

**PRELIMINARY ENGINEER'S REPORT
FOR
CAMP ORAYSA – OUTFALL NO. 001 EXPANSION
SPDES PERMIT NO. NY-0271179**

Amended December 16, 2025

By

**Wasson Engineering
181 N. Kaisertown Road
Montgomery, NY 12549**



PRELIMINARY ENGINEER’S REPORT
FOR
CAMP ORAYSA – OUTFALL NO. 001 EXPANSION
SPDES PERMIT NO. NY-0271179
Amended December 16, 2025

Introduction:

Camp Oraysa is a boys’summer camp located at 228 Todd Road in the Town of Fallsburg, Sullivan County. It is operational for eight weeks per year, primarily during the months of July and August. Other than a small maintenance staff during the spring and fall months, the camp is unoccupied during the remainder of the year.

The camp is presently served by four subsurface septic disposal systems designated as Outfall Nos. 002 through 005, and one system that has a surface discharge, designated Outfall No. 001. The camp is proposing to maintain Outfall No. 003 with a permitted flow of 1,000 gpd and a calculated tributary flow of 480 gpd. It will also upgrade and expand Outfall No. 001, which has a current capacity of 8,000 gpd, to 48,000 gpd. Existing Outfalls 002, 004 and 005 will be abandoned.

Design Flow:

Individual design flows are based on the usage for Migrant Worker Housing included in the Design Standards Table B3 and broken down as follows:

Migrant Worker Housing:	50 gpcd (gallons per capita per day)
	40 gpcd with water saving fixtures
Showers:	20 gpcd
Toilet:	10 gpcd
Dining Room:	10 gpcd

We applied the 3 gpd per seat flow indicated for usage in churches to the shul and assumed the whole camp population used the shul daily. The gym isn’t used daily, but we assumed 100 people per day at the same 3 gpd per person rate for gym usage since there is only a single bathroom but no locker rooms or showers in the gym.

Residential washers are assumed to use 15 gpd per person calculated as follows:

Assume a single bedroom house with a design flow of 110 gpd or 55 gpcd for each occupant. Subtracting out the shower, toilet and dining flows totaling 40 gpcd leaves 15 gpcd for the washing machine. The washers in the laundry buildings are rated at the commercial flow of 580 gpd/machine per Design Standards.

The maximum capacity for each existing and proposed residential structure is indicated in the attached table. At present the camp has capacity for 578 campers and staff that will be tributary to Outfall No. 001 and 16 staff that will be tributary to Outfall No. 003, so total current camp capacity is 594 which is used in the shul and kitchen/dining room calculations.

Based on these figures, the calculated flow to Outfall No. 001 would be 30,022 gpd. Tributary flow to Outfall No. 003 is 480 gpd.

In the future, the camp plans to add 326 campers and staff bringing the total future population to 920 people with a calculated flow to Outfall No. 001 of 44,730 gpd. Flow to Outfall No. 003 will not change.

See the attached table for tributary flow calculations.

Outfall No. 001 Proposed Treatment Plant:

The existing Outfall No. 001 treatment plant includes septic tanks, primary and secondary sand filters, dosing tanks, chlorine disinfection and dechlorination prior to discharge to an intermittent stream near NYSDEC Wetland No. GR-22. Design flow is 8,000 gpd.

The proposed treatment plant will have a capacity of 48,000 gpd and will be designed in accordance with NYSDEC 2014 Design Standards, 10 States Standards and TR-16. It will meet NYSDEC intermittent stream standards and will include septic tanks followed by recirculating gravel filters, a flow splitter, a recirculation tank, a pump/dosing tank, polishing sand filters and disinfection prior to discharge. The sand will be removed from the existing primary filters and replaced with a graded gravel. The existing secondary sand filters will be enlarged to 48,000 gpd capacity and will utilize the sand removed from the existing primary and secondary filters.

A Preliminary Site Plan and a Flow Diagram are attached.

Primary treatment including solids removal will be accomplished in the two septic tanks to be installed in series at the head of the plant and totaling 48,000 gallons minimum, per Design Standards.

Flow to the treatment plant will be measured in a manhole ahead of the septic tanks which will contain a Parshall Flume and flow recorder. The flow, temperature and pH will be measured and recorded daily when the camp is operating.

If there is a phosphorous limit in the effluent, aluminum sulfate (alum) solution will be injected into the wastewater flow ahead of the septic tanks to precipitate out the phosphorous in the septic tanks.

The septic tank effluent will flow into a recirculating tank that contains pumps which will dose the proposed recirculating gravel filters and mix the partially treated filter effluent with septic tank effluent. Flow from the recirculation tank will be pressure dosed evenly over the proposed gravel filters through nozzles mounted on distribution piping/headers suspended above the filters. Effluent collect on the bottom of the filter beds will flow by gravity into a splitter box where 20% - 25% of the flow will be directed to the polishing filter dosing tank and 75% - 80% of the flow will be pumped back up to the recirculation tank from which it will again be pumped/dosed onto the gravel filters with 75% - 80% of the flow again returning to the recirculation tank. The process is continuous and results in the septic tank effluent flowing through the gravel filters 4 – 5 times before discharge to the polishing filter.

The polishing filter will further reduce nutrients in the effluent. Discharge from the polishing filter will flow to the disinfection unit. If disinfection is by chlorine, there will be a metering pump installed to deliver a set amount of sodium hypochlorite to the effluent as it enters a chlorine contact tank where the effluent mixes and is retained for a minimum of 15 minutes before discharge. Upon discharge, sodium sulfate will be introduced into the effluent stream to strip the chlorine out of the effluent prior to discharge to the receiving stream. The other alternative being considered is ultraviolet disinfection. This is the preferred method as there is no chemical handling and therefore is safer for the operator.

OUTFALL NO. 001 TRIBUTARY FLOWS						
Buiding No.	Bedrooms/ Capacity	No. Washers	Design Flow Rate per person (gpd)			Total Flow (gpd)
			toilets (gpd)	showers (gpd)	washers (gpd)	
1	8/16 staff	1	10	20	15	16 x 45 gpd =720
2	4/8 staff	1	10	20	15	8 x 45 gpd = 360
3	24 campers 1st Fl.		10	20	0	24 x 30 gpd = 720
3	8/16 staff 2nd Fl.	1	10	20	15	16 x 45 gpd =720
4	3/6staff	0	10	20	0	6 x 30 gpd = 180
5	Laundry	2	0	0	580	2 X 580 = 1,160
6	Storage	0	0	0	0	0,
7	46 campers	0	10	20	0	46 x 30 gpd = 1,380
8	40 campers	0	10	20	0	40 x 30 gpd = 1,200
9	40 campers	0	10	20	0	40 x 30 gpd = 1,200
10	594 Shul	0	3	0	0	594 x 3 gpd = 1,782
10	920 Future Shul	0	3	0	0	920 X 3 gpd = 2,760
11	6/12 staff	0	10	20	0	12 x 30 gpd = 360
12	6/12 staff	0	10	20	0	12 x 30 gpd = 360
15	8/16 staff	0	10	20	0	16 x 30 gpd = 480
16	594 Kitchen/Dining	0	10*	0	0	594 x 10 gpd = 5,940
16	920 Future K/D	0	10*	0	0	920 x 10 gpd = 9,200
17	Laundry	5	0	0	580	5 x 580 gpd = 2,900
Dorm #1	44	0	10	20	0	44 x 30 gpd = 1,320
Dorm #2	44	0	10	20	0	44 x 30 gpd = 1,320
Dorm #3	44	0	10	20	0	44 x 30 gpd = 1,320
Dorm #4	70	0	10	20	0	70 x 30 gpd = 2,100
Dorm #5	70	0	10	20	0	70 x 30 gpd = 2,100
Dorm #6	70	0	10	20	0	70 x 30 gpd = 2,100
19 (proposed)	12/24 staff	2	10	20	15	24 x 45 gpd = 1,080
20 (proposed)	11/22 staff	2	10	20	15	22 x 45 gpd = 990
Dorm #7 (prop)	70	0	10	20	0	70 x 30 gpd = 2,100
Dorm #8 (prop)	70	0	10	20	0	70 x 30 gpd = 2,100
Dorm #9 (prop)	70	0	10	20	0	70 x 30 gpd = 2,100
Dorm #10 (prop)	70	0	10	20	0	70 x 30 gpd = 2,100
Gym	100/day estimated	0	3	0	0	100 x 3 gpd = 300
	578 EXIST CAPACITY					30,022 EXISTING **

326 FUTURE ADD

904 SUBTOTAL

FUTURE PROPOSED FLOW 44,730 ***

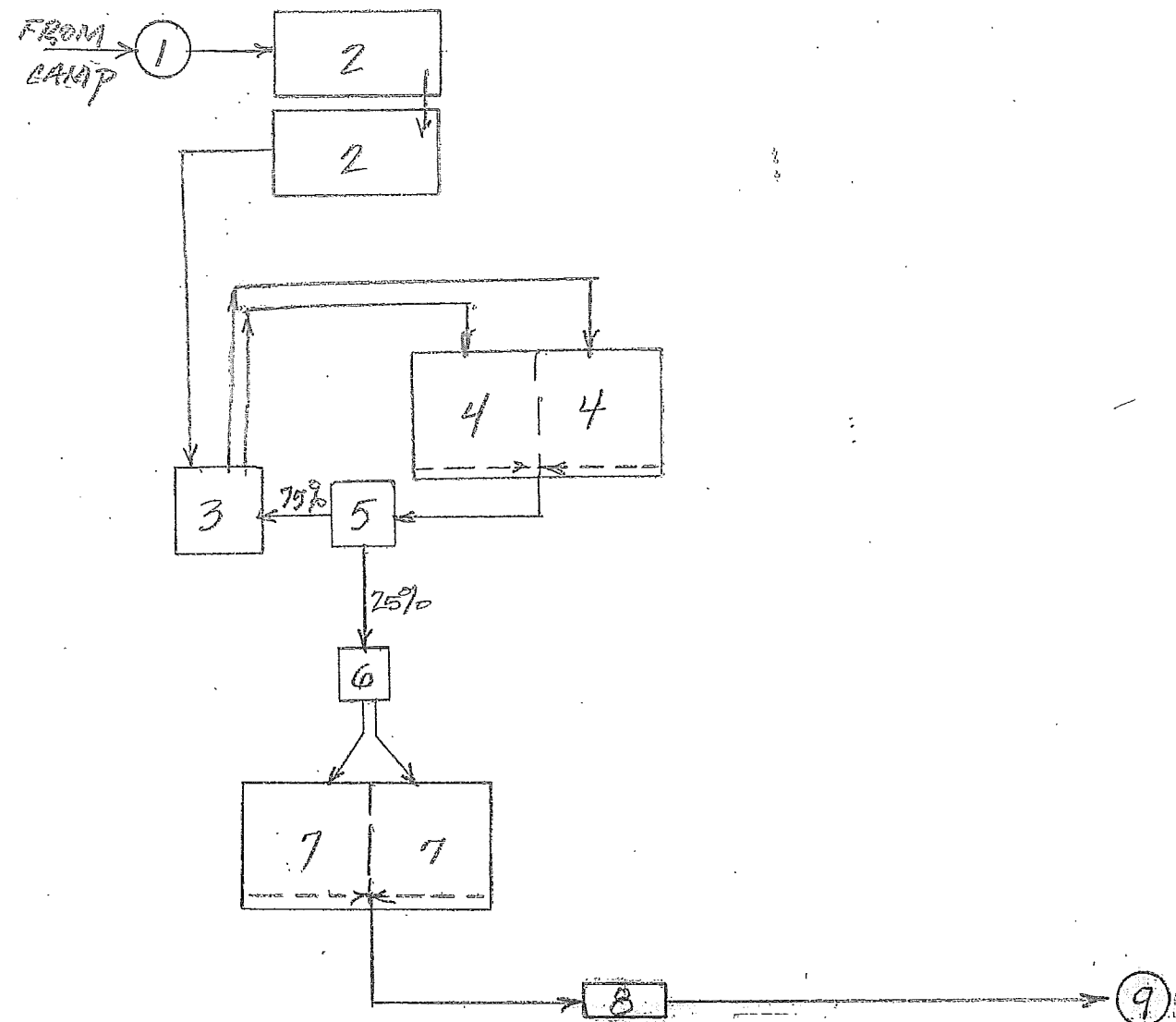
* Includes toilets and kitchen wastewater

** Includes all existing building capacities/flows plus Outfall No. 003 staff contributions to shul and kitchen/dining room flows

*** Includes all proposed building capacities/flows plus Outfall No. 003 staff contributions to shul and kitchen/dining room flows

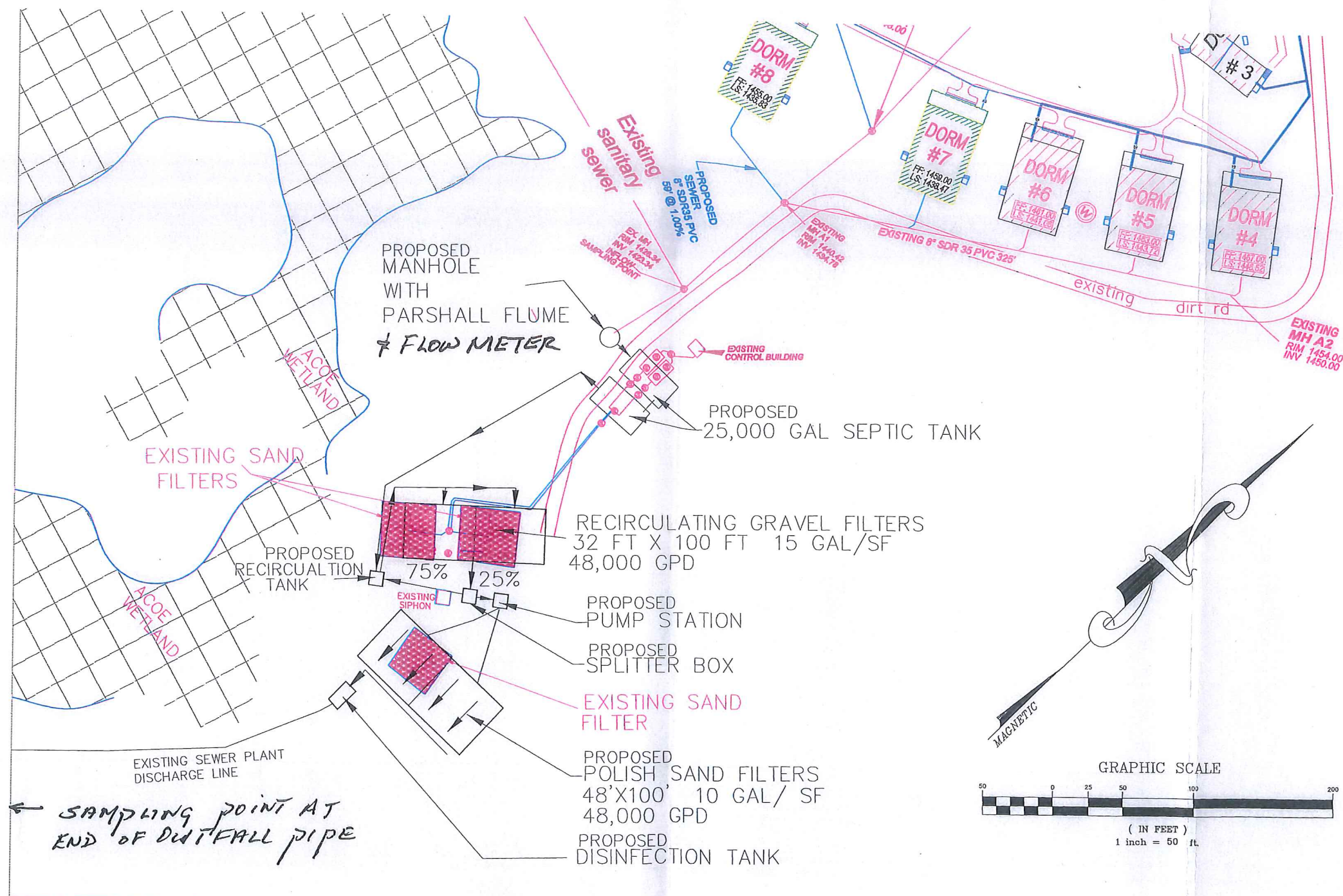
OUTFALL NO. 003 TRIBUTARY FLOWS						
Buiding No.	Bedrooms/ Capacity	No. Washers	Design Flow Rate per person (gpd)			Total Flow (gpd)
			toilets (gpd)	showers (gpd)	washers (gpd)	
13	3/6staff	0	10	20		6x 30 gpd = 180
14	5/10 staff	0	10	20		10 x 30 gpd = 300
	16 EXIST CAPACITY					480 EXIST& PROP

CAMP ORAYSA FLOW DIAGRAM OUTFALL NO. 001



UNIT DESIGNATIONS:

- 1 Influent manhole with Parshall Flume for flow measurement & alum injection
- 2 25,000 gallon septic tank
- 3 Recirculation tank
- 4 Recirculating gravel filter
- 5 Flow splitter box
- 6 Dosing tank
- 7 Polishing sand filter
- 8 Disinfection either chlorination/de-chlorination utilizing sodium hypochlorite/sodium sulfate or ultraviolet
- 9 Existing Outfall No. 001 & effluent sampling location



**CAMP ORAYSA
OUTFALL NO. 001
PRELIMINARY SITE PLAN
DATE 10/01/25 SCALE 1" 50 FT**

EXISTING BUI.	
BLDG NUMBER	USE
1	8 BEDROOM
2	4 BEDROOM
3	7 BEDROOM
4	3 BEDROOM
5	4 LAUNDRY MAC
6	SYNAGOGUE
7	DORMITORY
8	DORMITORY
9	DORMITORY
10	SCHUL
11	6 BEDROOM
12	4 BEDROOM
13	3 BEDROOM
14	5 BEDROOM
15	WORKERS TRAIL
16	CAFETERIA
17-1 TO 17-10	DORMITORY
18	GYMNASIUM
19	PROPOSED STAFF HOI
20	PROPOSED STAFF HOI

OUND MAPPING, EXISTING AND
EDDEVELOPMENT FROM CAMP ORAYSA REV
2017 AUTOCAD DWG, BY WASSON ENGINEERING

S:
TOPOGRAPHY BY ROBINSON AERIAL SURVEYS, INC., JUNE 2004.

UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN
BEARING A LICENSED ENGINEERS' SEAL IS A VIOLATION
OF SECTION 7209, SUBSECTION 2, OF THE NEW YORK
STATE EDUCATION LAW.