain Zone X
Areas of Undetermined Flood Hazard Zone D
CROSS SECTIONS & BFES
Cross Sections with 1% Annual Chance Water Surface Elevation
Coastal Transect
Coastal Transect Baseline
Profile Baseline
Base Flood Elevation
SUPPORTING INFORMATION
Limit of Study
Jurisdictional Boundary

APPENDIX A.3
EQUIVALENT RESIDENTIAL UNIT

Kee Venkatapathi

From: Kee Venkatapathi
Sent: Friday, September 25, 2015 2:46 PM
To: 'Don'; Ray Keen; 'mfratrick@vtsv.org'
Cc: 'Mark Dahm (Mark.Dahm@FEIEngineers.com)'; Patrick OBrien
Subject: RE: Parcel D - Water and sewer information needed by Village

Tracking:

Recipient	Delivery
'Don'	
Ray Keen	
'mfratrick@vtsv.org'	
'Mark Dahm (Mark.Dahm@FEIEngineers.com)'	Delivered: 9/25/2015 2:46 PM
Patrick OBrien	Delivered: 9/25/2015 2:46 PM

Don,

Following up on our previous email included below, we wanted to provide you with the methodology we have used to revise the Base Area estimated EQR's to include the new information you have provided for Parcels D and G. Please advise us if VTSV wishes to utilize any alternate estimates of future numbers of units or size of units, or any alternate approach to estimating EQR's from housing unit square footage information.

We developed an estimate of the Parcel D future EQR's using the information you provided in your 9/22/15 email and the EQR/sq. ft. factors from the Multi-Family Residential Unites EQR table included in the 2011 PER – applying the EQR/sq. ft. factors to the projected unit sizes contained in the parcel D data you relayed, and summing those up to a resulting total Parcel D future EQR total of 50.65. Please see the tables below for the supporting information. For Parcel G, we have utilized the projected number of future EQR's that you provided in your 9/9/15 email. The total for Parcel G provided in an attachment to that email was 107.65.

To calculate the total estimated adjustment to the 2011 Base Area EQR estimate of 930, we added the estimated future EQR's for Parcel D and Parcel G to the Base Village, and subtracted the estimated 8.15 EQR's associated with the demolition of facilities replaced by the re-development of Parcels D and G (the estimate of 8.15 EQR's was provide in your 9/9 email)

For the Kachina Village estimate of future EQR's we used the information provided in our meeting of 9/9/15, increasing the Kachina Village EQR to 410 from 300.

In summary, the above-described adjustments to the 2011 EQR estimates, result in an increase of the estimated total EQR's from 1780 to 1990. Please let us know if you concur with our estimation here, or if you have any alternate data or methodology you would like to have us utilize?

Please let us know if you have any questions.

Multi-Family Residential Unit EQR Factors (Source: 2011 PER)	
Up to, sf	EQR
1200	0.65

1500	0.8
1800	1
250	0.2

PARCEL- D EQR				
Bedrooms	Sq. ft	Total units in A and B wing	EQR assigned/unit	EQR
1	1000	9	0.65	5.85
2	1450	27	0.8	21.6
3	1950	14	1.2	16.8
4	2450	4	1.6	6.4
			Total EQR	50.65

Parcel D EQR	Parcel G EQR	Demolition of Skier building EQR
50.65	107.65	8.15

	2011 PER	2015 FEI estimate			
Base Area	930	1080.15		*= 930 +50.65 +107.65 - 8.15*	
Intermediate zone	200	200			
Kachina Village	350	410		*- Based on discussion with Don and Ray*	
Amizette	300	300			
Total, EQR	1780	1990			

Have a Great Day!!!

Thanks,
Kee

FEI ENGINEERS
www.FEIEngineers.com

Kee Venkatapathi, CWP
Process Engineer
Keerthivasan.Venkatapathi@FEIEngineers.com
5325 S Valentia Way
Greenwood Village, CO 80111
Phone: (303) 300-3464

Please consider the environment and only print this e-mail if you must. Think Green and Reduce, Reuse, Recycle

From: Kee Venkatapathi
Sent: Wednesday, September 23, 2015 11:27 AM
To: Don <dschieber@vtsv.org>
Cc: 'Mark Dahm (Mark.Dahm@FEIEngineers.com)' <Mark.Dahm@FEIEngineers.com>
Subject: RE: Parcel D - Water and sewer information needed by Village

Don,

Good Morning.

Reiterating from Mark's email earlier today, we understand that the projected Kachina and Base Village EQR numbers need to be revised upward from the values discussed in the September 9th meeting (please refer to column two in the following table). Can you please look at the table below and clarify some of the questions we have in the notes below the table.

	Estimated EQR's from September 9th Meeting	**Revisions to Estimated EQR's Identified in September 9th Meeting**	**Comments**
Base Village	930	Increase in EQR	See Note 1
Intermediate Zone	200	200	Meeting notes indicated no change to the estimate of 200
Kachina Village	350	410	From meeting notes following discussion with Don. See Note 2
Amizette	300	300	See Note 3
Total EQR	1780		

1. The estimated Base Village EQR's need to be increased due to redevelopment of Parcel G and Parcel D. The Parcel G EQR is estimated at 107.65 from the attachment in the email sent to Mark on September 9th . In the same email in the attachment "Parcel G EQR pillow count" EQR of 89 is calculated. Is the EQR "89" included as part of the EQR "107.65"?
    a. Both Parcel G and Parcel D are redevelopments, meaning there is a loss in EQR's due to the demolition and gain in EQR's due to the new development.
    b. For the redevelopment of Parcel D can you provide an estimate of the EQR's?
    c. Can the net increase to the Base Village EQR's be calculated as = 930 – demolition EQR's lost + Parcel G + Parcel D

       = 930 – 8.2 + 107.65 + Parcel D

2. Can you confirm the increase in EQR's to 410 for Kachina Village ?

3. Based on our discussion in the September 9th meeting, Amizette does not have space for any significant additional development and the estimate of 300 EAR's is still accurate, correct?

If you have any questions, please let us know.

Have a Great Day!!!

Thanks,
Kee

Kee Venkatapathi, CWP
Process Engineer
Keerthivasan.Venkatapathi@FEIEngineers.com
5325 S Valentia Way
Greenwood Village, CO 80111
Phone: (303) 300-3464

Please consider the environment and only print this e-mail if you must. Think Green and Reduce, Reuse, Recycle

---

From: Mark Dahm
Sent: Wednesday, September 23, 2015 8:27 AM
To: Don <dschieber@vtsv.org>
Cc: Kee Venkatapathi <Keerthivasan.Venkatapathi@FEIEngineers.com>
Subject: RE: Parcel D - Water and sewer information needed by Village

Hi Don,

Thank you for the updated data you relayed for tract D. As we have discussed, EQR numbers for the Base Village and Kachina need to be revised from what is shown on the attached. Kee and I may have some additional clarification questions to run by you, and Kee will be following up this email with some of those thoughts.

Mark

Mark Dahm, P.E.
Project Manager
Mark.Dahm@FEIEngineers.com
101 West 11th Street #112
Durango, CO 81301
Phone: (970) 247-0724

From: Don [mailto:dschieber@vtsv.org]
Sent: Tuesday, September 22, 2015 1:21 PM
To: patrick.obrian@feiengineers.com
Cc: Mark Dahm <Mark.Dahm@FEIEngineers.com>; Kelly Fearney <kelly.fearney@FEIEngineers.com>
Subject: FW: Parcel D - Water and sewer information needed by Village
Importance: Low

Team:

This is the latest development proposal which can be used for near term eqr analysis for tract D adjacent to the resort center development.

Regards,

Don

From: Drew Chandler [mailto:DrewC@russellpe.com]
Sent: Tuesday, September 22, 2015 11:34 AM
To: Patrick OBrien; Kelly Fearney
Cc: Don; Matt Foster
Subject: FW: Parcel D - Water and sewer information needed by Village
Importance: Low

Patrick and Kelly,

I've attached the most recent data for the proposed Taos Ski Valley Parcel D development. This is the mixed-use development on the north side of the Rio Hondo, across from the Parcel G construction.

Thanks,

Drew

Drew Chandler, P.E.

Project Manager

Russell Planning and Engineering, Inc.

934 Main Avenue, Unit C

Durango, CO 81301

Ph: 970-385-4546 Ext. 24

www.russellpe.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other

OLD TSV DAY SKIER BUILDING

		USE				
	LOCATION	STORAGE	RETAIL	OFFICE	MULTI FAMILY	
LEVEL 1	1.1	1130				
	1.2	123				
	1.3	878				
	1.4	239				
	1.5	1279				
	1.6	556				
LEVEL 2	2.1		913			
	2.2		7159			
	2.3	323				
LEVEL 3	3.1		915			
	3.2		5469			
	3.3			634		
	3.4	542				
	3.5	1509				
LEVEL 4	4.1	597				
	4.2				1078	
	4.3				1398	
	TOTAL AREA	7176	14456	634	2476	
FACTOR	1000	0.2	0.3	0.5		
	1200				1	
						TOTAL
	EQR	1.4352	4.3368	0.3170	2.0633	8.1523
	RATE $					TOTAL
SEWER	3,556.00	5,103.57	15,421.66	1,127.25	7,337.21	28,989.70
WATER	4,416.00	6,337.84	19,151.31	1,399.87	9,111.68	36,000.70

program summary

A Wing	1BR 1,000	2BR 1,450	3BR 1,950	4BR 2,450	total units	total sf	Amenity sf	retail sf	Parking sf
basement	1	1	1	0	3	4,400			28,150
1st floor	1	3	0	0	4	5,350	400	7,850	
2nd floor	2	5	1	0	8	11,200			
3rd floor	2	5	1	0	8	11,200			
4th floor	0	2	4	2	8	15,600			
total A	**6**	**16**	**7**	**2**	**31**	**47,750**	**400**	**7,850**	**28,150**
B Wing									
basement	0	0	0	0	0	0			
1st floor	1	1	0	0	2	2,450	3,000	8,550	
2nd floor	1	4	2	0	7	10,700			
3rd floor	1	4	2	0	7	10,700			
4th floor	0	2	3	2	7	13,650			
total B	**3**	**11**	**7**	**2**	**23**	**37,500**	**3,000**	**8,550**	**0**
Grand Total	**9**	**27**	**14**	**4**	**54**				
Percentage	**17%**	**50%**	**26%**	**7%**					
SF	9,000	39,150	27,300	9,800		**85,250**	**3,400**	**16,400**	**28,150**

Total Building Area	**133,200**
Total Bathrooms	**121**
Total Bedrooms	**121**
Parking Spaces Required	**54**
Parking Spaces Provided	***77**

condo bathroom summary

	1 Bed	2 Bed	3 Bed	4 Bed
A Wing	6	16	7	2
B Wing	3	11	7	2
Total Units	**9**	**27**	**14**	**4**
Bathroom(s) Per Unit	**1**	**2**	**3**	**4**
Total Bathroom(s) Per Type	**9**	**54**	**42**	**16**
Total Bathrooms				**121**

condo bedroom summary

	1 Bed	2 Bed	3 Bed	4 Bed
A Wing	6	16	7	2
B Wing	3	11	7	2
Total Bedroom(s) Per Type	**9**	**54**	**42**	**16**
Total Bedrooms				**121**

parking summary

	# Units
A Wing	31
B Wing	23
Total	**54**
Parking Spaces Required	**54**
Parking Spaces Provided	***77**

**includes (4) Accessible Spaces per Code Req.*

© 2014 HART HOWERTON LTD. © 2014 HART HOWERTON PARTNERS LTD.
The designs and concepts shown are the sole property of Hart Howerton. The drawings may not be used except with the expressed written consent of Hart Howerton.

PARCEL- D EQR				
Bedrooms	Sq.ft	Total units in A and B wing	EQR assigned/unit	EQR
1	1000	9	0.65	5.85
2	1450	27	0.8	21.6
3	1950	14	1.2	16.8
4	2450	4	1.6	6.4
			Total EQR	50.65

2. Multi-family Residential Units

Apartments, condominiums, town houses with common services, and similar dwellings in the same complex, additional apartments in single family units and small cabins in courts not associated with motels.

II-6

NOTE: Only one kitchen is permitted per unit. A kitchen is defined as any area having facilities for cooking, and associated dishwashing facilities. Includes common laundry facilities or individual laundry hook ups. Swimming pools and hot tubs are additive in accordance with classification D.1.. Common club house facilities are additive in accordance with classification A.2.f..

a. Small unit, having not more than 1,200 sq. ft. of floor area 0.65

b. Medium unit, having not more than 1,500 sq. ft. of floor area 0.80

c. Large unit having not more than 1,800 sq. ft. of floor area 1.00

e. Add for each additional 250 sq. ft. of floor area, or fraction, thereof 0.20

e. Common club house or recreation room facilities, not including commercial classification areas such as banquet rooms, bars or lounges, or customer laundry areas, or swimming pool and hot tub areas (per 1,000 square feet of gross floor area) 0.35

Multi-family residential unit from EQR table	
Upto, sf	EQR
1200	0.65
1500	0.8
1800	1
250	0.2

EQR PARCEL G BASED ON AREA AND FACTORS

LEVEL	PARKING	STOR	RETAIL	BUS	CLUB HOUSE	REST BAR	CIRC	ELEC MECH	HOTEL RM	SUITE CONDO	TOTAL	TOTAL LEVEL
1 E	13,779	2,484					406	1,202			17,871	
1 W	4,998	3,211		3,492							11,701	29,572
2 E		1,015	7,422	1,111	3,842		2,941	219			16,550	
2 W				2,751	535		1,845		3,740	4,990	13,861	30,411
3 E			5,838			4,841	1,325		552		12,556	
3 W			2,441				1,719		4,373	5,163	13,696	26,252
4 E							1,239		4,471	4,507	10,217	
4 W							1,908		6,312	5,231	13,451	23,668
5 E							1,225		4,509	4,567	10,301	
5 W							2,005		6,608	3,100	11,713	22,014
6 E							1,286			9,193	10,479	
6 W							1,933			8,112	10,045	20,524
7 E							272			7,081	7,353	
7 W							311			6,339	6,650	14,003
	18,777	6,710	15,701	7,354	4,377	4,841	18,415	1,421	30,565	58,283	166,444	166,444
1000		0.20	0.30	0.50	0.35				1.00	1.00		
EQR		1.34	4.71	3.68	1.53	4.20			30.57	58.28		104.31
								TOTAL SLEEPING EQR		88.85		

				SF	Depth	Vol ft3	Gallons	Factor	Rate	EQR		
POOL (WATERSURFACE AREA)				780	7	5,460	42,588	1.05	40,000	1.12		1.12
HOT TUBS (WATER SURFACE AREA)				122	4	427	3,331	0.20	300	2		2.22
										Total EQR		107.65

PROPOSED WATER & SEWER FEES

	RATE $	EQR	FEE $
WATER	4,416.00	107.65	475,371.74
SEWER	3,556.00	107.65	382,794.81

IMPACT FEES

"AREA" IS CALCULATED AS GROSS BUILDING AREA MINUS PARKING AREA

RATE $	AREA	FEE $
4.3724	147,667	645,659.19

TIDD @ 75%	-484,244.39
FEE TO VILLAGE AT 25%	161,414.80

APPENDIX A.4
LEONARD RICE MEMO ON PERMITTING

Memorandum

To: Mark Dahm, FEI Engineers

From: Dan DeLaughter & Jojo La, Leonard Rice Engineers

Copy to: Kee Venkatapathi, FEI Engineers

Date: December 4, 2015

Project: Village of Taos Ski Valley Wastewater Treatment Plan Preliminary Evaluation of Effluent Limits (NPDES Permit No. NM0022101)

Subject: Permitting Support for Nutrient Limits

In the development of a Preliminary Engineering Report for the improvement/expansion of the Village of Taos Ski Valley (VTSV) Wastewater Treatment Facility (WWTF), Leonard Rice Engineers (LRE) has evaluated the VTSV WWTP National Pollutant Discharge Elimination System (NPDES) effluent nutrient permit limits. The purpose of this memorandum is to document LRE's findings for the following:

- Evaluation of the proposed new VTSV WWTF flow and loading provided by FEI;
- Evaluation of current permit limitations for nutrients, and evaluation of potential new limits based on the proposed flow and loading, including: TMDL wasteload allocations, water quality-based limits (if applicable), and antidegradation-based limits (if applicable);
- Summary of flexibility provided by potential offset credits from septic tie-ins or other point or non-point sources identified in the TMDL; and
- Identification and scoping of alternate approaches that could potentially be used to modify limits based on Wasteload Allocations.

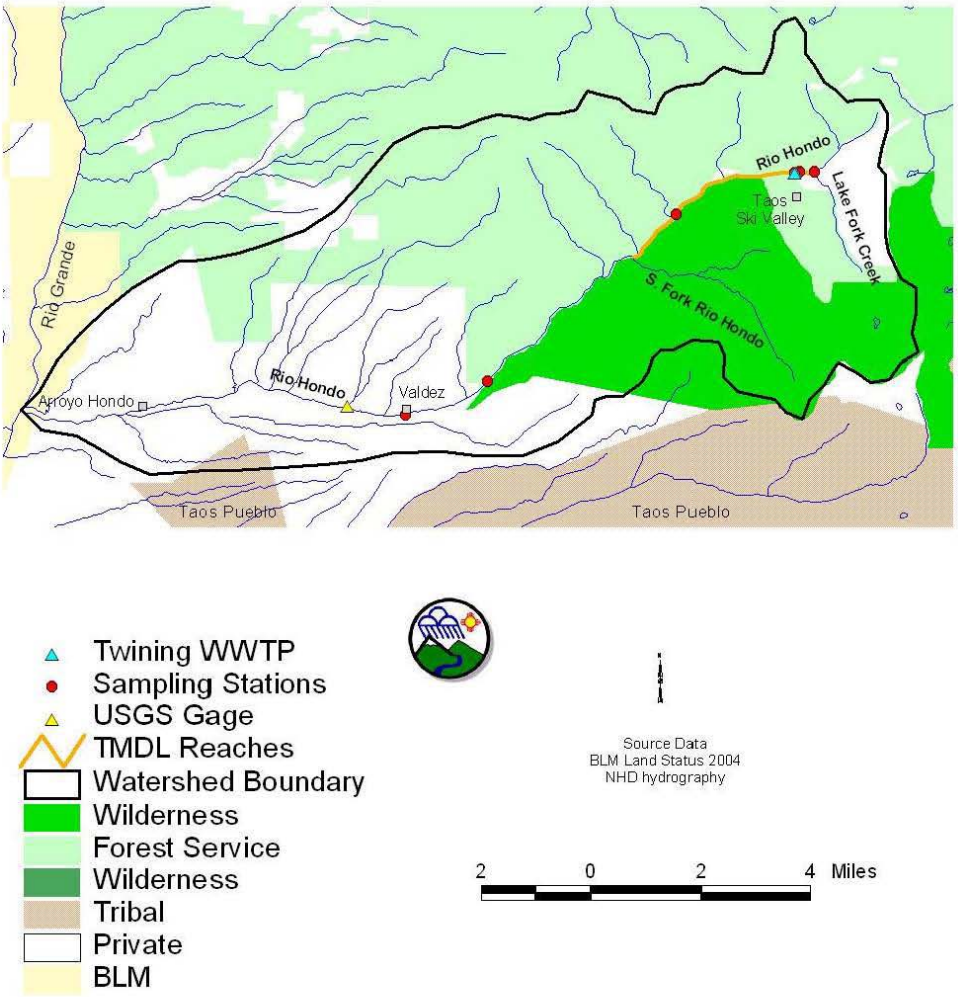
Introduction

The VTSV WWTF is authorized to discharge to the Rio Hondo, National Pollution Discharge Elimination System (NPDES) permit No. NM0022101, located in the Rio Grande Basin (Waterbody Segment Code No 20.6.4.129). The segment is classified as Category 2, and the designated uses of this receiving water are domestic water supply, high quality coldwater aquatic life, irrigation, and wildlife habitat. The Rio Hondo Basin is a sub-basin of the Upper Rio Grande. The current design capacity of the VTSV WWTF is 0.167 million gallons per day (MGD), serving a population that fluctuates from approximately 500 to 5,000 depending on the season of the year. The current VTSV NPDES discharge permit became effective on October 1, 2011, with an expiration date of September 30, 2016.

Rio Hondo Total Maximum Daily Load

In 2005, the New Mexico Environment Department (NMED) developed a Total Maximum Daily Load (TMDL) for nutrients in the Rio Hondo Basin to document the amount of nutrients a water body can assimilate without violating the State's water quality standards. The TMDL allocated the load capacity to known point sources and nonpoint sources at a given flow. The TMDL identified the VTSV WWTF as the only point source discharge of nutrients in the Rio Hondo Basin. The primary nonpoint discharge of nutrients is from residential and urban areas, septic tank disposal systems, construction sites, recreational activities, ski slope runoff, and atmospheric disposition. The figure below shows the segment location.

Rio Hondo Watershed
Land Ownership



This segment, South Fork of Rio Hondo to Lake Fork Creek, is not currently impaired and is not listed on the 303(d) List of Impaired Waters or the Monitoring and Evaluation List for nutrients (2014 303(d) List). In addition, previous studies also indicated that the Rio Hondo near the Village of Taos Ski Valley fully supports its designated uses. The 2005 TMDL was developed in anticipation of VTSV WWTF's increase in its capacity and effluent discharge into the Rio Hondo. The TMDL states that the 2005 TMDL will be used to determine the new nutrient limits for total phosphorus and total nitrogen for the new VTSV WWTF. Revisions of VTSV's 2006 NPDES permit were part of the implementation of the 2005 TMDL, and are reflected in the VTSV's current discharge permit (2005 TMDL).

Currently, there are no numeric standards applicable to the Rio Hondo for total phosphorus and total nitrogen. The TMDL was based on the narrative standard and suggested stream target concentrations in the 1981 Water Quality Management Plan for the Rio Hondo. In addition, all calculations in development of this TMDL used a plant design capacity of 0.200 MGD to estimate treatment capacity in the future scenario, which was intended to accommodate projected growth through 2020 (2005 TMDL).

Total Phosphorus

The TMDL analysis determined a total phosphorus waste load allocation of 1.47 lbs/day for the VTSV WWTF. However, the 1981 TMDL load allocation was 1.00 lbs/day. The Surface Water Quality Bureau (SQWB) and the VTSV therefore maintained the 1981 TMDL loading in the 2006 VTSV NPDES permit based on the state of New Mexico's antidegradation policy, even though the 2005 TMDL calculated a higher TP waste allocation. Thus, under the 2005 TMDL, the VTSV WWTF could not increase phosphorus loading into the Rio Hondo watershed, since the state cannot "assure that water quality adequate to protect existing uses fully" will be met with increased phosphorus loading. Table 1 below shows the annual VTSV WWTF waste load allocation and TMDL for Rio Hondo (2005 TMDL).

Table 1: VTSV WWTF TP Annual Waste Load Allocation and TMDL for Rio Hondo

Parameter	Time Interval	Streamflow 4Q3[1] (MGD)	WWTF Design Capacity Flow[2] (MGD)	Seasonal WLA[3] (lbs/day)	Calculated Effluent Conc.[4] (mg/L)	Allowable 30-day Av. Conc.[5] (mg/L)	Allowable 7-day Av. Conc.[6] (mg/L)
Total Phosphorus	November through April	3.693	0.200	1.46	0.87	0.8	1.0
	May and June	14.97	0.200	5.80	3.48	3.0	4.5
	July and August	8.559	0.200	3.32	3.98	4.0	6.0
	September and October	6.321	0.200	2.44	7.32	7.0	10

[1] The critical low flow condition in the Rio Hondo is the average low-flow that persists for four consecutive days once every three years, on average (4Q3). The period of record of flow used was from 1936-2002.
[2] Effluent volume is the originally proposed design capacity and/or seasonal effluent volume of VTSV WWTP (in MGD).
[3] Seasonal waste load allocations (in lbs/day) allotted to VTSV.
[4] Maximum allowable effluent concentrations to be protective of the river within the TMDL assessment unit.
[5] The allowable 30-day average was determined by rounding the calculated effluent concentration.
[6] The allowable 7-day average is defined as 1.5 times the allowable 30-day average.

Total Nitrogen

A phased total nitrogen TMDL was developed in the 2005 TMDL. The Target Capacity Loading Analysis conducted in the 2005 TMDL determined that the allowable total nitrogen mass load in the Rio Hondo is 31.9 lbs/day. VTSV has developed a phased plan for a community-wide sewer line extension project to convert all on-site septic systems in the community to the WWTF. If the VTSV converts all septic systems to the WWTF, then the portion of the total nitrogen load allocation that is associated with

septic systems (e.g. 5.17 lbs/day) can become a WLA. Table 2 summarizes the results for this phased approach and includes the annual LAs, WLAs, and maximum allowable effluent concentrations (2005 TMDL).

Table 2: VTSV WWTF Total Nitrogen Annual Waste Load Allocation and LAs and TMDL for Rio Hondo

% Conversion	WLA (lbs/day)	LA (lbs/day)	TMDL (lbs/day)	Allowable 30-day Av. Conc.[1] (mg/L)
Phase I – 0% capture	11.0	11.8	31.9	6.5
Phase II – 25% capture	12.3	10.5	31.9	7.0
Phase III – 50% capture	13.6	9.24	31.9	8.0
Phase IV – 75% capture	14.9	7.94	31.9	9.0
Phase V – 100% capture	16.2	6.65	31.9	10.0

[1] Maximum allowable effluent concentration to be protective of the river within this assessment unit given the annual waste load allocation and proposed design capacity for the VTSV WWTF. Value Rounded to the nearest tenth.

New Mexico Antidegradation Policy

The South Fork of the Rio Hondo below the VTSV discharge point is classified as a Tier 2 water for antidegradation for nutrients and is considered a water whose quality is better than necessary to protect the Clean Water Act (CWA) Section 101(a)(2) goals. In Tier 2 waters, limited degradation may be allowed after consideration of several factors, including:

- The discharge's potential to affect existing or designated uses or to interfere with CWA Section 101(a)(2) goals (water quality which provides for the "protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water");
- The need to accommodate important economic and social development in the area in which the water is located; and
- The availability of discharge alternatives, including no discharge, reuse, land disposal, pollution prevention or reduction, and pollutant trading with point and non-point sources.

The state of New Mexico's antidegradation policy (NMAC 20.6.4.8, 2002) states:

> *"…Existing instream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected in all surface waters of the state… Where the quality of a surface water of the state is meeting some or all applicable water quality criteria the existing quality shall be maintained and protected unless the commission finds… that allowing lower water quality is necessary to accommodate important economic and social development in the area in which the water is located. In allowing such degradation or lower water quality the state shall assure water quality adequate to protect existing uses fully."*

The Policy prohibits the degradation of Tier 2 waters by an increased discharge or the renewal of a permit for an existing discharge. However, the Policy does not prohibit an increased discharge or the renewal of a permit for an existing discharge. In special circumstances, a discharge may be allowed if it does not cause degradation or causes only temporary and short-term changes in water quality that do not impair existing uses or if the activity is intended to implement the Section 101(a) objectives of the

CWA. Such special circumstances must undergo antidegradation review (State of New Mexico Continuing Planning Process, Appendix A, Antidegradation Policy Implementation Procedure). If the VTSV increases the loading or concentration limitations in its 2016 discharge permit, VTSV must make a case-by-case demonstration that the increased discharge or the renewal of a permit for an existing discharge will not cause degradation.

For degradation of a Tier 2 water, water quality must be maintained to ensure the protection of existing uses. Water quality also must be maintained to ensure the protection of designated uses unless the designated uses are modified through a use attainability analysis (40 CFR 131.10(j) and 20.6.4.14 NMAC) or adequately protected by segment-specific water quality standards. Finally, water quality must be maintained to ensure the protection of the CWA Section 101(a)(2) uses. VTSV bears the burden of demonstrating the social and economic need for degrading water quality.

A Tier 2 review will be conducted if the increased discharges and the renewal of the permit will cause **significant** degradation of water quality. In rare instances the Water Quality Control Commission may consider revising the TMDL WLA. In this situation two processes come into consideration, the public and commission review of the TMDL and the NMED's review of the TMDL under the antidegradation policy. When this situation occurs, the two processes may for efficiency be held simultaneously or sequentially depending on the specific circumstances of the case. The NMED will evaluate whether the magnitude of the effect on water quality exceeds a specific level on a parameter-by-parameter basis. The evaluation will be conducted using numeric criteria only, because of the impracticability of applying the process to narrative criteria (2010 State of New Mexico Antidegradation Policy Implementation Policy Section IV.B.1).

***De Minimis* Policy**

The following new or increased discharges and the renewal of permits for existing discharges by publicly owned treatment works (POTWs) are considered *de minimis* and are not subject to Tier 2 review provided that the assimilative capacity is more than 10% of the criterion for the parameter of concern and:

- The design capacity of the POTW or the pollutant load (measured on a parameter-by-parameter basis) will increase 10 percent or less in a five-year period, and the exemption is not used for two consecutive permits;
- The design capacity of the POTW will increase by 10 to 25 percent in a five-year period, the POTW demonstrates to the Department's satisfaction that it is implementing a water conservation or wastewater reuse or diversion program designed to reduce the discharge pollutant load by at least 10 percent in that five-year period, and the exemption is not used for two consecutive permits;
- The design capacity of the POTW is 10 percent or less of the critical low flow of the receiving stream (as defined in the water quality standards);
- The POTW demonstrates to the Department's satisfaction that its pollutant load (measured on a parameter-by-parameter basis) will be offset by enforceable reductions by other point or nonpoint sources within the same waterbody segment as the new or increased discharge; or
- The increased discharge or the renewal of a permit for an existing discharge was reviewed in an Environmental Assessment (EA) or Environmental Impact Statement (EIS) that considered water quality impacts and the social and economic development in the area in which the water is located and that was conducted in accordance with federal regulations, and in the case of an EA, the responsible federal agency made a Finding of No Significant Impact (FONSI).

Notwithstanding these *de minimis* activities, the NMED shall conduct Tier 2 review for any increased discharge or the renewal of a permit for an existing discharge by a POTW when the discharge, taken together with all other activities allowed after the baseline water quality is established, would cause a reduction in the available assimilative capacity of 10 percent or more for the parameter of concern (2010 State of New Mexico Antidegradation Policy Implementation Policy Section IV.B.1.a). In order to apply *de minimis*, VTSV would need to establish baseline conditions for determining assimilative capacity.

Review Process for Antidegradation

Reissued permits that will increase wasteload limits, incorporate new wasteload limits (either through new WQBEL's or from TMDLs) are required to go through an antidegradation review process, in accordance with the procedures of the State of New Mexico Statewide Water Quality Management Plan. The process will be instituted by NMED when the application has been received, and the wasteload addition to the receiving water has been determined during review of the application. The review requires the following information:

- An analysis of important social or economic activities and development in the area in which the water is located that may be beneficially impacted by the new or increased discharge or the renewal of a permit for an existing discharge;
- An analysis of important social or economic activities and development in the area in which the water is located that may be adversely impacted by the new or increased discharge or the renewal of a permit for an existing discharge;
- An analysis of the following factors, quantified to the greatest extent possible;
    - employment;
    - production of goods and services;
    - tax base;
    - housing;
    - any other relevant information;
- An analysis of alternative disposal options (including no discharge to a surface water) or discharge reduction options, including any option that would minimize degradation.
- Description of the discharge, including the nature and concentration of pollutants;
- Description of receiving water, existing and designated uses, and applicable criteria;
- Identification of the permit and the facility's permitting and enforcement history;
- Description of treatment or best management practices to be employed and a brief description of alternative disposal options evaluated by the applicant.
- Estimation of the amount of requested degradation and impact on receiving water and existing and designated uses;
- Description and brief discussion of conditions to be imposed upon discharge;
- Effect on existing or expected environmental and public health problems;

The review process also requires a public notice process with a comment period and a public hearing. During the public comment period, any interested person may submit written comments and request a public hearing. The entire review process takes a minimum of 180 days to complete (2010 State of New Mexico Antidegradation Policy Implementation Policy).

Permit Limit History

LRE reviewed the VTSV WWTF 2006 and 2011 NPDES discharge permit, fact sheet, and associated documentation to summarize the history of the current nutrient limits and how the limits were originally developed. The following includes the information compiled by LRE for each permit.

2006 Permit

VTSV WWTF's NPDES discharge permit was reissued on February 27, 2006 with an expiration date of March 31, 2011. This permit superseded the October 20, 2000 permit and became effective on April 1, 2006. The design capacity of the VTSV WWTF in 2006 was 0.095 million gallons per day (MGD). Table 3 in the next section shows the permit 2006 design capacity and design flow used to calculate permit limits. The 2006 permit contained both total phosphorus and total nitrogen seasonal 30-day average (lbs/day), 30-day average (mg/L), and 7-day average (mg/L) limits. The following information and assumptions were used to determine the nutrient limits:

- During the 2006 permit renewal, the total phosphorus limits stayed the same as the 2000 permit.
- The NMED noted that the 2000 discharge permit contained limits for total phosphorus which were based on the Water Quality Management Plan for Rio Hondo. However, the permittee requested that none of the permit's limits be increased. Therefore, the increased phosphorus loading which could have been allowed under the TMDL was not included in the 2006 discharge permit renewal (2006 Permit Fact Sheet).
- For the 30-day average loading limit (lbs/day) for total phosphorus, the 0.095 MGD design flow was used to calculate the loading limits in November through June. However, for July through October, it appears that a scaled down design flow was used. This scaled down design flow may be based on the same methodology used in the TMDL. It may be feasible to revise this calculation methodology based on more accurate average flows during those months. More coordination with the NMED and EPA will be required to refine the flow calculations (see Permitting Alternatives section below).
- For total nitrogen, the permit contained Phase I total nitrogen limits that assumed 0% capture from septic systems. The total nitrogen limits were based on the 2005 TMDL. Table 4 in the next section shows the total phosphorus limits for 2006. Table 5 shows the total nitrogen limits highlighted for 2006.

2011 Permit

VTSV WWTF's NPDES discharge permit was reissued on August 4, 2011 with an expiration date of September 30, 2016. This permit superseded the April 1, 2006 permit and became effective on October 1, 2011. The design capacity of the VTSV WWTF increased in 2011 from 0.095 MGD to 0.167 MGD. Table 3 in the next section shows the permit 2011 design capacity and design flow used to calculate permit limits. The 2011 permit also contained both total phosphorus and total nitrogen seasonal 30-day average (lbs/day), 30-day average (mg/L), and 7-day average (mg/L) limits. The following information and assumptions were used to determine the nutrient limits:

- Per the facility's request, the 2011 permit relied on the previous 2006 design capacity of 0.095 MGD to determine mas loading limitations in lieu of seeking review under New Mexico's antidegradation policy.
- The 2011 permit utilized the 0.095 MGD design capacity and a scaled down seasonal design capacity for permit limit calculations. Therefore, increased phosphorus loading which could have been allowed under the TMDL was not included in the 2011 permit.
- The seasonal mass loading limits of the 2006 permit were used for the 2011 permit. 7-day average mass limits were also added to the 2011 permit.
- Table 4 below shows the total phosphorus limits. It is unclear how the total phosphorus 30-day average concentration limits (mg/L) in the 2011 permit were calculated. It appears that the total phosphorus limits were halved; however the 2011 Permit Fact Sheet does not describe why the limits were halved. Additional coordination with the NMED and EPA will be required to understand the calculation methodologies.
- Table 5 below shows the total nitrogen limits highlighted. For total nitrogen, five phases of seasonal mass and concentration limitations for total nitrogen were established in the 2011 permit in accordance with the TMDL. Each phase created seasonal total nitrogen limits based on the number of septic systems captured by the permittee and utilized a two to one non-point source/point source trading ratio. The 2011 Permit Fact Sheet states:

  > *"According to information provided by the facility, a sufficient number of septic systems had been captured by VTSV WWTF to allow for the use of Phase V total nitrogen limits. The proposed permit includes 7-day average mass limits which were calculated using the 0.095 MGD design flow."*

  However, it is appears that the total nitrogen 30-day average loading limit (lbs/day) are the Phase III limits, and not the Phase V limits.

- For the months of July through October it is unclear how the 30-day average concentrations were calculated. It appears that a scaled down design flow methodology was used and the 30-day average concentration (mg/L) for July and August were divided by 2, and the 30-day average concentration (mg/L) for September and October were divided by 5. It may be feasible to revise this calculation methodology based on more accurate average flows during those months. More coordination with the NMED and EPA will be required to refine the flow calculations (see the Permitting Alternatives section below).

Table 3: 2006-2016 VTSV WWTF Design Capacity and Design Flow Used to Calculate Permit Limits

	2005 TMDL (Peak Daily Flow) (MGD)	2006 Permit (Peak Daily Flow) (MGD)	2011 Permit (Peak Daily Flow) (MGD)	2016 Permit (Peak Period Flow) (MGD)
WWTF Design Capacity	0.095	0.095	0.167	0.44
Design Flow Used to Calculate Total Phosphorus Permit Limits	0.200	0.095	0.095	TBD

Table 4: 2000-2016 Total Phosphorus Limits

	2000 Permit		2005 TMDL			2006 Permit			2011 Permit			
Season	**30-day Av. Limit (mg/L)[1]**	**7-day Av. Limit (mg/L)[1]**	**Seasonal WLA (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**30-day Av. Limit (lbs/day)[2]**	**30-day Av. Limit (mg/L)[1]**	**7-day Av. Limit (mg/L)[1]**	**30-day Av. Limit (lbs/day)[2]**	**7-day Av. Limit (lbs/day)[3]**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)[3]**
November through April	1.0	1.0	1.46	0.8	1.0	0.8	1.0	1.0	0.8	1.2	0.5	0.75
May and June	2.0	2.0	5.80	3.0	4.5	1.6	2.0	2.0	1.6	2.4	1.0	1.5
July and August	3.0	3.0	3.32	4.0	6.0	1.2	3.0	3.0	1.2	1.8	1.5	2.25
September and October	5.0	5.0	2.44	7.0	10	0.8	5.0	5.0	0.8	1.2	2.5	3.75

[1] Source: Water Quality Management Plan for Rio Hondo.
[2] Source: All concentrations are based on the Water Quality Management Plan for Rio Hondo. November through June uses 0.095 MGD as the design capacity. July and August loading limits were calculated using half of the design flow (0.0475 MGD). September and October loading limits were calculated using 1/5 of the design flow (0.019 MGD).
[3] The allowable 7-day average is defined as 1.5 times the allowable 30-day average.

Table 5: 2000-2016 Total Nitrogen Limits

Phase	Season	2000 Permit			2005 TMDL		2006 Permit			2011 Permit			
		30-Day Av. Limit (lbs/day)	30-day Av. Limit (mg/L)	7-day Av. Limit (mg/L)	30-day Av. Limit (mg/L)[1]	7-day Av. Limit (mg/L)[1]	30-Day Av. Limit (lbs/day)[2]	30-day Av. Limit (mg/L)[3]	7-day Av. Limit (mg/L)[4]	30-Day Av. Limit (lbs/day)[2]	7-day Av. Limit (lbs/day)[4]	30-day Av. Limit (mg/L)[3]	7-day Av. Limit (mg/L)[4]
Phase I 0% capture	November through April	NA	NA	NA	6.5	9.5	11.1	6.5	9.5				
	May and June	NA	NA	NA	26	39	44.0	26	39				
	July and August	NA	NA	NA	30	45	25.1	30	45				
	September and October	NA	NA	NA	55	82	18.5	55	82				
Phase II 25% capture	November through April	NA	NA	NA	7	10.5	12.4	7	10.5				
	May and June	NA	NA	NA	27	40.5	45.3	27	40.5				
	July and August	NA	NA	NA	32	48	26.4	32	48				
	September and October	NA	NA	NA	59	88.5	19.8	59	88.5				
Phase III 50% capture	November through April	NA	NA	NA	8	12	13.7	8	12				
	May and June	NA	NA	NA	28	42	46.6	28	42				
	July and August	NA	NA	NA	33	49.5	27.7	33	49.5				
	September and October	NA	NA	NA	62	93	21.1	62	93				
Phase IV 75% capture	November through April	NA	NA	NA	9	13.5	15.0	9	13.5				
	May and June	NA	NA	NA	29	43.5	47.9	29	43.5				
	July and August	NA	NA	NA	35	52.5	29.0	35	52.5				
	September and October	NA	NA	NA	67	100.5	22.4	67	100.5				
Phase V 100% capture	November through April	NA	NA	NA	10	15	16.2	10	15	13.65	20.5	8.2	12.3
	May and June	NA	NA	NA	29	45	49.1	29.5	44.3	46.55	68.8	27.9	41.2
	July and August	NA	NA	NA	36	55	30.3	36.3	54.5	27.7	41.6	16.6	24.9
	September and October	NA	NA	NA	71	110	23.7	71.0	106.5	21.1	31.7	12.7	19

[1] Phase II-IV total nitrogen limits were not included in the TMDL. The limits were calculated based the annual TMDL loading limit.
[2] Source: 30-day average (lbs/day) were calculated in the 2005 TMDL.
[3] Source: November through June uses 0.2 MGD as the design capacity. For 2011, July and August concentration limits were calculated using half of the 2006 limits (mg/L). September and October loading limits were calculated using 1/5 of the 2006 limits (mg/L).
[4] The allowable 7-day average is defined as 1.5 times the allowable 30-day average.

Septic Systems Offset

Per the 2005 TMDL, there are approximately 77 septic systems with Liquid Waste Disposal Permits are located in the Village of Taos Ski Valley. Those systems are permitted for 2,000 gallons per day. Three entities (Austing Haus Bed and Breakfast, The inn at Taos Valley, and Taos East Condominium Association) located in Taos Ski Valley hold NMED issued Ground Water Discharge Permits for larger systems, with a design capacity of 2,600, 3,150, and 6,000 gallons per day.

A phased plan for a community-wide sewer line extension project was mentioned in the 2005 TMDL for the Village of Taos Ski Valley. The objective of this phased project was to convert all on-site septic systems in the community to the wastewater treatment facility (WWTF). The city council and public works department were incorporating this plan to help reduce nonpoint source pollution contributed by septic systems in Taos Ski Valley. If the Village succeeds in converting all septic systems to the WWTF, then the portion of the total nitrogen LA that is associated with septic systems (e.g. 5.17 lbs/day) can become a WLA. If the WWTF does not pull in the septic systems, it will not proceed on to Phases II-V and would be bound to the WLA at Phase I, with the LA still reflecting the original septic load. Table 5 above shows the total nitrogen limits for this phased approach

The current 2011 NPDES discharge permit indicates that the VTSV WWTF is at Phase V, 100% capture), and is capturing a cumulative design capacity of approximately 160,000 gallons per day (GPD) from septic systems. However, it is appears that the total nitrogen limits are the Phase III limit, and not the Phase V limits, which could mean that the VTSV WWTF still has additional septic system offset capacity. This information will need to be verified with VTSV and further coordination with the NMED and EPA will be required.

One possible location for additional septic system offsets is the Amizette area, which is currently not connected to the VTSV WWTF. FEI estimated an EQR of 300 contributing flow of approximately 66,000 gallons per day (GPD). According to the 2006 permit, total nitrogen limits for Phases II through V will be effective when the permittee has captured septic systems with the following cumulative design capacities into the sewer system:

Table 6: Total Nitrogen Cumulative Design Capacities Capture Requirements

Phase II	40,937 GPD or greater
Phase III	81,975 GPD or greater
Phase IV	122,812 GPD or greater
Phase V	160,000 GPD

If VTSV WWTF is currently at Phase III (81,975 GPD) and is able to capture the Amizette area, it may be possible for the VTVSV WWTF 2016 discharge permit to include Phase IV total nitrogen limits. However, further investigation would be required to determine if the Amizette area is not already included in the TMDL calculations and offset assumptions to fully understand the potential use of the Amizette area for additional credits.

Permitting Alternatives

The following alternatives are options VTSV could pursue for alternative permit limits in its 2016 NPDES discharge permit.

Revise the TMDL

The 2005 TMDL for the Rio Hondo states the following:

> *"Continuous revisions to the TMDL are intended as a part of the implementation plan. During the revisions, additional water quality data may be generated, and targets will be re-examined and potentially revised. The TMDL is considered to be an evolving management plant. The TMDL notes that in the event that new data indicate that the targets used in the analysis are inappropriate or if new standards are adopted, the load capacity will be adjusted accordingly."*

It could be possible for VTSV to request revisions and updates to the 2005 TMDL based on existing data and 2016 VTSV WWTF design capacity flows. VTSV would need current ambient water quality data to revise the WLA and LA (2005 TMDL). This could result in higher WLA for the VTSV WWTF.

Antidegradation Review

For the 2016 NPDES discharge permit renewal, the VTSV WWTF could undergo an antidegradation review to utilize the VTSV WWTF 2016 design capacity for permit limit calculations. The antidegradation review process is described in the above section. If increases to loads can be made under *de minimis* provisions, a formal antidegradation review is not needed.

Alternative Permit Calculation Methods

For the 2016 NPDES discharge permit renewal, VTSV could work with the NMED and EPA to refine the calculations used to determine the permit limits or revise the assumptions used to calculate the limits. For example, more accurate scaled down seasonal design flows could be proposed, utilizing different flows besides a peak daily flow, or using an alternative averaging period to calculate permit limits.

The most likely methods for the VTSV WWTF to be considered *de minimis* are limiting load increase to 10% or limiting design flow to 10% of low flow. LRE recommends working with NMED and EPA to determine what the baseline water quality is for determining assimilative capacity.

Compliance Schedule

VTSV may be able to request a compliance schedule for total phosphorus and total nitrogen in the 2016 permit renewal. This would allow time for VTSV to come into compliance, and address any standard changes in a basin-wide hearing. The following regulation language describes the possible allowance of a compliance schedule in the VTSV WWTF 2016 discharge permit:

> *The first NPDES permit issued to a new source or a new discharger shall contain a schedule of compliance only when necessary to allow a reasonable opportunity to attain compliance with requirements issued or revised after commencement of construction but less than three years before commencement of the relevant discharge. For recommencing dischargers, a schedule of compliance shall be available only when necessary to allow a reasonable opportunity to attain*

compliance with requirements issued or revised less than three years before recommencement of discharge (40 CFR 122.47).

VTSV would need to consult with NMED and EPA to determine if the facility would be treated as a new source or a new discharger. If the upgraded VTSV WWTF is not treated as a new source or a new discharger then a compliance schedule could be allowed.

Revise Basin Water Quality Standards

VTSV could participate in the next hearing to revise the current water quality standards in the Rio Hondo basin. This effort would include additional investigation into the New Mexico Water Quality Control Commission hearing schedule, preparation of hearing testimony in support of a water quality standard change, additional studies for appropriate water quality standards, etc.

Alternative Permit Limits

Based on the above permitting alternative scenarios, LRE estimated total phosphorus and total nitrogen limits. FEI Engineers has provided the following proposed WWTF design flows for improvement/expansion of the VTSV WWTF. These flows were used to calculate the proposed alternative effluent limits.

Table 7: Proposed VTSV WWTF Design Flows

Startup Flow[1] (MGD)	Average Annual Design Flow (MGD)	Maximum Month Design Flow[2] (MGD)	Peak Period Flow[3] (MGD)
0.09	0.20	0.31	0.44

[1] Theoretical flow rate based on peaking factor
[2] Flow based on 2015 EQR estimate
[3] Average of sustained high flow days

Attachment 1, "Permit Limit Alternatives.xlsx" includes the calculations and limits for alternative permit limits.

Recommendations

- LRE first recommends working and coordinating with the NMED and EPA to refine the permit limit calculations and fully understand all of the calculation assumptions. The most likely area of flexibility for alternative permit limits is utilizing alternative calculation methods. Nitrogen limits may be further increased by additional capture of septic discharges to generate nutrient credits. More information is needed to determine whether the Amizette area was included within the original phased plan for credit generation. If not, it may be a source of additional credits.
- Based on our current understanding, the TMDL WLA is the upper cap for nitrogen and phosphorus. Since past phosphorus limits have been based on the old WLA from the Rio Hondo Watershed Management plan, there may be potential to increase the limits significantly. This would require meeting the *de minimis* requirements in the State's Antidegradation Policy or a

formal antidegradation review. It does not appear that TMDL WLAs could be increased for nitrogen because presumably they were equally stringent or more stringent than limits in the Rio Hondo Water Quality Management Plan. LRE recommends working with NMED and EPA to determine the appropriate baseline water quality condition for any antidegradation considerations.

- It may be possible to work with NMED and EPA to determine a different implementation method for nutrient permit limits. For example, it may be possible to request alternative averaging periods and design flow considerations based on the fact that nutrients are not directly toxic to aquatic life, and their impact generally results from accumulated algal growth over the course of a growing season.
- It may be possible to demonstrate via site specific data collection or modeling that standards should be revised for the stream. If water quality standards could be adjusted based on this information, the TMDL could be revised, and this could allow for seasonal limits based on periods when nutrients are most typically problematic (i.e. the summer growing season), and to allow higher loads in winter with lower loads in summer.

References

"Integrated 303(d) List of Impaired Waters", Approved by the New Mexico Water Quality Control Commission, 2014.

New Mexico Surface Water Quality Bureau, Monitoring, Assessment and Standards Section, "Final Approved Total Maximum Daily Load (TMDL) for the Rio Hondo (South Fork of Rio Hondo to Lake Creek)", June 15, 2005.

"State of New Mexico Continuing Planning Process (Appendix A), Antidegradation Policy Implementation Procedure", Adopted by the New Mexico Water Quality Control Commission, November 30, 2010.

"The Village of Taos Ski Valley NPDES Permit (No. NM0022101) and Fact Sheet", February 27, 2006.

"The Village of Taos Ski Valley NPDES Permit (No. NM0022101) and Fact Sheet", August 4, 2011.

2000-2016 Total Phosphorus Limits

	2000 Permit		2005 TMDL			2006 Permit			2011 Permit			
Design Capacity	**PDF (0.095 MGD)**		**PDF (0.095 MGD)**			**PDF (0.095 MGD)**			**PDF (0.167 MGD)**			
Flow Used to Calculate Limits	**PDF (0.095 MGD)**		**PDF (0.2 MGD)**			**PDF (0.095 MGD)**			**PDF (0.095 MGD)**			
	30-day Av. Limit (mg/L)[1]	**7-day Av. Limit (mg/L)[1]**	**Seasonal WLA (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**30-day Av. Limit (lbs/day)[2]**	**30-day Av. Limit (mg/L)[1]**	**7-day Av. Limit (mg/L)[1]**	**30-day Av. Limit (lbs/day)[2]**	**7-day Av. Limit (lbs/day)[3]**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)[3]**
November through April	1	1	1.46	0.8	1	0.8	1	1	0.8	1.2	0.5	0.75
May and June	2	2	5.8	3	4.5	1.6	2	2	1.6	2.4	1	1.5
July and August	3	3	3.32	4	6	1.2	3	3	1.2	1.8	1.5	2.25
September and October	5	5	2.44	7	10	0.8	5	5	0.8	1.2	2.5	3.75

[1] Source: Water Quality Management Plan for Rio Hondo.

[2] Source: All concentrations are based on the Water Quality Management Plan for Rio Hondo. November through June uses 0.095 MGD as the design capacity. July and August loading limits were calculated using half of the design flow (0.0475 MGD). September and October loading limits were calculated using 1/5 of the design flow (0.019 MGD).

[3] Source: The allowable 7-day average is defined as 1.5 times the allowable 30-day average.

Scenario 1: No Change

-No antidegradation review

-Concentration limits (mg/L) stayed the same as the 2011 permit

-Concentrations based on the Water Quality Management Plan for Rio Hondo

-November through June uses 0.095 MGD as the design capacity. July and August loading limits were calculated using half of the design flow (0.0475 MGD). September and October loading limits were calculated using 1/5 of the design flow (0.019 MGD).

-The allowable 7-day average is calculated as 1.5 times the allowable 30-day average.

	2016 Permit Alternatives			
Design Capacity	**PPF (0.44 MGD)**			
Flow Used to Calculate Limits	**PDF (0.095 MGD)**			
	30-day Av. Limit (lbs/day)	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**
November through April	0.8	1.2	0.5	0.75
May and June	1.6	2.4	1.0	1.50
July and August	1.2	1.8	1.5	2.25
September and October	0.8	1.2	2.5	3.75

Scenario 2: Antidegradation Review to use current Design Flows

-Concentrations based on the Water Quality Management Plan for Rio Hondo

-November through June uses design capacity. July and August loading limits were calculated using half of the design flow. September and October loading limits were calculated using 1/5 of the design flow.

-The allowable 7-day average is calculated as 1.5 times the allowable 30-day average.

-stream concentration limit = 0.078231204 **<-- This calculation is based on the 1981 WLA of 1 lb/day and assuming background concentrations from the 2005 TMDL**

	2016 Permit Alternatives																			
Flow Used to Calculate Limits	MMDF (0.2 MGD)					MMDF (0.31 MGD)					Startup (0.09 MGD)					PPF (0.44 MGD)				
	Flow Assumption	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**
November through April	0.2	1.00	1.5	0.60	0.9	0.31	1.00	1.5	0.39	0.6	0.09	1.00	1.5	1.33	2.0	0.44	1.00	1.5	0.27	0.4
May and June	0.2	3.66	5.5	2.19	3.3	0.31	3.66	5.5	1.41	2.1	0.09	3.66	5.5	4.87	7.3	0.44	3.66	5.5	1.00	1.5
July and August	0.1	2.08	3.1	2.49	3.7	0.155	2.08	3.1	1.61	2.4	0.045	2.08	3.1	5.54	8.3	0.22	2.08	3.1	1.13	1.7
September and October	0.04	1.51	2.3	4.54	6.8	0.062	1.51	2.3	2.93	4.4	0.018	1.51	2.3	10.09	15.1	0.088	1.51	2.3	2.06	3.1

Scenario 3: Antidegradation Review to use current TMDL limits

-Using TMDL Seasonal WLA

-The allowable 7-day average is calculated as 1.5 times the allowable 30-day average.

-November through June uses design capacity. July and August loading limits were calculated using half of the design flow. September and October loading limits were calculated using 1/5 of the design flow.

	2016 Permit Alternatives																			
Flow Used to Calculate Limits	MMDF (0.2 MGD)					MMDF (0.31 MGD)					Startup (0.09 MGD)					PPF (0.44 MGD)				
	Flow Assumption	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**
November through April	0.2	1.46	2.2	0.8	1.2	0.31	1.46	2.2	0.5	0.8	0.09	1.46	2.2	1.8	2.7	0.44	1.46	2.2	0.4	0.5
May and June	0.2	5.80	8.7	3.0	4.5	0.31	5.80	8.7	1.9	2.9	0.09	5.80	8.7	6.7	10.0	0.44	5.80	8.7	1.4	2.0
July and August	0.1	3.32	5.0	4.0	6.0	0.155	3.32	5.0	2.6	3.9	0.045	3.32	5.0	8.9	13.3	0.22	3.32	5.0	1.8	2.7
September and October	0.04	2.44	3.7	7.0	10.5	0.062	2.44	3.7	4.5	6.8	0.018	2.44	3.7	15.6	23.3	0.088	2.44	3.7	3.2	4.8

Scenario 4: De Minimis

-Using 30-day (lbs/day) from 2006 permit+10%

-November through June uses design capacity. July and August loading limits were calculated using half of the design flow. September and October loading limits were calculated using 1/5 of the design flow.

-The allowable 7-day average is calculated as 1.5 times the allowable 30-day average.

	2016 Permit de Minimis																			
Flow Used to Calculate Limits	AADF (0.20 MGD)					MMDF (0.31 MGD)					Startup (0.09 MGD)					PPF (0.44 MGD)				
	Flow Assumption	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**Flow Assumption**	**30-day Av. Limit (lbs/day)**	**7-day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**
November through April	0.2	0.88	1.3	0.5	0.8	0.31	0.88	1.3	0.3	0.5	0.09	0.88	1.3	1.2	1.8	0.44	0.88	1.3	0.2	0.4
May and June	0.2	2.70	4.1	1.6	2.4	0.31	2.70	4.1	1.0	1.6	0.09	2.70	4.1	3.6	5.4	0.44	2.70	4.1	0.7	1.1
July and August	0.1	2.30	3.5	2.8	4.1	0.155	2.30	3.5	1.8	2.7	0.045	2.30	3.5	6.1	9.2	0.22	2.30	3.5	1.3	1.9
September and October	0.04	1.90	2.9	5.7	8.5	0.062	1.90	2.9	3.7	5.5	0.018	1.90	2.9	12.7	19.0	0.088	1.90	2.9	2.6	3.9

Additional antidegradation (de minimis scenarios could be developed using the Rio Hondo or TMDL as the baseline conditions (e.g. Scenario 2 baseline).

2000-2016 Total Nitrogen Limits Scenarios

		2000 Permit			2005 TMDL		2006 Permit	
		0.2 MGD			0.2 MGD		0.2 MGD	
Phase	**Season**	**30-Day Av. Limit (lbs/day)**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)**	**30-day Av. Limit (mg/L)[1]**	**7-day Av. Limit (mg/L)[1]**	**30-Day Av. Limit (lbs/day)[2]**	**30-day Av. Limit (mg/L)[3]**
Phase I	November through April	NA	NA	NA	6.5	9.5	11.1	6.5
	May and June	NA	NA	NA	26	39	44	26
	July and August	NA	NA	NA	30	45	25.1	30
	September and October	NA	NA	NA	55	82	18.5	55
Phase II	November through April	NA	NA	NA	7	10.5	12.4	7
	May and June	NA	NA	NA	27	40.5	45.3	27
	July and August	NA	NA	NA	32	48	26.4	32
	September and October	NA	NA	NA	59	88.5	19.8	59
Phase III	November through April	NA	NA	NA	8	12	13.7	8
	May and June	NA	NA	NA	28	42	46.6	28
	July and August	NA	NA	NA	33	49.5	27.7	33
	September and October	NA	NA	NA	62	93	21.1	62
Phase IV	November through April	NA	NA	NA	9	13.5	15	9
	May and June	NA	NA	NA	29	43.5	47.9	29
	July and August	NA	NA	NA	35	52.5	29	35
	September and October	NA	NA	NA	67	100.5	22.4	67
Phase V	November through April	NA	NA	NA	10	15	16.2	10
	May and June	NA	NA	NA	29	45	49.1	29.5
	July and August	NA	NA	NA	36	55	30.3	36.3
	September and October	NA	NA	NA	71	110	23.7	71

[1] Phase II-IV total nitrogen limits were not included in the TMDL. The limits were calculated based the annual TMDL loading limit.

[2] Source: 30-day average (lbs/day) were calculated in the 2005 TMDL.

[3] Source: November through June uses 0.2 MGD as the design capacity. For 2011, July and August concentration limits were calculated using half of the 2006 limits (mg/l

[4] The allowable 7-day average is defined as 1.5 times the allowable 30-day average.

	2011 Permit							
	0.2 MGD				MMDF (0.2 MGD)			
7-day Av. Limit (mg/L)[4]	30-Day Av. Limit (lbs/day)[2]	7-day Av. Limit (lbs/day)[4]	30-day Av. Limit (mg/L)[3]	7-day Av. Limit (mg/L)[4]	30-Day Av. Limit (lbs/day)	7-day Av. Limit (lbs/day)	30-day Av. Limit (mg/L)[1]	7-day Av. Limit (mg/L)[2]
9.5								
39								
45								
82								
10.5								
40.5								
48								
88.5								
12	13.65	20.5	8.2	12.3	13.7	20.5	8.2	12.3
42	46.55	68.8	27.9	41.2	46.6	69.8	27.9	41.9
49.5	27.7	41.6	16.6	24.9	27.7	41.6	16.5	24.8
93	21.1	31.7	12.7	19	21.1	31.7	12.4	18.6
13.5					15.0	22.5	9.0	13.5
43.5					47.9	71.9	28.7	43.1
52.5					29.0	43.5	17.5	26.3
100.5					22.4	33.6	13.4	20.1
15					16.2	24.3	9.7	14.6
44.3					49.1	73.7	29.4	44.2
54.5					30.3	45.5	18.2	27.2
106.5					23.7	35.6	14.2	21.3

.). September and October loading limits were calculated using 1/5 of the 2006 limits (mg/L)

2016 Permit Alternatives							
MMDF (0.31 MGD)				Startup (0.09 MGD)			
30-Day Av. Limit (lbs/day)	7-day Av. Limit (lbs/day)[4]	30-day Av. Limit (mg/L)	7-day Av. Limit (mg/L)[4]	30-Day Av. Limit (lbs/day)	7-day Av. Limit (lbs/day)[4]	30-day Av. Limit (mg/L)	7-day Av. Limit (mg/L)[4]
13.7	20.5	5.3	7.9	13.7	20.5	18.2	27.3
46.6	69.8	18.0	27.0	46.6	69.8	62.0	93.0
27.7	41.6	10.6	16.0	27.7	41.6	36.7	55.0
21.1	31.7	8.0	12.0	21.1	31.7	27.6	41.3
15.0	22.5	5.8	8.7	15.0	22.5	20.0	30.0
47.9	71.9	18.5	27.8	47.9	71.9	63.8	95.7
29.0	43.5	11.3	16.9	29.0	43.5	38.9	58.3
22.4	33.6	8.6	13.0	22.4	33.6	29.8	44.7
16.2	24.3	6.3	9.4	16.2	24.3	21.6	32.4
49.1	73.7	19.0	28.5	49.1	73.7	65.4	98.1
30.3	45.5	11.7	17.6	30.3	45.5	40.3	60.5
23.7	35.6	9.2	13.7	23.7	35.6	31.6	47.3

PPF (0.44 MGD)			
30-Day Av. Limit (lbs/day)	**7-day Av. Limit (lbs/day)[4]**	**30-day Av. Limit (mg/L)**	**7-day Av. Limit (mg/L)[4]**
13.7	20.5	3.7	5.6
46.6	69.8	12.7	19.0
27.7	41.6	7.5	11.3
21.1	31.7	5.6	8.5
15.0	22.5	4.1	6.1
47.9	71.9	13.1	19.6
29.0	43.5	8.0	11.9
22.4	33.6	6.1	9.1
16.2	24.3	4.4	6.6
49.1	73.7	13.4	20.1
30.3	45.5	8.3	12.4
23.7	35.6	6.5	9.7