Yellow Pine Energy Company, LLC

c/o Summit Energy Partners, LLC
99 Summit Avenue, Suite 2C
Summit, NJ 07901
Tel. 908 918 9151
Fax 908 918 9153

March 4, 2010

YP-GAEPD-A-0002

Via Email: eric.cornwell@dnr.state.ga.us

Mr. Eric Cornwell
Program Manager, Air Protection Branch
Environmental Protection Division
Georgia Department of Natural Resources
4244 International Parkway, Suite 120
Atlanta, GA 30354

Subject: Miscellaneous Permit Clarifications and Modifications

Reference: Air Quality Permit No. 4911-061-001-P-01-0
Yellow Pine Energy Company, LLC

Dear Mr. Cornwell:

On May 15, 2009, Yellow Pine Energy Company, LLC ("Yellow Pine") received the referenced Air Quality Permit (the "Permit") from the Georgia Environmental Protection Division ("EPD") for the Yellow Pine Energy Station, a biomass-fired power generation project under development in Clay County (the "Facility").

Project development and Facility design have advanced since the preparation of the Permit application. This ongoing work has led to a number of proposed minor changes to the Facility design as it was described in the Permit application. These changes will not result in any increases to the Facility air emissions as specified in the Permit. To the contrary, the proposed changes will result in a net decrease in Facility air emissions for all pollutants, as shown in Table 1 below.

Table 1 – Comparison of Facility Maximum Potential Emissions

Pollutant	Original Design (tpy)	New Design (tpy)
SO_2	94	88
NO_x	670	437
CO	998	930
VOC	134	125
PM_{10}	121	115

A description of the proposed Facility design changes is provided below for EPD review, along with a discussion of how these changes are expected to affect the ambient air quality impact analysis that was conducted as part of the Permit application. In addition to notifying EPD of proposed Facility design changes, Yellow Pine requests that minor changes be made to several Permit conditions for the purposes of clarfication and correction of typographical errors. These changes are specifically discussed at the end of this letter.

<u>Proposed Facility Design Changes</u>:

Fluidized Bed Boiler.

Emission source FB is specified in the Permit as being a Bubbling Fluidized Bed (BFB) Boiler with a heat input capacity of 1,529 MMBtu/hr. Yellow Pine proposes to construct a Circulating Fluidized Bed (CFB) Boiler with a heat input capacity of 1,425 MMBtu/hr rather than a BFB Boiler with a heat input capacity of 1,529 MMBtu/hr. The replacement of the BFB Boiler with the CFB Boiler will not result in any modifications to the originally proposed air pollution control devices for the boiler. The CFB Boiler will be furnished with a Fabric Filter Baghouse, low NO_x burners, Selective Non-Catalytic Reduction System, and Dry Scrubber System (Sorbent Injection System) as originally proposed.

Yellow Pine has reviewed the BACT determination that was prepared as part of the Permit application and has concluded that the original BACT determination made for the BFB boiler remains valid for the CFB boiler, with the exception of a change in the NO_x limit, as proposed by Yellow Pine below. Exhibit A summarizes our review of the BACT determination.

In recognition of the lower NO_x emission rates achievable by a CFB Boiler in comparison to a BFB Boiler, Yellow Pine proposes to accept a lower Permit limit for emissions of NO_x. Specifically, Yellow Pine proposes that the NO_x emission limit set forth in Permit Condition 2.11 be reduced from 0.10 lb/MMBtu to 0.07 lb/MMBtu. This reduced emission limit, in conjunction with the reduced heat input capacity, would reduce the total potential NO_x emissions by 233 tons per year (35%).

Fluidized Bed Boiler Stack.

In the new Facility design, the Fluidized Bed Boiler Stack (FBS) is located approximately 150 feet southwest of the location assumed in the original design. Additionally, the base elevation of the stack has increased by 28 feet as a result of a revised grading plan. The new stack exit parameters are: 300 degrees F exit temperature and 55 ft/sec exit velocity, as compared to 286 degrees F and 119 ft/sec in the original design. These changes in stack location and exit parameters are not expected to significantly change the results of the dispersion modeling that was conducted as part of the Permit application. Nevertheless, Yellow Pine shall conduct additional dispersion modeling and submit the results to EPD in a subsequent transmittal.

Wood Storage & Handling – Truck Delivery.

In the Permit application, it was proposed that waste wood fuel would be delivered by truck to a wood yard east of the power block. Truck dumps would be used to unload the wood on a daily basis. The wood would be sent via a covered conveyor to a stacker-reclaimer system, and the stacker-reclaimer system would form a “kidney bean” shaped pile around the stacker-reclaimer. The stacker-reclaimer would be furnished with a telescopic chute and water sprays.

A traveling ground level drum reclaimer would recover the wood to a central, below-grade conveyor and then transfer the wood to a fuel processing building furnished with a fabric filter baghouse. The wood would be sifted for size and metal removal in the processing area, with oversized wood being directed to a hammermill for size reduction. Properly sized wood would be transferred to a covered conveyor, sent to an active storage building and reclaimed from there to feed storage silos located in the boiler structure. A single baghouse would service the wood silos (along with silos for lime and sand storage). In addition to the active wood storage pile around the stacker-reclaimer, the wood yard would include a reserve wood storage pile.

The originally proposed wood yard was illustrated in Figure 2-2 of the Permit application, attached hereto as Figure 1. The maximum hourly fugitive emissions from the emission sources within the original wood storage and handling system (in connection with truck delivery) are summarized in Table 2 below. (These values are contained in Tables 4-1 and 4-2 of the Permit application.)

In the revised Facility design, the wood yard is again located east of the power block. Wood receiving will take place with truck dumping stations with hydraulic lift-type unloading capability. After receipt, the wood will be sent via conveyor to the fuel processing building for sizing and metal removal. From the fuel processing building the wood will travel by conveyor to a transfer tower. The transfer tower will convey the wood either to a stacker/reclaimer designed to manage a five (5)-day active storage pile or to an inactive supply storage area to be managed by mobile equipment. The inactive area will include a manual stacker and manual reclaimer. Reclaimed wood will be delivered to the boiler fuel metering bins via conveyor. All conveyors, reclaim hoppers, and fuel transfer points will be enclosed. Dust collection will be provided for the truck unloading stations, reclaim hoppers, and fuel transfer points. Uncontained exit points of the fuel system will be furnished with telescopic spouts and dust suppressions systems.

The revised wood yard is illustrated in Figure 2 attached. The maximum hourly fugitive emissions from the emission sources within the revised wood storage and handling system (in connection with truck delivery) are summarized in Table 2.

Table 2 – Summary of Fugitive Emissions from Wood Storage and Handling Systems (Truck Delivery)

	PM lb/hr	**PM_{10} lb/hr**
Original Design		
Emission Unit:		
Reserve Storage Pile (Biomass) – RSP	0.0063	0.0029
Transfer Tower #6 –T6	0.0506	0.0232
Transfer Tower #7 – T7	0.0506	0.0232
Fuel Processing Building #2 –FPB2	0.0076	0.0035
Active Storage Pile #4 (Biomass) – ASP4	0.0063	0.0029
Transfer Tower #8 – T8	0.0506	0.0232
Original Design Total	0.1721	0.0789
New Design		
Emission Unit:		
Truck Unloading Station – TUS	0.0712	0.0326
Transfer Tower #6 –T6	0.0712	0.0326
Fuel Processing Building #2 – FBP2	0.0107	0.0049
Transfer Tower #7 – T7	0.0712	0.0326
Active Storage Pile#4 – ASP4	0.0089	0.0041
Reserve Storage Pile – RSP	0.0089	0.0041
New Design Total	0.2422	0.1110

The PM_{10} emissions are higher in the new design primarily because the estimation of the emissions for the new design assumes truck delivery of wood in an amount equal to 100% of the annual fuel consumption of the boiler (1,300,000 tons per year) to properly account for the possible scenario in which all wood would be delivered by truck in a given year. The Permit application, on the other hand, had estimated the fugitive emissions from the Wood Storage and Handling Systems on the basis that only 923,730 tons per year of wood would be delivered by truck, with the balance being delivered by barge.

Wood Storage and Handling – Barge Delivery.

As described in the Permit application, the Facility is being designed with the flexibility for barge delivery of wood to an unloading station to be constructed on the Chattahoochee River. No changes are being proposed to this part of the Wood Storage and Handling Systems.

Lime Storage and Handling.

In the revised Facility design, the area for lime storage will be relocated from an area west of the power block area to an area nearer to the power block area.

Sand Storage and Handling.

In the revised Facility design, the area for sand storage will be relocated from an area west of the power block area to an area nearer to the power block area.

Ambient Air Quality Impact Analysis:

An ambient air quality impact analysis was included in the original Permit application to assess the potential impact on ambient air quality attributable to the operation of the proposed Facility. The dispersion modeling conducted in support of the air quality impact analysis followed the EPD approved modeling protocol. The dispersion modeling revealed that, only with respect to SO_2, the maximum predicted emissions from the Facility cause an air quality impact greater than the significant impact level; the predicted impacts for NO_x, CO, and PM_{10} were each below the respective significant impact level.

As demonstrated in Table 3 below, the maximum hourly emissions of SO_2, NO_x, CO, and PM_{10} from the new Facility design are lower than the emissions that were modeled for the original Facility design.

Table 3 – Comparison of Hourly SO2, NOx, CO, and PM_{10} Emissions

	SO2 (lb/hr)		**NOx (lb/hr)**		**CO (lb/hr)**		**PM_{10} (lb/hr)**	
	Prior Model	New Design	Prior Model	New Design	Prior Model	New Design	Prior Model	New Design
Fluidized Bed Boiler	91.7	20.0	152.9	99.8	458.7	212.3	50.46	25.65
Auxiliary Boiler	1.3	1.3	3.5	3.5	0.9	0.9	0.43	0.43
Wood Handling (Truck)	- -	- -	- -	- -	- -	- -	0.08	0.11
Wood Handling (Barge)	- -	- -	- -	- -	- -	- -	0.06	0.06
Fuel Processing Building #1	- -	- -	- -	- -	- -	- -	2.3E-03	2.3E-03
Silo Baghouse	- -	- -	- -	- -	- -	- -	4.10E-03	5.04E-03
Fly Ash Silo Baghouse	- -	- -	- -	- -	- -	- -	4.39E-07	1.98E-06
Fly Ash Loading Truck	- -	- -	- -	- -	- -	- -	4.39E-07	1.98E-06
Paved Roads	- -	- -	- -	- -	- -	- -	0.05	0.32
Total	93.0	21.2	156.4	103.3	459.6	213.2	51.08	26.57

Note: The SO_2, CO, and PM_{10} emissions from the Fluidized Bed Boiler in the new design are substantially lower than the emissions that were originally modelled because the original dispersion modelling assumed emission rates that were substantially higher than the ultimate permit limits.

Except for PM_{10} emissions from several small sources, on a source-by-source basis the emissions for each pollutant in the new design are less than or equal to the emissions in the original design. With respect to the Wood Storage and Handling Systems, Roads and the Silo Baghouse, the PM_{10} emissions are higher in the new design primarily because the estimation of the emissions for the new design assumes truck delivery of wood in an amount equal to 100% of the annual fuel consumption of the boiler (1,300,000 tons per year) to properly account for the possible scenario in which all wood would be delivered by truck in a given year. The Permit application, on the other hand, had estimated the fugitive emissions from the Wood Storage and Handling Systems and Roads on the basis that only 923,730 tons per year of wood would be delivered by truck, with the balance being delivered by barge. With respect to the fly ash PM_{10} sources, emissions are higher because a more conservative assumption is used regarding the biomass ash content.

Given that the Facility emissions on an hourly basis are lower, the air quality impacts for SO_2, NO_x, CO, and PM_{10} attributable to the new Facility design are expected to be lower than the air quality impacts demonstrated in the Permit application for the original Facility design. Even with respect to PM_{10}, for which the emissions from some of the minor sources are higher in the new design, the impacts are expected to be lower because:

i) the overall Facility PM_{10} emissions from the new design are 48% lower than the overall emissions that were modeled for the original design;

ii) the dispersion modeling conducted for the Permit application exaggerated the PM_{10} impacts because a PM_{10} emission limit of 0.033 lb/MMBtu was used for the Fluidized Bed Boiler, a value higher than the ultimate Permit limit of 0.018 lb/MMBtu; and

iii) the impacts attributable to the original design were 21% lower than the significant impact level on a 24-hour basis and 39% lower on an annual basis, indicating that a considerable increase in emissions could be sustained before the impacts would reach the significance level.

Notwithstanding our expectation that impacts will be no greater than the impacts presented in the Permit application, Yellow Pine shall conduct additional dispersion modeling and submit to EPD in a subsequent transmittal.

<u>Requested Corrections and Clarifications to Miscellaneous Permit Conditions</u>:

Permit Condition 2.8.

Permit Condition 2.8, erroneously, does not allow the firing of biomass during startup and shutdown. This is inconsistent with the manner in which biomass boilers are started up and shut down. It is necessary for biomass fuel, in combination with the startup fuel, to be fired in the boiler during startup and shutdown. We request that the last sentence of Permit Condition 2.8 be removed. Additionally, to improve the clarity of the condition, we suggest that the first sentence be modified to begin with the words “Other than during startup and shutdown load as defined in Permit Condition 2.5”.

Permit Condition 2.31.

Permit Condition 2.31 contains a typographical error. A PM_{10} permit limit of 0.014 grains per dry standard cubic feet is imposed. This is equivalent to a limit of 0.032 grams per dry standard cubic meter. However, the permit condition states the limit as 0.0032 grams per dry standard cubic meter limit. We request this typographical error be corrected to 0.032 grams per dry standard cubic meter.

Permit Condition 4.3.

Permit Condition 4.3 requires the installation of a dry scrubber system to control sulfur dioxide, mercury, and hydrogen chloride emissions from the Fluidized Bed Boiler. Yellow Pine intends to install a dry scrubber system on the CFB Boiler consisting of dry sorbent injection into the ductwork between the air heater and the fabric filter baghouse. This dry scrubber system will use a lime or calcium based sorbent. This dry scrubber system will be capable of achieving the permitted emission rates for sulfur dioxide, mercury, and hydrogen chloride. Other types of dry scrubber systems, such as a spray dryer absorber, are not appropriate technologies for boilers that burn only wood waste (and not coal). Accordingly, we request that Permit Condition 4.3 be clarified to allow the use of duct sorbent injection as within the intent of a dry scrubber system.

Permit Condition 4.6.

Permit Condition 4.6.c requires the installation of water sprays to control fugitive emissions from the Biomass Storage Piles. We request that this condition be clarifed to allow the use of mobile water trucks as within the intent of the water spray installation.

Additionally, the final paragraph of Permit Condition 4.6 requires that the control equipment be operated at all times. We request that this condition be clarified with respect to the storage piles (biomass, limestone, sand) to require water sprays only as required to control fugitive emissions. It seems unreasonable to require the continuous spraying of water on a pile that might very well be stagnant for some period of time or otherwise contain sufficeint surface moisture to inhibit fugitive emissions. For example, the as-delivered moisture content of the waste wood is expected to be in the range of 39% to 56%, a level more than sufficient to control fugitive emissions from the storage piles. The application of additional moisture would be wasteful of water and cause a reduction in boiler efficiency (with a corresponding increase in fuel consumption and boiler emissions). In addition, increasing the moisture content of the wood in storage would tend to increase the rate at which the wood waste would deteriorate.

Finally, please be advised that Yellow Pine has retained GenPower Development, LLC ("GenPower") to manage certain remaining project development activities. Please contact Michael Witzing of GenPower at 617-340-4554 to discuss this information and any questions you may have. Thank you for your assistance.

Yellow Pine Energy Company, LLC
By its Manager, Summit Energy Partners, LLC

Mark S. Sajer
Managing Director

cc: F. Shaikh (GAEPD)
T. Tate (GAEPD)
File 20.1.2.1

Exhibit A – Review of BACT Determination

Introduction

Yellow Pine Energy Company, LLC proposes to replace the Bubbling Fluidized Bed (BFB) Boiler in its proposed Yellow Pine Energy Station with a Circulating Fluidized Bed (CFB) Boiler. A Best Achievable Control Technology (BACT) demostration was completed for the Fluidized Bed Boiler as part of the Permit application. The BACT demonstration has been reviewed to identify any aspects that may be subject to modification based on the switch from BFB to CFB. The results of this review are summarized herein.

Nitrogen Oxides (NO_x)

For control of NO_x emissions from the Fluidized Bed Boiler, BACT was determined to be selective non-catalytic reduction (SNCR) in combination with low NO_x burners (LNB). This BACT determination is valid for a BFB boiler and a CFB boiler. Information obtained from the EPA's RACT/BACT/LAER Clearinghouse (RBLC) database supports this statement. Table A-1 is a list of the most stringently controlled fluidized bed boilers included in the RBLC with a heat input greater than 250 MMBtu/hr. In all but one case, SNCR is shown to be the control technology. (The one exception uses Thermal DeNOX, with a substantially higher limit.)

With respect to the emissions rate, the CFB boiler is expected to be able to achieve a lower rate of NO_x emissions than the BFB boiler. Several entries are included in the RBLC with a NO_x limit of 0.07 lb/MMBtu. In each case, the fuel is coal or pet coke. The lowest limit for a biomass CFB is 0.075 lb/MMBtu. Yellow Pine proposes to accept a NO_x limit of 0.07 lb/MMBtu.

Particulate Matter (PM_{10})

For control of PM_{10} emissions from the Fluidized Bed Boiler, BACT was determined to be a fabric filter baghouse. The fabric filter baghouse is a back-end control technology, downstream of the Fluidized Bed Boiler; therefore, this BACT determination is equally valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Sulfur Dioxide (SO_2) and Acid Gases

For control of SO_2 and acid gas emissions from the Fluidized Bed Boiler, BACT was determined to be a dry scrubber system. The dry scrubber system is a back-end control technology, downstream of the Fluidized Bed Boiler; therefore, this BACT determination is equally valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Carbon Monoxide (CO)

For control of CO emissions from the Fluidized Bed Boiler, BACT was determined to be good combustion controls. Maintaining the correct boiler temperature and maximizing combustion efficiency to minimize unburned carbon results in well controlled CO in the flue gas. This is accomplished effectively with a well designed boiler that has the proper fuel feed, proper design of the overfire air system, and sufficient boiler residence time for combustion. There are no inherent differences between a CFB boiler and a BFB boiler that would materially affect the ability to control CO emissions; therefore, this BACT determination is valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Volatile Organic Compounds (VOC)

For control of VOC emissions from the Fluidized Bed Boiler, BACT was determined to be good combustion controls. Maintaining the correct boiler temperature and maximizing combustion efficiency results in well controlled VOC in the flue gas. This is accomplished effectively with a well designed boiler that has the proper fuel feed, proper design of the overfire air system, and sufficient boiler residence time for combustion. There are no inherent differences between a CFB boiler and a BFB boiler that would materially affect the ability to control VOC emissions; therefore, this BACT determination is valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Lead (Pb)

For control of Pb emissions from the Fluidized Bed Boiler, BACT was determined to be a fabric filter baghouse. The fabric filter baghouse is a back-end control technology, downstream of the Fluidized Bed Boiler; therefore, this BACT determination is equally valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Mercury (Hg)

For control of Hg emissions from the Fluidized Bed Boiler, BACT was determined to be a dry scrubber system in combination with a fabric filter baghouse. The dry scrubber system and the fabric filter baghouse are back-end control technologies, downstream of the Fluidized Bed Boiler; therefore, this BACT determination is equally valid for a BFB boiler and a CFB boiler. Accordingly, no change in control technology or emission limit is warranted in connection with the swtich from BFB boiler to CFB boiler.

Table A-1
Most Stringent NOx Emission Limits for Fluidized Bed Boilers with Heat Input > 250 MMBtu/hr

Facility	State	Emissions Limit (lb/MMBtu)	Control Technology	Primary Fuel	RBLC ID	Permit Date	Notes
The McCartin Group - Energy Services of Manitowoc	WI	0.070	SNCR	Coal	WI-0122	2001	CFB boiler
Kentucky Mountain Power LLC	KY	0.070	SNCR	Coal	KY-0079	2001	CFB
Lousiana Generating, Big Cajun I	LA	0.070	SNCR	Pet Coke	LA-0223	2005	Fuels include Bagasse
Virginia City Hybrid Energy Center	VA	0.070	SNCR	Coal	VA-0311	2008	CFB
Archer Daniels Midland Company	IA	0.070	SNCR	Coal	IA-0046	1998	CFB
Archer Daniels Midland Company	IA	0.070	SNCR	Coal	IA-0025	1993	CFB
Archer Daniels Midland Company	IA	0.070	SNCR	Coal	IA-0051	1998	CFB
PSNH, Schiller Station	NH	0.075	SNCR	Biomass	NH-0013	2004	CFB, Unit #5, 720 MMBtu/hr
Cargill	NE	0.080	SNCR, Combustion control	Coal	NE-0037	2006	CFB, Ability to burn 20% biomass by heat content
Deseret Power Electric Coop - Bonanza Power Plant	UT	0.088	SNCR	Coal	UT-0070	2007	CFB
JEA Northside Generating Station	Fl	0.090	SNCR	Coal	FL-0178	1999	CFB
Great River Energy - Spiritwood Station	ND	0.090	SNCR	Coal	ND-0024	2007	CFB
AES - PRCP	PR	0.100	SNCR with urea injection	Coal	PR-0007	2001	CFB
Western Greenbriar Co Generation LLC	WV	0.100	SNCR	Coal	WV-0024	2006	CFB
Nevco - Sevier Power Company	UT	0.100	LNB, SNCR with ammonia injection	Coal	UT-0064	2004	CFB
Northhampton Generating Co.	PA	0.100	SNCR	Coal	PA-0134	1995	CFB
AES Warrior Run	MD	0.100	SNCR	Coal	MD-0022	1994	CFB
AES Beaver Valley	PA	0.101	SNCR	Coal	PA-0183	2001	CFB
ADM Units 9 & 10	IL	0.120	SNCR	Coal	IL-0060	1998	CFB
ADM Units 7 & 8	IL	0.120	SNCR	Coal	IL-0058	1994	CFB
Ultrasystems Inc.	CA	0.149	Thermal DENOx	Biomass	CA-0018		Fluid Bed (no CFB specified)
Energy New Bedford	MA	0.150	SNCR	Coal	MA-0028	1994	CFB
Reliant Energy Seward Power	PA	0.150	SNCR	Coal	PA-0182	2003	CFB
Manitowoc Public Utilities	WI	0.155	SNCR	Coal	WI-0225	2003	Fuels include Paper Pellet
Toledo Edison Co. - Bayshore Plant Ohio	OH	0.200	Limestone Fluidized Bed	Coal	OH-0231	2003	CFB
Westwood Energy Properties	PA	0.300	NA	Waste Coal	PA-0124	1994	CFB
Gilbertson Power Company	PA	0.300	NA	Waste Coal	PA-0110	1994	CFB
Black River Power	NY	0.600	Uncontrolled	Coal	NY-0070	1995	CFB

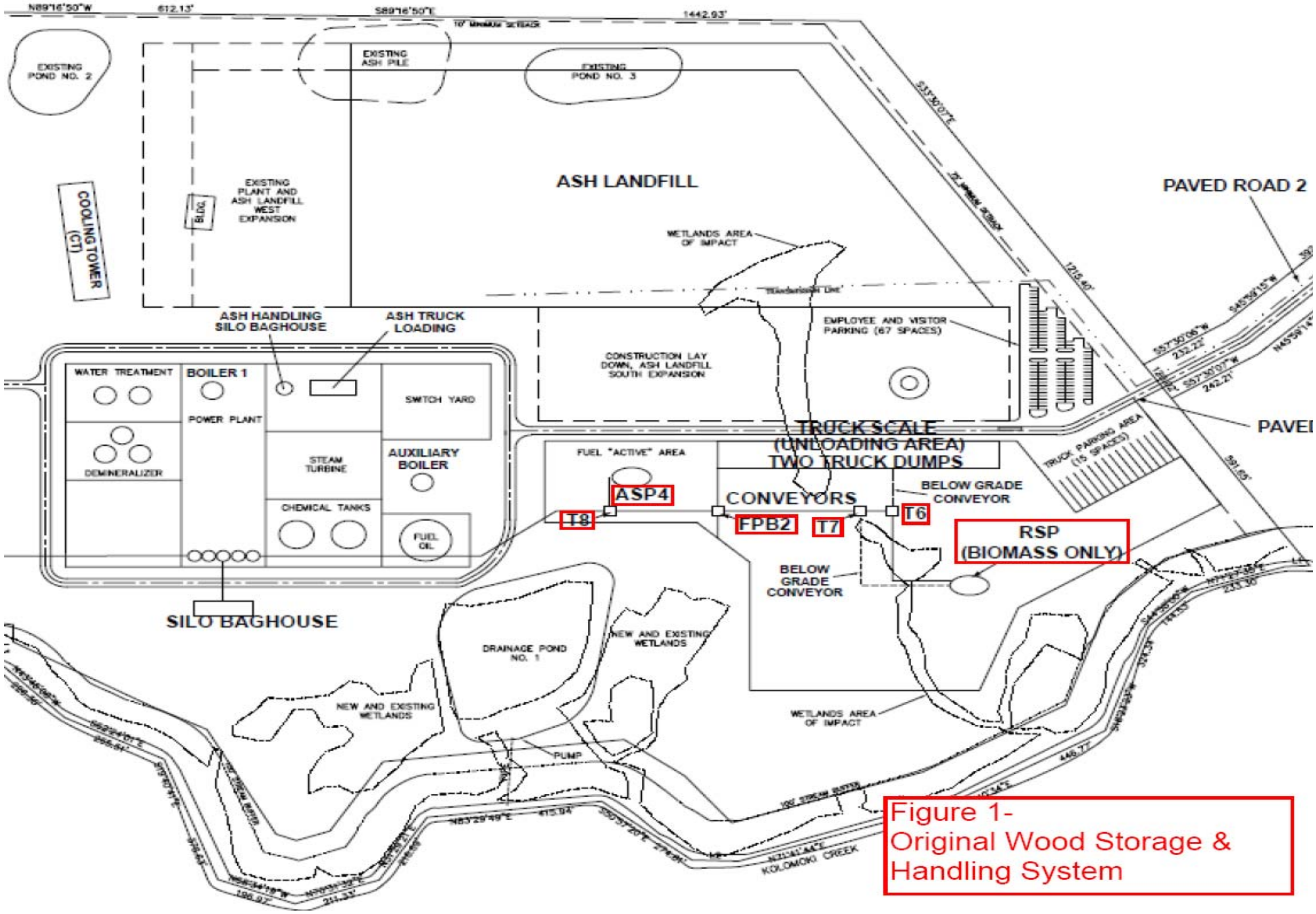

Figure 1-
Original Wood Storage & Handling System

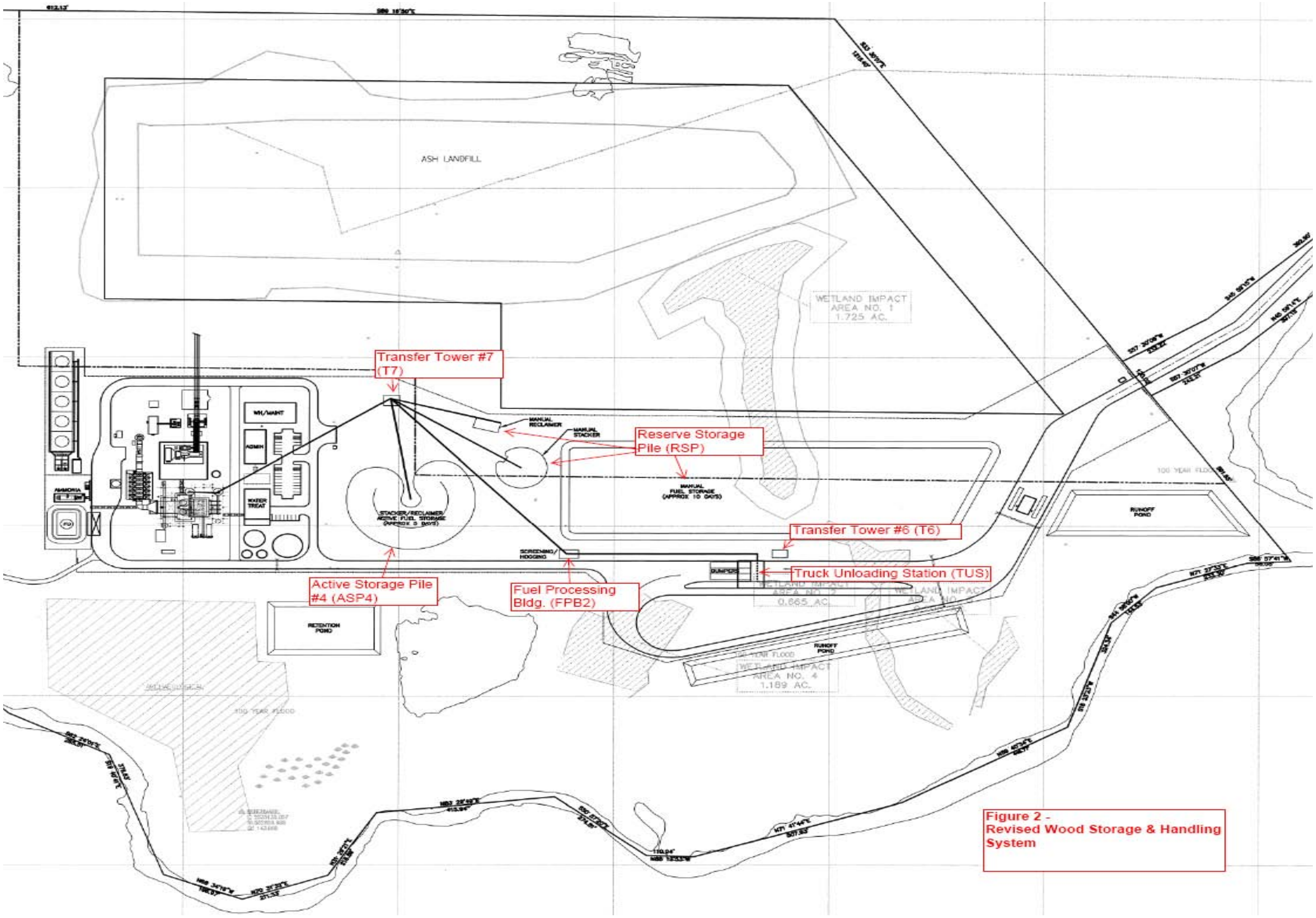

Figure 2 - Revised Wood Storage & Handling System