

VOLUME III

SECTION 21.

Wild Rose State Fish Hatchery (WRO)

21. WILD ROSE STATE FISH HATCHERY

Facility Overview

General Facility Description

Wild Rose State Fish Hatchery (WRO) is located approximately one-half mile north of the town of Wild Rose in Waushara County, Wisconsin (see **Table 21A**, Location Map). The contact information for the facility is:

Supervisor	Steve Fajfer	Steven.Fajfer@wisconsin.gov
Facility Address	N5871 Highway 22N	Wild Rose, WI 54984
Telephone Fax	920.622.3527	920.622.3028

WRO was recently renovated and thus it was not included within the scope of the WDNR's Comprehensive Study of Wisconsin's Fish Propagation System and the subsequent infrastructure analysis of the statewide system. This design and construction project has won numerous awards including:

- 2010 and 2012 - National Finalist - American Council of Engineering Companies
- 2010 and 2012 - Honor Award - American Council of Engineering Companies – Illinois
- 2009 - Award of Excellence - Association of Conservation Engineers
- 2009 Build Wisconsin Award – The Associated General Contractors of Wisconsin

As a newly updated facility, most of the infrastructure is new and thus no improvement alternatives have been identified. Therefore, this WRO section of the report is intended to provide a cursory overview of the renovated facility. For more specific WRO historical and newly as-built information, please refer to FishPro's preliminary design study report entitled *Wild Rose State Fish Hatchery Fish Propagation Water Supply Compliance and Renovation Study* (2003) or the as-built construction drawings for Phases I and II. The following paragraphs briefly summarize the newly renovated WRO facility.

In late 2008, the renovated coldwater system or Phase I (West Side) at WRO was completed. Phase I involved the construction of a proposed 2.4 million fish/year (proposed 122,000 pounds/year) coldwater hatchery (production and broodstock) that provides egg incubation, early rearing, and final grow-out for Chinook salmon, Coho salmon, rainbow and brown trout for Lake Michigan management. Phase I includes a coldwater hatchery building, a trout broodstock building, and four covered raceway buildings. Rearing and holding units within these buildings operate at a combined peak flow rate of nearly 3,200 gpm, which is obtained from production wells. The water supply is treated with oxygen based dissolved oxygen management prior to use in the hatchery and broodstock buildings and then is microscreened and UV disinfected prior to being reused in the raceway buildings. Coldwater effluent is also microscreened and solids management is accomplished via a clarifier and sludge storage tank. A chemical detention pond was also provided to handle therapeutic effluent.



WILD ROSE STATE FISH HATCHERY

Fig. 2 1 A



The coolwater portion of the facility or Phase II (East Side) was completely renovated in 2009-10. The project involved construction of a plastic membrane-lined pond complex with 14 ponds and a coolwater hatchery and production building that operates using recirculation technology that produces a proposed 680,000 fish/year (proposed 10,500 pounds/year). The coolwater production system produces spotted muskellunge, northern pike, walleye, and lake sturgeon using a combination of extensive pond and intensive rearing using water recirculation. The coolwater building utilizes a recirculating aquaculture system (RAS) that includes two independent, 2,400 gpm heated water systems that use microscreens, moving bed biofiltration, UV disinfection, variable on-demand water pumping, and oxygen based dissolved gas management. The heated RAS systems operate with 10% make-up by flow rate using 2-stage heat recovery/heat exchange and high efficiency natural gas fired boilers.

Currently, nine full-time employees (8.75 FTE's) and two limited time employees operate the newly renovated WRO facility.

An aerial photograph and existing site plan including the Phase I and Phase II renovations are illustrated in **Drawing WRO-1**. The drawing includes the hatchery boundary and general hatchery infrastructure (e.g., water supply, fish rearing units, drainage piping, production buildings, support buildings, roads, and wastewater treatment facilities). Please note that the drawings were generated using a combination of USGS National Aerial Photographic Program (NAPP) aerial photography (4/29/98) and existing WDNR new construction engineering drawings. The drawings are believed to be reasonable, to-scale representations of hatchery resources for planning purposes. Photographs taken at the end of construction of both Phase I (coldwater) and the Phase II (coolwater) projects are provided in **Appendix C**.

Fish Production Summary

Proposed Production

Given the recent Phase I and II renovations at WRO, proposed coldwater and coolwater production values in number and ponds are included for comparative purposes. The proposed values were originated from the FishPro's conceptual design report entitled, *Wild Rose State Fish Hatchery Fish Propagation Water Supply Compliance and Renovation Study (2003)*. **Tables 21A** and **21B** summarize the coldwater (Phase I) and coolwater (Phase II) proposed production that was included specifically within Tables IV-1 and IV-3 of Section IV of the 2003 Report. The numbers and pounds listed below are theoretical and are subject to change as annual facility production assignments change, biosecurity issues arise, and the facility makes adjustments based on actual site-specific conditions. The coolwater indoor RAS system has significant production capacity above the 2003 programmed levels.

Table 21A. WRO Coldwater (Phase I) Proposed Production Summary

Coldwater Production	Number	Total Pounds	Number per Pound
Domestic BNT Subtotals	737,100	57,800	12.8
Serforellan BNT Subtotals	330,000	31,350	10.5
FCS Subtotals	1,145,000	10,170	112.6
RBT Yearling Subtotals	100,000	10,000	10.0
Summary Coldwater Production	2,312,100	109,320	21.1
Broodstock Program	Number	Total Pounds	Number per Pound
Domestic BNT Broodstock Subtotals	28,075	6,200	4.5
Feral RBT Broodstock Subtotals	28,075	6,200	4.5
Broodstock Summary	56,150	12,400	4.5
Total (Coldwater and Broodstock)	2,368,250	121,720	19.5

Compliance and Renovation Study (2003)

Table 21B. WRO Coolwater (Phase II) Proposed Production Summary

Coolwater Production	Number	Pounds	Number per Pound
Northern Pike Small Fingerling	58,000	829	70.0
Northern Pike Large Fingerling	42,000	4,200	10.0
Sturgeon Small Fingerling	10,000	86	116.3
Sturgeon Large Fingerling	80,000	2,000	40.0
Spotted Muskellunge Fingerling	30,000	3,000	10.0
Walleye Small Fingerling	460,000	541	850.3
Coolwater Total	680,000	10,656	63.8

Compliance and Renovation Study (2003)

Historical Production

For comparative purposes, historical 2004-08 WRO stocking data is included in **Table 21C**. It should be noted that these values represent WRO prior to the completion of the Phase I and Phase II renovations. During the five-year period, coldwater stocking averaged approximately 1.1 million fish weighing nearly 85,500 pounds. The coolwater portion of the facility stocked an average of almost 900,000 fish at approximately 4,900 pounds.

Table 21C. WRO 2004-08 Stocking Summary

Year	STN Fry		STN Fing.		STN Yr.		BNT Fing.		BNT Yr.		BNT Brood		WAE Fry	
	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
2004	24,900	2	27,483	690	2,346	280	228,823	37,996	382,792	53,913	503	823		
2005			50,942	871	1,622	282	252,363	35,190	391,013	54,829	978	1,934		
2006			21,257	204	1,694	469	208,588	25,001	397,228	53,652	239	1,030	1,700,000	27
2007							372,764	29,633	409,236	51,260	134	720		
2008							67,065	2,066	346,074	38,331	36	200		
Total	24,900	2	99,682	1,765	5,662	1,031	1,129,603	129,886	1,926,343	251,985	1,890	4,707	1,700,000	27
Average	24,900	2	33,227	588	1,887	344	225,921	25,977	391,269	50,397	378	941	1,700,000	27
Year	FCS Fing.		MUE Fry		MUE Fing.		MUE Yr.		NOP Fry		NOP Fing.		Total No.	Total Wt.
	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.		
2004	548,536	7,887	52,715	2	24,741	5,044	256	322					1,293,095	106,959
2005	537,440	7,225			20,350	4,678	434	167	1,507,218	55	77,894	1,819	2,840,254	107,050
2006	587,665	7,230	163,093	7	8,437	2,459	529	330			51,254	2,103	3,139,984	92,512
2007	572,240	8,962					854	1,575	711,344	26	35,319	3,163	2,101,891	95,339
2008	508,805	10,051											921,980	50,648
Total	2,754,686	41,355	215,808	9	53,528	12,181	2,073	2,394	2,218,562	81	164,467	7,085	10,297,204	452,508
Average	550,937	8,271	107,904	5	17,843	4,060	518	599	1,109,281	41	54,822	2,362	2,059,441	90,502

Source: WDNR Database, 2009

Aquaculture Water Supply

Historical Water Supply

Water has historically been supplied to the hatchery from groundwater fed springs. In the early 1960s, a myriad of sand point wells (approximately 70) were driven into the lowland area by the springs to increase flow to the surface. In 1963, three four-inch diameter wells were installed to further supply the hatchery. A non-potable sixteen-inch diameter well was drilled in 1997 to conduct pump tests and was utilized to further augment flow to the hatchery. Water flows from the historical supply wells reportedly diminished over time, most likely due to fouling, physical binding, and corrosion of the well screens. Total outflow measured over the last years of use by hatchery staff indicated flows ranging from about 1,200 gpm to 2,100 gpm which were highly seasonal in character. All non-compliant driven sand points and old wells were removed during the Phase 1 project. All new wells are fully compliant with WDNR regulations.

Phase I (coldwater)

Water on the renovated Phase I coldwater side is provided by four production wells (Wells A through D). Each was initially designed for an approximate yield of 1,250 gpm with a long-term sustained operation average nearly 1,000 gpm each. Well water is pumped to automatically meet facility demand and then is degassed and aerated via liquid oxygen at the coldwater headtank. From the headtank, water can be used either within the coldwater broodstock building and/or the coldwater production/hatchery building for egg incubation and early rearing. First use water can be optionally sent directly to the raceway complex. Reuse water from these buildings is microscreened and UV disinfected prior to use in the covered raceways.

Phase II (coolwater)

Water use on the renovated coolwater side or Phase II is complex. Water can be either:

- 1) Disinfected reuse water from the Phase I coldwater side for use within the coolwater production ponds or the indoor raceways in the coolwater building;
- 2) First use well water from Well E (a 1,000 gpm well similar to Wells A through D) for egg incubation and RAS makeup purposes; or
- 3) Pumped water from the solar pond.

Microscreens and UV disinfection units treat the Phase I reuse water prior to use in the Phase II ponds. Two separate coolwater building recirculating aquaculture systems (including microscreens, UV disinfection, biofilters, boilers, heat recovery units, and pumps) treat and supply various water temperature regimes for intensive coolwater rearing within the coolwater production building. All water (first use well water and recirculated coolwater building water) is contained in separate piping systems, and is pumped to a coolwater headtank, where dissolved gas management via liquid oxygen (LOX) based aeration/degassing occurs. Phase I reuse water can also be shunted to a solar pond for warming prior to use in the coolwater ponds.

The hatchery is operating under a WDNR high capacity well permits due to well water withdrawals exceeding 100,000 gallons per day (about 70 gpm).

Water Collection and Distribution

The facility is currently supplied with water in a variety of ways. The renovated west side of the hatchery relies on variable frequency driven pumped wells. Water from all new wells is automatically pumped to meet facility demand to a multi-chambered headtank located on the northernmost point of the facility between the new hatchery buildings. The new Raceway Pavilions, Broodstock Building, and Coldwater Hatchery Building receive water from the headtank.

The renovated coolwater facility is fed by reuse water (after treatment) from west side operations and well water. The water flows by gravity under State Highway 22 through a UV disinfection building. From there the water can be directed to the ½ acre ponds, the coolwater building raceways, the solar pond, or directly to Pine River. The water can be diverted to the Coolwater Production Building, or the ponds.

All new piping as part of the renovation project is PVC.

Water Quality

Historically, water quality issues at the current hatchery have included siltation, debris, excessive dissolved nitrogen, low dissolved oxygen, and storm water runoff. High dissolved nitrogen levels were present mainly in the winter and spring while dissolved oxygen levels were low throughout the year. These issues historically limited fish production and increased disease incidence. The renovated facility utilizes constant temperature, pathogen-free well water and treated reuse/recirculation water which serves to eliminate these types of water quality issues.

Water Treatment

The new facility utilizes aeration/degassing of well water via sealed oxygen dissolving columns prior to use in the buildings and raceways. Oxygen from a liquid oxygen (LOX) system is supplied to the headtank and to each building and raceway. Oxygen dissolving devices are used in the tanks and raceways to manage dissolved oxygen levels throughout the facility.

Iodine, Formalin and hydrogen peroxide are used during spawning and egg incubation. Iodine is used as a surface disinfect initially for eggs. Formalin and hydrogen peroxide are used to kill fungal spores on eggs during incubation. For the past two years, only hydrogen peroxide has been used for fungus control. Both phases of the renovation include chemical detention ponds to allow for chemical dissipation.

Fish Rearing Units

The old coldwater and coolwater fish production buildings were demolished as part of the renovation projects. The discussion below highlights the new fish production units for the entire facility.

Coldwater (Phase I) Units

Table 21D provides a summary of the coldwater intensive fish rearing units.

Table 21D. Summary of Phase I Coldwater Intensive Units

Location and Unit Type	Size (ft) (LxWxD) (Dia. x D) operating depths	Useable Vol./Unit (cf)	No. Units	Total Useable Vol. (cf)	Flow Rate (gpm)	Exchange Rate
Coldwater Hatchery Bldg.						
Vertical Flow Incubators			40		7	
Circular Tanks	(6 x 3) 2.5	71	42	2,969	26	3
Broodstock Bldg.						
Raceways	(50 x 6 x 3.5) 3	900	10	9,000	224	2
Raceway Bldgs.						
Raceways	(100 x 6 x 3) 2.5	1,500	16	24,000	748	4

Coldwater Egg Incubation and Early Rearing

Within the coldwater hatchery building are 40 16-tray Heath egg incubators and 42 six-foot diameter fiberglass early rearing tanks (2,960 cubic feet of total usable volume). Each egg incubator was designed to operate at a flow rate of 7 gpm. The early rearing circular units (6' dia. x 3' deep) have operating depths of 2.5 feet (operating 70.7 cubic feet each) and were designed to receive up to 26 gpm each, which translates to nearly three exchanges per hour (R=3). Ten stacks of vertical flow incubators can optionally be operated with chilled water and 10 stacks with heated water to retard or accelerate egg development using equipment located in the mechanical room.

Coldwater Broodstock Building

The new coldwater broodstock building contains 10 concrete broodstock raceways (50'L x 6' W x 3.5' D each with operating at depths of 3'). These holding units provide 9,000 cubic feet of total usable space and operate at 225 gpm for an R=2.

Coldwater Covered Raceways

A total of 16 covered concrete raceways were constructed in Phase I for the purpose of grow-out production. The raceways (4 series of 4 pass or 4 raceways per building) are unheated, covered pavilion structures that provide biosecurity. The pavilions serve to eliminate avian and mammalian predation and to provide a consistent rearing environment. The new raceways units are equipped with electrical service, oxygen, flow baffles and quiescent zones. The flow baffles serve to sweep the solids down to the quiescent zone. The quiescent zones are cleaned on one or two day intervals.

Coolwater (Phase II) Units

Coolwater Egg Incubation and Early Rearing

The coolwater production building (30,000 SF) houses: 440 vertical hatching jars; 20 fiberglass fry catch tanks, 40 fiberglass linear rearing tanks, 24 five-foot diameter fiberglass early rearing tanks with circular inserts; and 8 concrete raceways. **Table 21E** provides an overview of the intensive coolwater fish rearing units. The new units are equipped with automatic fish feeders, electrical service, oxygen, flow baffles and quiescent zones. The flow baffles serve to sweep the solids down to the quiescent zone. The raceways are cleaned as needed.

Table 21E. Summary of Phase II Coolwater Intensive Units

Location and Unit Type	Size (ft) (LxWxD) (Dia. x D) operating depths	Useable Vol./Unit (cf)	No. Units	Total Useable Vol. (cf)	Flow Rate (gpm)	Exchange Rate
<i>Coldwater Hatchery Bldg.</i>						
6" Dia. Hatching Jars			440		1	
Fry Catch Tanks	(4 x 1.5 x 1) 0.67	30	20	600	60	6
Early Rearing Tanks	(20 x 3 x 2.5) 2	120	40	4,800	60	4
Circular Tank Inserts	(5 x 1.5) 1	20	24	470	7	3
Circular Tanks	(5 x 3) 2.5	49	24	1,178	18	3
Raceways	(40 x 6 x 3.5) 2.5	600	8	4,800	299	4

Production and Solar Storage Ponds

Phase II included 14 lined production ponds (eight, 1.0 acre and six, 0.5 acre ponds). Each of the ponds is equipped with a concrete harvest structure, water supply, and wastewater drains. Suspended overhead netting systems span each of the 0.5-acre ponds to deter avian predation. The lower 0.5-acre ponds fill via gravity, whereas the 1.0-acre ponds are at a higher elevation and water must be pumped to operate them.

A solar storage warming pond is used to temper reused coldwater prior to use in the production ponds. Three of the old existing ponds were modified to develop the solar storage pond and a detention pond for chemicals used in the facility. The remaining six ponds in the lower area will not be utilized for hatchery production and may be part of a future wetland restoration effort.

Buildings

The hatchery contains many support buildings located throughout the site. **Table 21F** provides an overview of the support buildings at WRO. The previously referenced construction drawings provide detailed information for all of the new buildings.

With the development of the new Coldwater Building, the existing Coldwater Building was demolished and removed from the site. The new Coldwater Building includes office and lab space, a walk-in freezer system with loading dock and incubation and circular tank area as well as a bio-security room developed for the initial handling of eggs which are brought into the facility. The new Coolwater Building has similar features which have been adapted for coolwater species. The residence (3 bedrooms, 1-1/2 bath) was constructed in 1908 and is considered to be in good general condition and was not part of the renovation project.

Several of the remaining buildings on the Coldwater side of the facility were restored. Three CCC era structures and an existing informational kiosk were restored for interpretive purposes in conjunction with the development of a new visitor center structure. These structures will be utilized in conjunction with a future stream and exterior raceway restoration project to allow for interpretation of the fish rearing program at Wild Rose and across the WDNR system. The administrative building was also rejuvenated as part of the Phase I development.

Site

Domestic Water/Wastewater Systems

Due to the distances and municipal boundaries involved, no potable well utility exists for the hatchery to utilize. There are two domestic potable wells located on-site for the residences and hatchery buildings. Well A serves the manager's residence and was upgraded in 1988 to meet Wisconsin Code. Well B (1956) is used by the shop and garage building. The domestic needs of the all new buildings are served by a new domestic well.

The domestic wastewater from the west side shop building, residence, visitor center, Coldwater Building and Coolwater Building are treated by a conventional septic tank/leach field system located adjacent to the buildings.

Roads and Parking

The main entrance road to the west side of Wild Rose SFH and the building access roads are asphalt. Some of the roadways are gravel. The main entrance road to the eastern side of the hatchery is asphalt as well. Roads surrounding the ponds are bituminous concrete. All roads are in good condition.

As part of the Coldwater hatchery development within Phase I a new north entrance road was installed for service transport trucks needing to access the Coldwater development. Feed will be offloaded at the Coldwater Building and will then be distributed to the Broodstock and Raceway Pavilions.

On the Coolwater side of the facility, the existing asphalt road on the southern entrance was enhanced and the CCC era stone wall at the hatchery entrances was restored. A new service road was developed on the north side of the Coolwater side at approximately the same location as the new Coldwater entrance road. Again, this road will be primarily used for service vehicles.

Table 20E. THR Support Building Information

Building Name (No.)	Year Constructed	Area SF	Condition	Number of Rooms	Electric	Lighting (Emergency)	Heating	Ventilation (Adequate)	Air Cond.	Emergency Power	Telephone (Internet)	Fire Alarm
Rearing Station	1938	1,940	Good	8	120/240V 1PH 3 Wire	No	Propane	UNK	No	No	Yes/Yes	No - smoke and CO2 detectors
Upper Warehouse #0172	1938-40	3,640	Good	2	120/240V 1PH 3 Wire	No	Markel Electric Air Heater	Y	No	No	No	No - smoke detector
Information Building #0171	1938-40	180	Good	1	120/240V 1PH 3 Wire	No	Electric	UNK	No	No	No	No
Rearing House 1 - #0174	1938	2574	Good	1	120/240V 1PH 3 Wire	No	Electric	UNK	No	UNK	No	No
Rearing House 2 - #0175	1938-40	3,094	Good	1	120/240V 1PH 3 Wire	No	Electric	UNK	No	No	No	No
Rearing House 3 - #0176	1938-40	3536	Good	1	120/240V 1PH 3 Wire	No	Electric	UNK	No	No	No	No
Lower Warehouse #0169	1938-40	1,323	Good	2	120/240V 1PH 3 Wire	No	No	UNK	No	No	No	No
Residence	1967	1,783	Good	7	120/240V 1PH 3 Wire	UNK	Fuel Oil and Wood	Yes	No	UNK	UNK	UNK

Fencing and Security Lighting

The hatchery currently has some security site lighting located throughout the facility. With the development of the new facility, security fencing was installed around all the ponds on the Coolwater side of the facility and around the clarifier, sludge pump buildings and sludge storage tanks on both sides of the facility. The detention pond on the Coldwater side of the facility was included within the wastewater treatment area fencing.

Site Drainage and Flooding

According to hatchery staff, the facility has not experienced flooding problems due to high river stage. However, due to the nature of the artesian flowing groundwater table, the ground is perpetually wet and seeps are located throughout. The Flood Insurance Rate Map (FIRM) developed by the Federal Emergency Management Agency (FEMA) was consulted for specific flood information. FIRM panels (550540-0075B and 550540-0100B, Nov. 6, 1991) indicate that the 100-year floodplain encompasses a narrow area along the hatchery on the west side, beginning roughly at the dam between upgradient historical raceways 37/38 and downgradient raceways 39/40. The floodplain continues eastward along the flow of water and widens considerably near the historical hatchery discharge into the Pine River and includes all of the old warmwater ponds.

Surface runoff seems handled adequately throughout the rest of the site due to the high topographical relief. The Corps of Engineers has delineated wetlands on the east side of the site as land near the 920-925 foot elevation contour. New construction included enhanced measures for surface runoff control.

Aquaculture Wastewater Systems

The coldwater (Phase I) and coolwater (Phase II) have individual production wastewater treatment systems. The hatchery utilizes intensive rearing units and raceways for production purposes. In some rearing units, the overflow (OW) water is serially reused by downstream units. The buildup of solids in the rectangular units is removed primarily by the use of screen and baffle systems which directs the flow of solids along the bottom of the raceways to a quiescent zone. This allows the vast majority of wastes to be eliminated without having to vacuum the structures. The circular tanks within the Coldwater and Coolwater building have features where wastes are directed by outflow velocities through standpipes and then fall in the disposal stream. Individual rearing units are drained and cleaned weekly, or as needed. Microscreens are used to treat the overflow water and drainage wastewater streams. The bottom portion of the pond draining cycle is also directed to the microscreens for solids removal. Microscreen backwash cleaning water and rearing units cleaning water are sent to clarifiers for treatment. Recovered solids from the clarifiers are held in separate sludge storage tanks for eventual land disposal.

The facility is currently operating under a Wisconsin Permit Discharge Elimination System (WPDES) permit (WI-0022756-07-0). Effluent is currently sampled at eight different outfall locations directly into the Pine Creek. The following parameters are monitored on a variable frequency as follows: river flow, flow rate, BOD₅, TSS, pH field, dissolved oxygen, total phosphorus, ammonia nitrogen, chloride, formalin, hydrogen peroxide, acute WET, and potassium permanganate. An excerpt of the current WPDES permit is located in **Appendix H**.

Utility Systems

Utility Service

The local electric, telephone companies and fire department can be contacted as follows:

Utility	Electrical Power	Telephone	Internet
Company	Alliant Energy	Century Tel	UNK
Contact Information	800.862.6222	800.872.4017	UNK
Type	208/480V 3-Phase, 4 Wire	NA	Wireless, adequate speed
Condition	Good	Good	Good

A three-phase overhead primary utility feeder served the west side complex. The utility primary power extends throughout the site to supply multiple services and meters a various buildings. Both 120/240V, single phase and 120/208V three phase services are used. The new site power distribution is by underground secondary conductors supplied from the new Coolwater building. Both single phase and three phase power is distributed throughout the site for various loads. All of the site electrical distribution has been updated and is generally in excellent good shape

The east side complex utilizes 120/240V, single-phase power, with a pad-mount transformer supplying the electric service to the buildings. New 120/240V single-phase underground feeders from the building supply various loads throughout the site. All of the site electrical systems have been essentially replaced.

Fuel Systems

Propane fuel is stored on-site for use in the emergency generator. Fuel is dispensed on-site for off road vehicles only. The fuel is stored in leak monitored aboveground tanks. Natural gas is used by the facility.

Instrumentation & Alarm Systems

New PLC-based integrated instrument alarm systems were installed throughout the hatchery complex which allows for the monitoring and alarming of every piece of equipment needed for the hatchery's operation. The system utilizes fiber optic based communication technology.

Emergency Power

New emergency generators (600 kW) were installed to carry all of the site loads on both sides of the facility. Both emergency power systems employ load banks for testing generators under load.

Public Visitation Information & Education Services

Wild Rose SFH personnel estimate that in the past, 15,000 people visit the facility annually with a daily peak of 300. It is expected that the new visitor building draws more visitors. Visitation and education

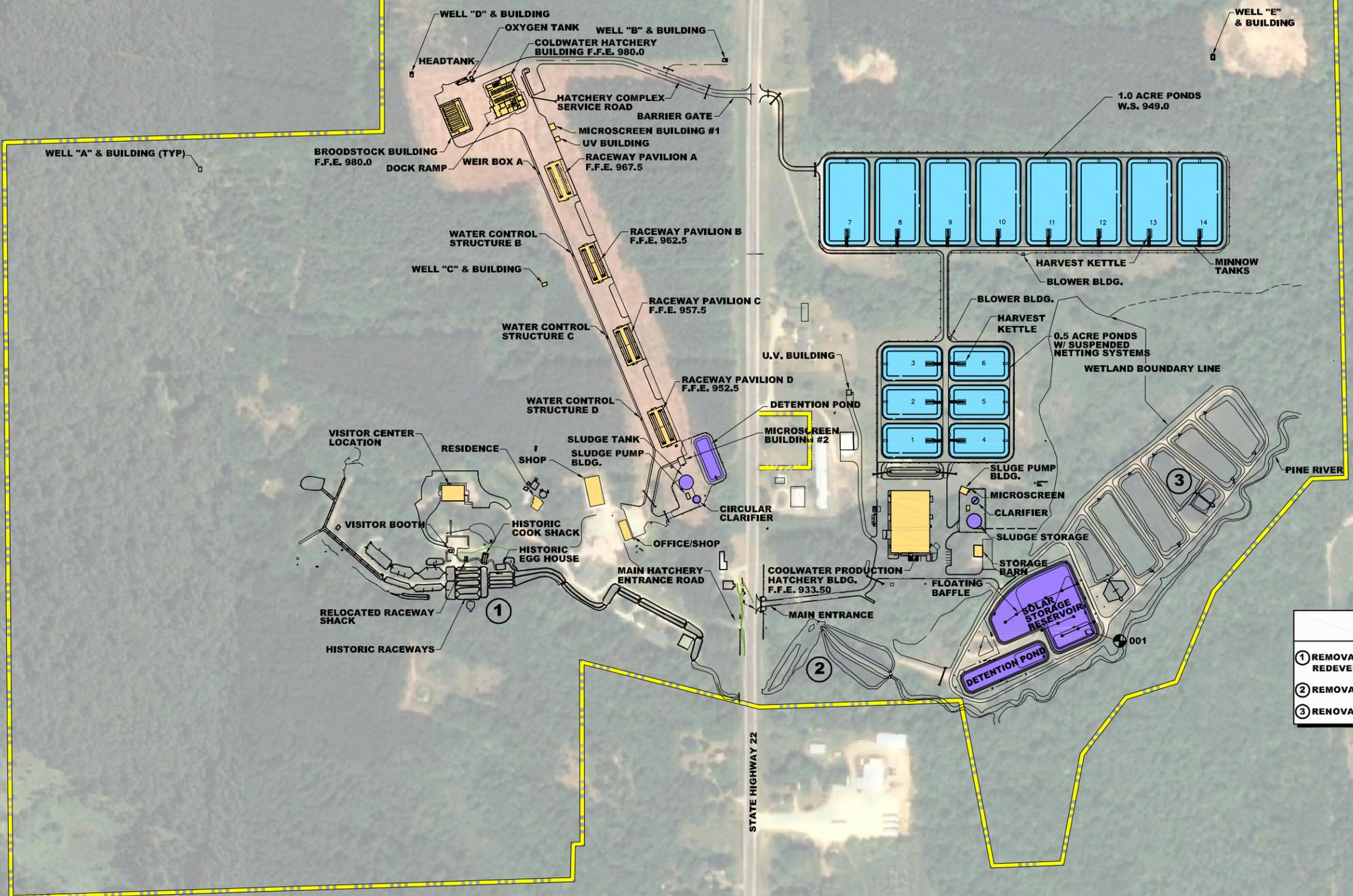
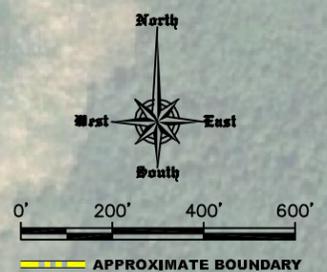
information services include restrooms, informational displays, a brochure, fish viewing and adequate parking. The new visitor center includes restrooms, a display area and an audio visual/meeting room.

Phase III Improvements - Future

Upon the completions of the Coolwater, Phase II project, WDNR will be looking towards securing funds for the Phase III development at the facility.

The main items within this future development will include (labeled on **Drawing WRO-1**):

- 1) The removal of most of the historical exterior raceways on the west side of the facility. Their removal will allow for the re-development of the original hatchery stream. Several of the historical CCC era elements, primarily on the north and west side of the Coldwater Facility will be restored as part of the exterior interpretive program.
- 2) The existing dam and dam ponds on the east side of the facility will be removed so that fish can move up and down the hatchery stream from the spring fed system on the far west side of the facility to the Pine River.
- 3) The remaining six ponds on the far east side of the facility will be reconstructed to provide for more wetland habitat.



- PHASE 3**
- ① REMOVAL OF MOST HISTORICAL RACEWAYS AND REDEVELOPEMENT OF ORIGINAL HATCHERY STREAM
 - ② REMOVAL OF DAM AND DAM PONDS
 - ③ RENOVATE EXISTING PONDS INTO WETLANDS HABITAT

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COMPREHENSIVE STUDY OF WISCONSIN FISH PROPAGATION FACILITIES

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9/15/10
SHEET:
WRO-1

