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Decommissioning End Points Document
Building 484-4D, Powerhouse Maintenance Facility

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History of Revisions

Revision	Date	Revised Section	Change
0	9/17/2009	N/A	Initial Issue
1	8/24/2020	All	Complete revision to reflect G-FDE-D-00037 which was approved in 2019 in lieu of G-FDE-D-00028 which was replaced by G-FDE-D-00037. Incorporates deactivation efforts completed in 2012 and 2013, and any other work performed since 2013, including asbestos surveys performed in 2019. Rev. 1 provides an update of the entire DEPD.

1.0 Purpose and Scope

This document identifies the end points (and activities to achieve those end points) necessary to meet the Savannah River Site 484-4D Powerhouse Maintenance Facility decommissioning objective and end state vision. It is an upper tier planning document to be used by the Project Manager for the development of project schedules and by the planning organization for the development of work packages.

The end points were developed using the checklist methodology[1], which is a logical, top-down, seven-step process for identifying end points. The process takes into account the initial condition of the facilities, the decommissioning end-state vision and objective, facility boundaries, and types of work to be performed (or considered). This Simple Model decommissioning scope (i.e., the before and after condition of the facility along with boundaries) is further defined by the Facility Decommissioning Evaluation (FDE) (Reference 6.1).

This document has been developed in accordance with the requirements found in the Facility Disposition Manual 1C, Procedure 505, "Preparing a Project Decommissioning Plan."

2.0 Facility Description

The Building 484-4D Powerhouse Maintenance Facility D&D project includes the following ancillary structures:

- Compressed gas cylinder storage area;
- Lay-down yard; and
- North side storage (two small buildings with covered area between).

Building 484-4D is in the northern section of 400-D Area of the Savannah River Site (SRS) (Figure 1). Building 484-4D is of metal frame construction with a metal roof, constructed on a concrete slab (Figure 2). The building consists of spaces for mechanical maintenance, electrical and instrumentation maintenance, welding, miscellaneous storage, storage and distribution of tools, and personnel spaces, including office space, restrooms, locker rooms and break facilities. Construction of the facility was completed in 1981. The facility is 11,694 square feet (see Appendix A Figure 3 for layout) and had climate controls, plumbing for domestic water and plumbing for sanitary sewage. Most of the sanitary sewer connections outside the restrooms are hub connections above the slab (see Appendix A Figure 4 for layout). The main shop, the welding shop and the electrical shop were not climate controlled. The remaining spaces were climate controlled and insulated. All fluorescent lamps, light bulbs, exit signs, heating, ventilation, and air conditioning (HVAC) units, etc. were removed during deactivation

[1] See Reference 6.2 for additional information regarding the checklist method.

(refer to "Deactivation Project Final Report Building 484-D Powerhouse and Ancillary Buildings", V-PCOR-D-00042, Reference 6.6).

The main shop is approximately (~) 18.5-feet (ft) by 49.5-ft and 15-ft to 19-ft high (building roof height). The main shop contained common stationary industrial tools, such as an engine lathe, grinder, drill presses, band saw, etc. The main shop had a self-contained solvent rinse station that used Safety Kleen™ parts cleaner (hydrotreated kerosene). There was a 95-gallon (gal) poly collection bin for used aerosol cans. There was a gantry crane located in the overhead of the shop. Along the north wall of the shop were two (2) flammable storage cabinets. There are numerous small oil stains on the floor, typically around tools and/or workstations (see Appendix A Figure 4 for locations). On the south wall of the main shop is a 10-ft roll-up door, as well as a normal swinging door for personnel use. The remainder of the building can be easily accessed via the main shop. Plant air and communications from the Powerhouse were provided to the building at the southeast corner of the main shop.

Storage Area 1 is ~4 ft by 6 ft with no ceiling. The storage room contained water, coveralls, welding helmets, etc., and has been completely emptied of everything. Storage Area 1 is accessible only from the main shop.

The lunchroom is ~24.5 ft by 43 ft with a suspended ceiling at ~8 ft height. The lunchroom contained cooking ranges, a sink, refrigerators and microwaves. There were also tables and chairs, as well as a computer desk with computer, but these have all been removed. The lunchroom is accessible from the passageway in the center of the building and a door in the southwest corner of the room that leads to the outside.

The electrical shop is ~23.5 ft by 43 ft. There is a small, sectioned off area which was used as an office. The electrical shop is a typical electronics and instrumentation shop. It contained various tool bins for spare parts and equipment, work benches, tool lockers and test gear. The office within the electrical shop is ~12 ft by 12 ft (included in the dimensions of the electrical room). There is a sink on the west side of the electrical shop. The office contained standard office supplies and furniture which have been removed. The electrical shop is accessible from the passageway in the center of the building, as well as a door in the southeast corner of the room that leads to the outside. Electrical power to the facility was disconnected during building deactivation (refer to Deactivation Project Final Report Building 484-D Powerhouse and Ancillary Buildings", V-PCOR-D-00042, Reference 6.6).

The women's locker room and restroom are accessible through the passageway in the center of the building. The men's locker room and restroom are accessible from the passageway in the center of the building, as well as a door in the northeast corner that leads outside. Both locker rooms still contain the lockers and benches. The space containing the men's and women's locker rooms and restrooms is ~58.5 ft by 28.5 ft with a suspended ceiling at ~8-ft height. Within the area are lockers, sinks, toilets and urinals, showers, and laundry facilities. The laundry facilities have been removed. Toilets were

removed and the resulting holes plugged with grout. The urinals, showers and floor drains were plugged with grout, but when the building is decommissioned, all facilities (urinals, showers, etc.) that were plugged during deactivation will be re-plugged and grouted after removal of the facility. In addition to re-plugging/grouting of previously plugged utilities, all holes in concrete (such as Hubs) will be plugged and grouted after decommissioning. The utility room is ~14 ft by 9.5 ft with a suspended ceiling at ~8-ft height. The utility room contained telecommunications electronics and electrical gear, including a 75kVA dry-type transformer, disconnects, and a power panel. Also, in the utility room are a sink and a 120-gal water heater. The utility room contains the main electrical power for the structure as well as the main building supply for domestic water, all of which have been disconnected.

The tool crib area is composed of four rooms, all with a suspended ceiling at ~8-ft height. Tool Crib Room 1 is oddly shaped and has a section that is ~19.75 ft by 20.25 ft and a second section that is ~29.75 ft by 15 ft. Tool Crib Room 2 is ~19.5 ft by 8 ft. Tool Crib Room 3 is ~14.25 ft by 8 ft. The tool crib office is ~21 ft by 14.25 ft. The tool crib area contained various cabinets and storage bins for tools and supplies necessary in the maintenance shop and Powerhouse. All tools, equipment, cabinets, etc. have been removed. There was also a flammable storage locker in Tool Crib Room 1 that has been removed. The tool crib office contained a desk, chair, computer and other typical office supplies and amenities, all of which have been removed.

The welding shop is ~26.75 ft by 25 ft. The welding shop contained work benches, welding equipment and a grinder, all of which have been removed. It is sectioned off from the main shop by a hanging, translucent, flexible, amber colored strip partition to shield against personnel viewing welding arcs. On the north side of the welding shop is a 10-ft roll-up door that leads to the outside.

The offices in the southwest portion of the building are typical. The offices are all ~13.5 ft by 9.5 ft with an ~8-ft high suspended ceiling. Within the offices were desks, chairs, filing cabinets, computers, printers, shelves, etc., all of which have been removed.

The lay-down yard to the west of the building structure is a partially fenced, paved area ~137 ft by 32 ft. The fencing is a 7-ft chain link. Adjacent to the building structure are a couple of small areas that are concrete, extending from the building slab. The larger of the two areas is covered by a metal, pole supported awning. Propane cylinders were stored in this area. The two HVAC units that serviced the building have been removed, leaving only duct work in the lay-down yard. The south end of the lay-down yard has a partially covered area for compressed gas cylinder storage. The compressed gas cylinder storage area contained oxygen, argon, acetylene and nitrogen cylinders, all of which have been removed. There is a handrail installed around a portion of the compressed gas cylinder storage pad.

On the north side of the building are two small storage buildings with a covered area between them. Within the storage buildings and in the covered area were stored various

consumables such as water, coveralls, cleaning supplies, raincoats, gloves, etc., all of which have been removed. On the east side of the building is a small covered area and the ductwork from another HVAC unit that serviced the building, particularly the welding and main shops.

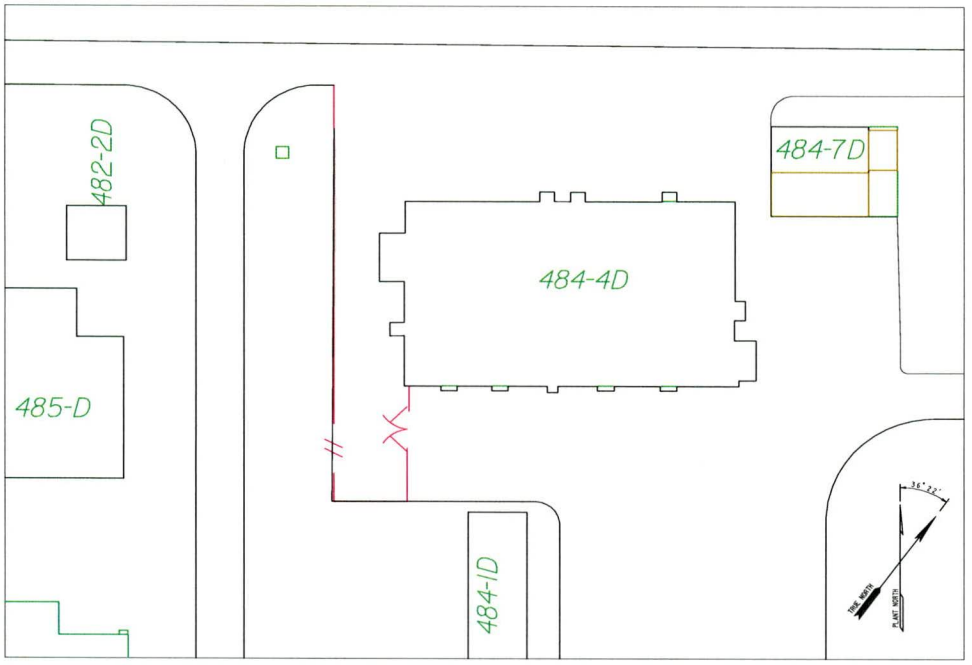

Figure 1. Building 484-4D Maintenance Facility Area

Figure 2. Building 484-4D Maintenance Facility

3.0 End State Vision

The decommissioning end state for Building 484-4D, which has no defined or anticipated future mission, is "Demolish" to, but not including, the building's concrete slab. That end state results from removal of the above grade structure to the building slab. All coarse debris will be removed from the slabs. Remaining hubs, cleanouts, and floor drains will be plugged and grouted during decommissioning. All other concrete slab penetrations greater than 2" in diameter will be cut off level with the slab and grouted in accordance with Reference 6.3. Slab protrusions (i.e., anchor bolts, rebar, etc.) will be cut off flush with the top of slab.

The end state vision for the current 484-4D Powerhouse Maintenance Facility is further defined by the following statements:

- The end-state does not correspond to a "new waste unit."
- The end-state will have no remaining debris.
- The end-state will have no remaining physical hazards. The facility is not in a pedestrian heavily trafficked area, so the slightly elevated slabs will pose no additional risks to the Site workers. No additional barricades or sloping will be required.
- The end-state requires no long-term stewardship activities.

4.0 Objective and Major Activities

The overall objective of this decommissioning is to place Building 484-4D, Powerhouse Maintenance Facility, in a safe, stable and low-cost end state that supports "area closure/completion." In other words, the decommissioning objective is threefold: (1) to reduce the risks to workers, the public and/or environment from residual radiological, chemical, biological, or physical hazards, (2) to minimize future S&M costs for the facility, and (3) to facilitate future "area closures/completion" actions by Area Completion Projects (ACP) personnel.

To meet the overall objectives, the following major activities (MAs) are required:

1. Complete preparatory operations including completing the Engineering Survey (Reference 6.4).
2. Eliminate or reduce hazards
3. Perform dismantlement and removal activities.
4. Perform demolition activities.
5. Complete project closure activities.

Appendix B further defines the decommissioning activities and provides corresponding end points for each activity.

5.0 End Point Determination and Management

The decommissioning end points were derived based on a review of (1) existing facility documents, (2) subsequent walk downs of the facility, and (3) the strategy to execute

decommissioning by using Savannah River Nuclear Solutions (SRNS) site personnel, subcontractor personnel, or a combination thereof.

Appendix A provides a layout of the structure to be decommissioned. Because it is relatively simple, the structure is handled as a single workspace (Zone A).

As required by SRS Manual 1C, Procedure 506, ACP will verify the completion of each decommissioning end point. That verification will be documented in a final decommissioning report. Documentation will include the Appendix B end points along with objective evidence (e.g., reference documents, interviews, or visual inspection) that the end points are complete.

The project planner is expected to adapt the end points selectively to the structure within this scope.

6.0 References

6.1 W. B. Griffin, "Facility Decommissioning Evaluation, Building 484-4D, Powerhouse Maintenance Facility", G-FDE-D-00037, Rev. 0, dated November 13, 2019.

6.2 V. R. Fricke, "Choosing End-Points Using the Checklist Method", FDD-ENG-2001-00041, dated April 16, 2001.

6.3 "Site D&D Policy on Decommissioning End Points for Slabs, Pits, Basements and Basins (U)", SDD-2005-00170, dated March 23, 2005.

6.4 W. B. Griffin, "Engineering Survey & Interference Report for Building 484-4D, Powerhouse Maintenance Facility", Q-SDD-D-00001, dated August 17, 2020.

6.5 W. K. Padgett, "Environmental Compliance & Area Completion Projects Baseline Asbestos Inspection Report of Building 484-4D", Q-APG-D-00005, dated October 30, 2019.

6.6 J. Parker, "Deactivation Project Final Report Building 484-4D, Powerhouse and Ancillary Buildings", V-PCOR-D-00042, Rev. 0, dated July 1, 2014.

LISTING OF APPENDICES

A- Facility Layout

B- Listing of End Points and/or End Point Activities Along with Completion Verification Methodology

Appendix A – Facility Layout

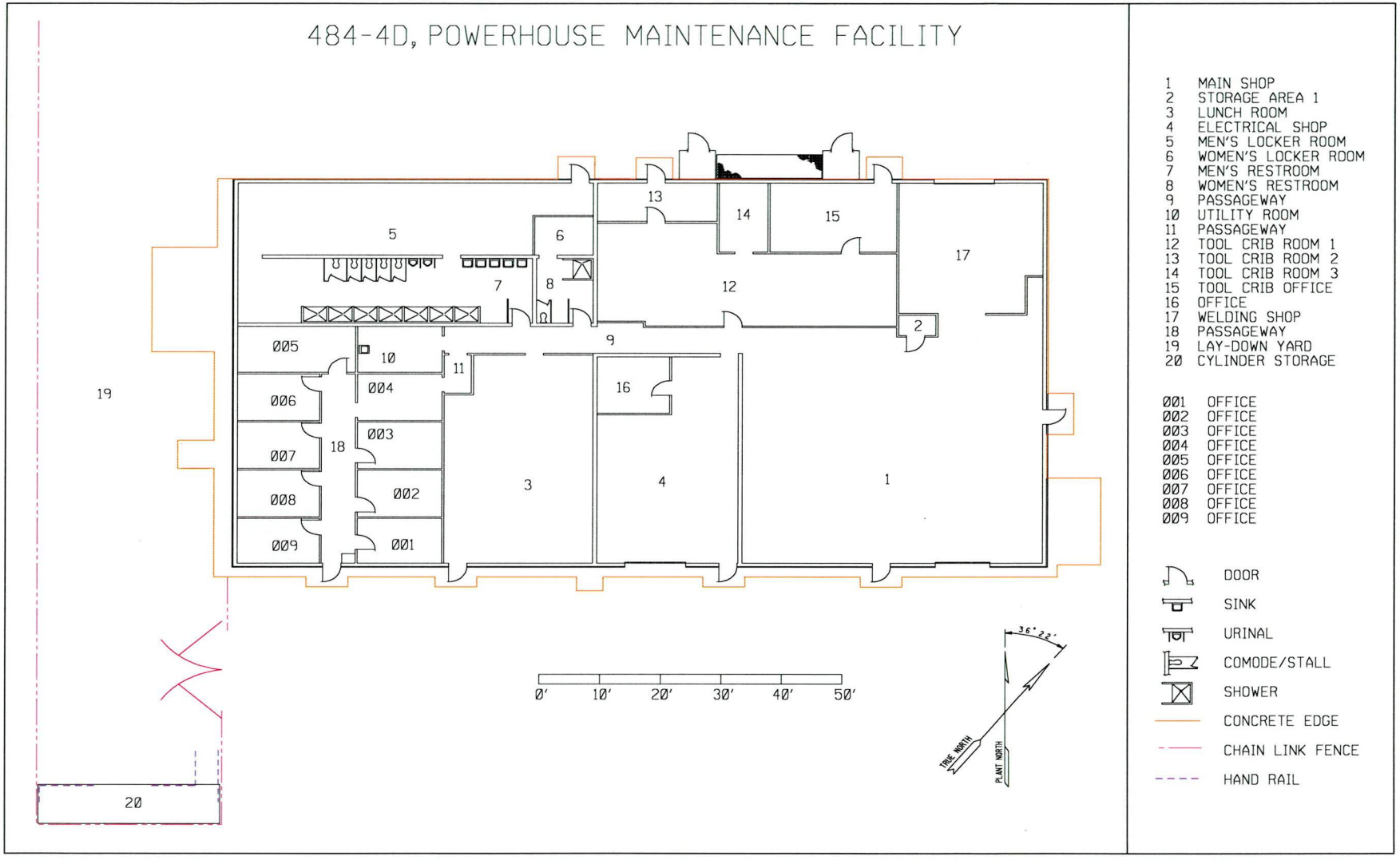

Figure 3. 484-4D Maintenance Facility Layout

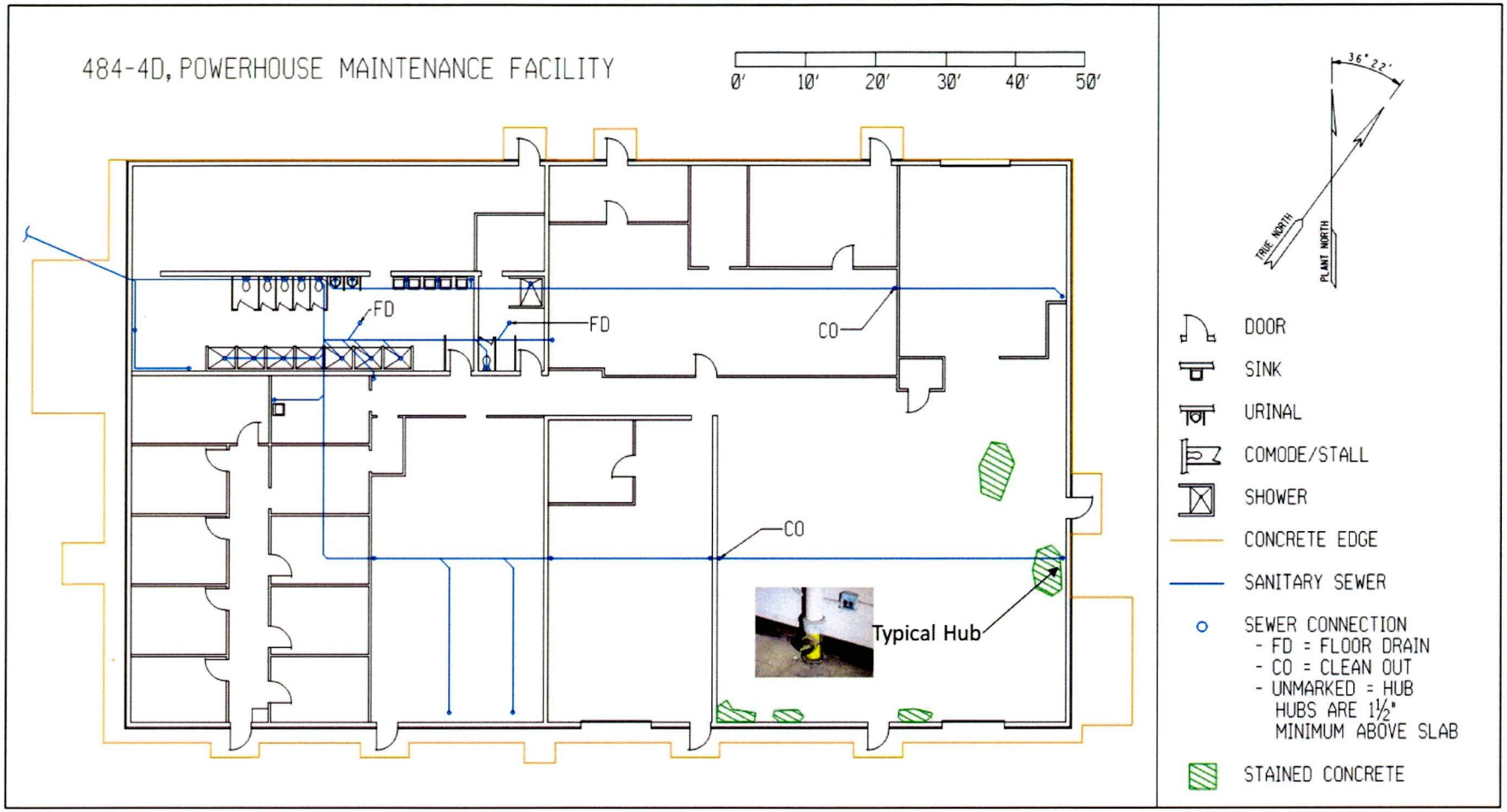

Figure 4. 484-4D Maintenance Facility Drainage (Sanitary Sewer)

The following utilities served or originated from the facility:

- Electricity
- Plant Air
- Domestic Water
- Sanitary Sewer System
- Telecommunications
- Public Address System

Appendix B – Listing of End Points and/or End Point Activities Along with Completion Verification

MA - 1	COMPLETE PREPARATORY OPERATIONS		
End Point #	Activity	Endpoint	Verification Method
MA – 1.1	Submit Environmental Evaluation Checklist for approval to document a NEPA (National Environmental Policy Act) review and identify any environmental permits needed.	Notice of NEPA Approval (NONA) is issued.	Document Review
MA – 1.2	Prepare and submit Site Clearance Permit for approval.	Site Clearance Permit has been approved and issued	Document Review
MA – 1.3	Prepare and submit request for screening of real property for disposition.	Building and equipment, as applicable, have been declared excess.	Document Review
MA – 1.4	Update all property systems, Master Building List (MBL) and the Financial Information System (FIS).	Systems have been updated.	Interview Site D&D & SI Property Managers, as applicable
MA – 1.5	As needed, sample and analyze materials (e.g., paints, insulation, etc.) for PCBs and other hazardous constituents. Define segregation practices and waste management for identified components. This can be done in parallel with demolition activities.	Waste Identification Form (WIF) with segregation practices is approved and issued.	Document Review
MA – 1.6	Perform a building inspection for asbestos containing materials and issue the required report.	Building Inspection Report is issued.	Document Review
MA – 1.7	Perform an Engineering Survey and Interference Report.	Engineering Survey is issued.	Document Review
MA – 1.8	Conduct Readiness Review.	Readiness Review is complete.	Document Review
Section 2	**ELIMINATE OR REDUCE HAZARDS**		
MA – 2.1	Isolate hazardous energy per Manual C2, Procedure FDP 2.04	Verification Report is approved and issued.	Document Review
MA – 2.2	Remove and dispose of hazardous materials, as applicable.	Hazardous materials are dispositioned.	Document Review
MA – 2.3	Prepare and submit notice of asbestos disturbance.	Asbestos abatement project license is received.	Document Review
MA – 2.4	Complete asbestos abatement actions.	Asbestos abatement is complete.	Document Review
MA – 2.5	Complete any remaining deactivation activities.	All deactivation activities are completed.	Visual Verification

Section 3	PERFORM DISMANTLEMENT AND REMOVAL ACTIVITIES		
End Point #	**Activity**	**Endpoint**	**Verification Method**
MA – 3.1	Remove any remaining loose miscellaneous materials and equipment.	Building is free of loose miscellaneous materials and equipment.	Visual Verification
Section 4	**PERFORM DEMOLITION ACTIVITIES**		
End Point #	**Activity**	**Endpoint**	**Verification Method**
MA – 4.1	Obtain demolition permit as required by South Carolina Codes and Regulations, SC Reg. R61-86.1 Section XIII.	Demolition license is received.	Document Review
MA – 4.2	Take precautions to minimize interference with roads and other facilities.	Traffic plan is issued.	Document Review
MA – 4.3	Take precautions to preserve any stakes, monuments or benchmarks.	If applicable, stakes, monuments or benchmarks are protected.	Document Review
MA – 4.4	Employ and implement measures for controlling suspended solids in storm water run-off as a result of demolition activities.	Storm water pollution prevention plan is issued.	Document Review
MA – 4.5	Demolish and remove the Building 484-4D, Powerhouse Maintenance Facility, structure (including all appurtenances) down to, but not including, its concrete floor slab.	Building concrete slab is free of specified elements.	Visual Observation
MA – 4.6	Demolish two storage buildings on north side of 484-4D.	Storage buildings have been demolished.	Visual Observation
MA – 4.7	Demolish the partially covered compressed gas cylinder storage area, including handrail, at the south end of the laydown yard.	Gas cylinder storage area, including handrail, has been demolished.	Visual Observation
MA – 4.8	Remove the laydown area chain link fence and remove or cut fence posts flush with grade.	Fence has been removed and posts removed or cut flush with grade.	Visual Observation
MA – 4.9	Clean the concrete slabs and laydown area.	The concrete slabs and laydown area are free of all coarse debris.	Visual Observation
MA – 4.10	Cut off all electrical conduit and piping penetrations flush with the top of the slab or ground level, as applicable. Plug and seal with grout if greater than 2" diameter.	Slab penetrations greater than 2" diameter have been cut flush with top of concrete slab or ground level, as applicable, and plugged/grouted.	Visual Observation
MA – 4.11	Plug other resultant holes, if present, and fill with cementitious material (e.g., grout, controlled low strength material, concrete, etc.).	Other resultant holes have been plugged and filled.	Visual Observation
MA – 4.12	Fill cut off fence posts/fence post holes with cementitious material (e.g., grout, controlled low strength material, concrete, etc.).	Fence post remnants/holes have been filled.	Visual Observation
MA – 4.13	Cleave or breach any remaining curbing on the slab, as necessary, to ensure drainage of rainwater.	Curbing remaining, if any, has been cleaved or breached.	Visual Observation

Section 4 (cont'd)	**PERFORM DEMOLITION ACTIVITIES**		
End Point #	**Activity**	**Endpoint**	**Verification Method**
MA – 4.14	Inspect the 484-4D concrete slab for oil staining and remove any stains using a strong surfactant, "Biosolve".	Concrete slab is free of oil stains.	Visual Observation
MA – 4.15	Cut all above ground and concrete surface protrusions (e.g., bolts, rebar, etc.) level with the concrete slab, foundations, pads or grade, whichever applies.	All above ground and concrete surface protrusions have been cut level with the concrete slab, foundations, pads, or grade, whichever applies.	Visual Observation
MA – 4.16	Perform a Final Acceptance Inspection (8Q-51) of the completed work.	Final Acceptance Inspection completed and recorded (8Q-51).	Document Review
MA – 4.17	Complete any incomplete or new work items identified during the Final Acceptance Inspection.	Remaining work items identified during final inspection completed.	Document Review
MA – 4.18	Remove from jobsite and dispose of all equipment, rubble, sanitary waste, scrap metal, and trash as the work progresses.	Jobsite equipment and waste dispositioned.	Document Review and Visual Observation
Section 5	**COMPLETE PROJECT CLOSURE ACTIVITIES**		
End Point #	**Activity**	**Endpoint**	**Verification Method**
MA – 5.1	Ensure all Work Packages have been completed.	Work Packages are complete.	Document Review
MA – 5.2	Prepare as-built information and a request for Site Clearance Permit Closure, OSR 3-120, and submit as required by Manual 1D Procedure 3.02.	Request for Site Clearance Permit Closure is issued.	Document review.
MA – 5.3	Issue correspondence for retirement of assets.	Property Record Closeout letter is issued and recorded in the project file.	Document Review
MA – 5.4	Issue correspondence for deletion (voiding) of engineering documents.	Records Disposition letter for Building 484-4D is issued and recorded in the project file.	Document Review
MA – 5.5	Revise (by Site Infrastructure Engineering) technical baseline documents, as appropriate, which cannot be voided.	Appropriate technical baseline documents have been revised.	Document Review
MA – 5.6	Prepare and issue Completion of Decommissioning End Points (CDEP) document.	CDEP document has been issued.	Document Review
MA – 5.7	Prepare and issue Decommissioning Project Final Report (DPFR).	DPFR is issued.	Document Review