

STRUCTURAL DESIGN INFORMATION

DESIGN:

DESIGN OF STRUCTURES IS BASED UPON AND GOVERNED BY VIRGINIA UNIFORM STATE BUILDING CODE (BOCA '96 WITH VIRGINIA AMENDMENTS), AMERICAN CONCRETE INSTITUTE BUILDING CODE (ACI 318-95), AND PROJECT SPECIFICATIONS.

LIVE LOADS:

BUILDING/STRUCTURE \ LEVEL	ROOF	TOP/FIRST FLOOR	BOTTOM/GROUND FLOOR
AERATION TANK MODIFICATIONS	—	150 P.S.F.	—
SECONDARY CLARIFIERS 1-10 AND RAS PUMPING FACILITIES	—	150 P.S.F.	—
SECONDARY CLARIFIERS NO 17 AND NO 18	—	100 P.S.F.	—
RAS PUMP STATION B	—	150 P.S.F.	—
FILTER BYPASS STRUCTURE	—	150 P.S.F.	—
DAF INFLUENT BLEND TANK	—	150 P.S.F.	—
DAF POLYMER CONTAINMENT AREA	—	250 P.S.F.	—
BOILER BUILDING	30 P.S.F.	—	250 P.S.F.
MISCELLANEOUS YARD STRUCTURES	—	150 P.S.F. (1)	—

ALL STAIRWAYS, LANDINGS AND PLATFORMS ARE DESIGNED FOR A LIVE LOAD = 100 P.S.F.

(1) SCE JUNCTION BOX C IS DESIGNED FOR A LIVE LOAD = 300 P.S.F. OR AASHTO HS15 TRUCK LOAD.

WIND LOADS:

STRUCTURES ARE DESIGNED IN ACCORDANCE WITH ASCE 7-95 ("MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES") SUBJECT TO THE CONDITIONS SPECIFIED BY THE VIRGINIA UNIFORM STATE BUILDING CODE. THE FOLLOWING ARE WIND DESIGN PARAMETERS.

BUILDING/STRUCTURE \ PARAMETER	BASIC WIND SPEED	IMPORTANCE FACTOR	WIND EXPOSURE	WIND DESIGN PRESSURE
BOILER BUILDING	70 M.P.H.	1.0	C	23.0 P.S.F.

SEISMIC LOADS:

STRUCTURES ARE DESIGNED IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATE BUILDING CODE. THE FOLLOWING ARE THE SEISMIC DESIGN PARAMETERS:

STRUCTURE \ PARAMETER	PEAK VELOCITY-RELATED ACCELERATION (Av)	PEAK ACCELERATION (Ao)	SEISMIC HAZARD EXPOSURE GROUP	SEISMIC PERFORMANCE CATEGORY	SOIL-PROFILE TYPE	BASIC STRUCTURAL SYSTEM	R/Cd	ANALYSIS PROCEDURE UTILIZED
BOILER BUILDING	0.10	0.10	II	C	1.5	ORDINARY MOMENT FRAME REINF CONC	3.0/2.5	EQUIVALENT LATERAL FORCE

FLOOD LOADS:

THE 25-YEAR FLOOD ELEVATION IS ELEVATION 905.00.
THE 100-YEAR FLOOD ELEVATION IS ELEVATION 912.00.

SNOW LOADS:

ALL STRUCTURES

GROUND SNOW LOAD = 25 P.S.F.
FLAT ROOF SNOW LOAD = 15 P.S.F.
SNOW EXPOSURE FACTOR = 0.6
SNOW LOAD IMPORTANCE FACTOR = 1.0

SOIL LOADS:

ALL STRUCTURES

EQUIVALENT FLUID PRESSURE ABOVE WATER TABLE = 56.4 P.S.F.
EQUIVALENT FLUID PRESSURE BELOW WATER TABLE = 89.5 P.S.F.

FLUID LOADS:

ALL PROCESS STRUCTURES ARE DESIGNED TO WITHSTAND FLUID LOADS INDUCED BY THE PEAK FLOWS INDICATED IN THE HYDRAULIC PROFILE.

				DESIGNED _____ WGL	RECORD DRAWING	THIS DOCUMENT ORIGINALLY ISSUED FOR CONSTRUCTION AND SEALED BY ROBERT S. DIFIORE, SEAL NO. 22769	THIS DRAWING HAS BEEN MODIFIED TO REFLECT FIELD CHANGES REPORTED BY THE CONTRACTOR OR ANOTHER PARTY, BUT NOT VERIFIED BY THE CERTIFYING ENGINEER. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY CHRISTOPHER T. PHILLIPS, 033796. THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.	HAZEN AND SAWYER Environmental Engineers & Scientists 4011 WestChase Blvd, Raleigh, North Carolina 27607	CITY OF ROANOKE VIRGINIA	REGIONAL WATER POLLUTION CONTROL PLANT PROCESS TRAIN IMPROVEMENTS	STRUCTURAL DESIGN INFORMATION	THE SCALE BAR	DATE MARCH 2004
				DRAWN _____ SMH								H & S JOB NUMBER 30788B	
				CHECKED _____								CONTRACT NUMBER B	DRAWING NUMBER S1
3	AS BUILT	OCT 2007	RLT	PROJ. ENGR. _____ DAN	APPROVED	THIS DOCUMENT ORIGINALLY ISSUED FOR CONSTRUCTION AND SEALED BY RONALD L. TAYLOR, SEAL NO. 024649							
2	CONSTRUCTION	MAR 2004	RLT										
1	REGULATORY APPROVAL	NOV 2003	RLT										
NO.	ISSUED FOR	DATE	BY										