PHASE 2 FACILITY OPERATIONS AND MAINTENANCE PLAN FOR 2015
Appendix B

to

Remedial Action Work Plan for Phase 2 Dredging and Facility Operations in 2015

HUDSON RIVER PCBs SUPERFUND SITE

Prepared for:

GENERAL ELECTRIC
319 Great Oaks Boulevard
Albany, NY 12203

Prepared by:

PARSONS
GE Company – Parsons Project Office
381 Broadway, Bldg 40-2
Fort Edward, NY 12828

Revised April 2015

PHASE 2 FACILITY OPERATIONS AND MAINTENANCE PLAN FOR 2015

Section 3.1.1 of the revised Statement of Work (SOW) for Remedial Action and Operations, Monitoring and Maintenance (Appendix B to the Consent Decree), issued by the United States Environmental Protection Agency (EPA) in December 2010, requires that the Remedial Action Work Plan (RAWP) for Phase 2 dredging and facility operations in each year of Phase 2 must include a Phase 2 Facility Operations and Maintenance Plan or updates to a previously approved plan. The RAWP submitted by General Electric Company (GE) for 2013, dated April 2013, included (as Appendix B) a *Phase 2 Facility Operations and Maintenance Plan for 2013* (2013 Facility O&M Plan). That plan addressed the operation and maintenance of the sediment processing facility, located in Fort Edward, New York, during 2013 and the following off-season. It described operational aspects of sediment processing at this facility, from receipt of dredged material through transfer of dewatered solids to a staging area for loading of rail cars. It also described the treatment of process water and storm water at the site and the reuse and discharge of treated water. That plan included, for each operation, descriptions of the equipment and processes involved, as well as the instruments and controls and the inspection and maintenance procedures for the equipment used. The plan also presented a general operations schedule and description of manpower requirements, a contingency plan for unplanned maintenance of critical equipment, and a description of worker health and safety measures, decontamination procedures for personnel and equipment, spill control and response measures, and contractor noise and light monitoring to be implemented at the processing facility. Finally, the plan included a description of the decommissioning procedures at the conclusion of the season and of the activities to be undertaken at the facility during the following off-season.

There are very few substantive changes to the 2013 Facility O&M Plan for operations to be conducted at the Fort Edward sediment processing facility in 2015. Accordingly, this *Phase 2 Facility Operations and Maintenance Plan for 2015* (2015 Facility O&M Plan), which is Appendix B to the *Phase 2 Remedial Action Work Plan for Dredging and Facility Operations in 2015* (2015 RAWP), incorporates by reference the 2013 Facility O&M Plan with the following exceptions:

- References in the 2013 Facility O&M Plan to the 2013 RAWP and the plans that are appendices to it should be read to refer to the 2015 RAWP and its corresponding appendices.
- Certain portions of the 2013 Facility O&M Plan, which relate to a description of the equipment, equipment inspection and maintenance schedules, have been slightly revised. These portions of the plan consist of Section 2.3.1 (North Size Separation Area), 2.3.2.1 (Equipment Overview), 2.3.2.2 (Instrumentation and Controls) and the inspection and maintenance schedules in Attachments 1A and 1B Revised versions of those portions of the Facility OM&M Plan are attached hereto.

- Figures 2-1, Figure 2-3 and Figure 2-4 have been slightly revised to remove the log washer from the North Size Separation Area.

It should be noted that the 2015 RAWP does not specifically cover dredging and associated sediment handling operations in the non-navigable area known as the Landlocked Area in Reach 7 of the Upper Hudson River or dredging in CU 60. Those operations are addressed in separate RAWPs – the *Phase 2 Remedial Action Work Plan for Reach 7 –Landlocked Area* and *Phase 2 Remedial Action Work Plan for CU 60*. However, as noted in these RAWPs, the off-loading and processing operations at the Fort Edward sediment processing facility for the sediments transported from the Landlocked Area and CU 60 will be subject to this 2015 Facility O&M Plan.

Section 2.3.2, 2.3.2.1 and 2.3.2.2 of the 2013 Facility O&M Plan, which describes the equipment at the North Size Separation Area at the processing facility, shall be replaced with the following:

2.3.2 North Size Separation Area

Barges will be indexed, dewatered, and unloaded at Unloading Wharf No. 2. Free draining material may be loaded directly into the bed of dump trucks and delivered to the CMSAs. The remaining dredged materials will be fed into the size separation plant. This sediment will be processed through screen decks, and desanding units to sort out additional debris, gravel, and sand. Captured material from each process will be transferred by dump truck to the CMSAs. The remaining slurry of fine material will be pumped through force mains to the dewatering area. As described above for the south system, oversized debris will be transported to the CMSAs for size reduction.

2.3.2.1 Equipment Overview

A series of screens will be used to separate the coarse oversize fractions from the sand and fine fractions. The sand will be separated from the fines fraction with three desanding units, which consist of an integrated bucket wheel, hydrocyclone cluster, and dewatering screen unit. The fines fraction (silt and clay) will be discharged from the size separation plant as a slurry and pumped to the dewatering area. The process steps are as follows:

1. The unloader will feed the dredged material from the barge into a hopper.
2. A belt feeder will convey the material into a feed box containing an 8-ft by 24-ft triple deck scalping screen.
3. The oversize from the top deck (greater than 4-inch diameter) will be directed to a bin adjacent to the screen via a chute.
4. The material captured in the second (1-inch to 4-inch) and third (1-inch to 5/8-inch) decks will be directed to belt conveyors that will take the material to the 6-ft by 20-ft midsize vibratory screen.
5. The underflow (less than 5/8-inch diameter) from the triple deck screen will be pumped to a 6-ft x 20-ft fine vibratory screen.
6. The underflow from the midsize and fine vibratory screens will be pumped to one of three desanding units.
7. In each of the three desanding units, a bucket wheel will filter the sand and discharge it onto a dewatering screen. The water and fines in the sump will be pumped to a cluster of hydrocyclones for additional desanding. The hydrocyclone overflow will be discharged to a storage tank. The underflow from the hydrocyclones discharges onto the same dewatering screen as the bucket wheel. The dewatered sand is rejected onto a

stacking conveyor. The dewatered sand will then be loaded into dump trucks for transport to the CMSAs.

8. The hydrocyclone overflow is either recycled back to the sump under the triple deck screen to act as dilution water or is pumped to the gravity thickener for dewatering.

Material Staging in the North Size Separation Area

At each unit of the size separation process, the solids removed will be staged for hauling. This operation includes the following:

- The initial steps of the size separation system involve scalping operations and size classification of the material. Large debris from barges may be directly unloaded onto trucks for transport to the CMSAs and items larger than the truck bed will be offloaded to the wharf pavement for reduction in size for transport. Stockpiles will be created at the initial scalper screen.
- Material captured by the desanding units will be staged by a radial stacker for transport to the CMSAs.

Mobile equipment supporting the North Size Separation Area is shared with the South Plant as described in Section 2.3.1.2 above.

Oversized material and large debris will be transported to the CMSAs using dump trucks, cycling between the size separation area and the CMSAs so that these materials do not accumulate to the point where operations are impeded. Figure 2-4 depicts this on-site waste transport routing. Drainage from the material staged at the size separation area will be captured and conveyed to the waterfront storm water basin (Section 2.6).

2.3.2.2 Instrumentation and Controls

The instruments and controls are organized by equipment component in which the instrument is installed. Field-located sensors transmit data to a master control panel (MCP). Data included in process logic control loops are compared against settings programmed by system operators. Equipment control commands are executed automatically, based on the data received at the MCP after comparison with the programmed settings. The operators can also take manual control of processes and use data received at the MCP to respond to changing conditions.

Screen Decks

The screen deck systems will have a programmable controller to control the speed of the feeder conveyors. The underflow pumps will have a programmable logic controller (PLC) to indentify low-low or high-high levels in the screen deck sumps. The PLC will receive a signal from the hopper level sensors and shut down the pumps under a low-low condition and illuminate a beacon to alert the sediment unloader operator to stop feeding the hopper. A high-high level alarm will shut down the conveyor feed and shut down the pumps feeding the system.

This will also activate a beacon to alert the sediment unloader operator to stop feeding the hopper.

Size Separation Storage Tanks

Hydrocyclone Mix Tank Level: The level in the hydrocyclone mix tank will control operation of the force main pumps to the dewatering area.

- A low-low level condition in the tank turns off the feed pumps to the dewatering area.
- A high-level switch/alarm in the mix tank turns off the screen deck pumps and illuminates the beacon to signal the operator to stop loading the hopper.
- High and low pressure sensors are installed in the dewatering area feed lines and will shut down the mix tank pumps and signal an alarm at the dewatering area.

Size Separation Process Water Storage Tank Level: Level sensors will control the pumping of the feed pumps from the recycle water equalization tank as well as the make-up water pumps to the screen decks, and desanding units.

- For the feed pumps, as the level in the size separation process water storage tank drops to a low set-point, the lead feed pump from the dewatering area will activate to replenish the tank. As the level rises above a high set-point, the lead pump turns off. At a high-level alarm set-point, the feed pumps in the dewatering area will turn off to prevent overfilling the tank.
- If the level goes below a low-low set-point, the make-up water pumps to the screen decks, and desanding units will turn off to prevent emptying of the tank.

Attachments 1B and 2B to the 2013 Facility O&M Plan shall be replaced with the following:

Attachment 1B
Equipment Inspection Schedule – North Size Separation Area

Equipment Item	Inspection Required	Frequency
TRIPLE DECK SCREEN EQUIPMENT		
Screen Deck	Screen Wear	Daily
	Screen Supports	Daily
	Springs	Daily
	Vibrator Motor Bolts	Daily
	Spray bars	Daily
	Walkways	Daily
	Handrails	Daily
Conveyors	Drive System	Daily
	Rollers	Daily
	Conveyor Belt	Daily
	Gear Case	Daily
	Guards	Daily
	Bearings	Daily
	Discharge Chute from Trommel Barrel	Daily
	E-Stop System	Daily
Underflow Pumps	Shaft Couplers/Belt and Sheave	Daily
	Bearing/Seal Waters	Daily
	Discharge Pressures	Daily
DOUBLE DECK SCREEN EQUIPMENT		
Screen Deck	Screen Wear	Daily
	Screen Supports	Daily
	Springs	Daily
	Vibrator Motor Bolts	Daily
	Spray Bars	Daily
	Walkways	Daily
	Handrails	Daily
Conveyors	Drive System	Daily
	Rollers	Daily
	Conveyor Belt	Daily
	Gear Case	Daily
	Guards	Daily
	Bearings	Daily
	Discharge Chute from Trommel Barrel	Daily
	E-Stop System	Daily
Underflow Pumps	Shaft Couplers/Belt and Sheave	Daily
	Bearing/Seal Waters	Daily
	Discharge Pressures	Daily

Attachment 1B

(continued)
Equipment Inspection Schedule – North Size Separation Area

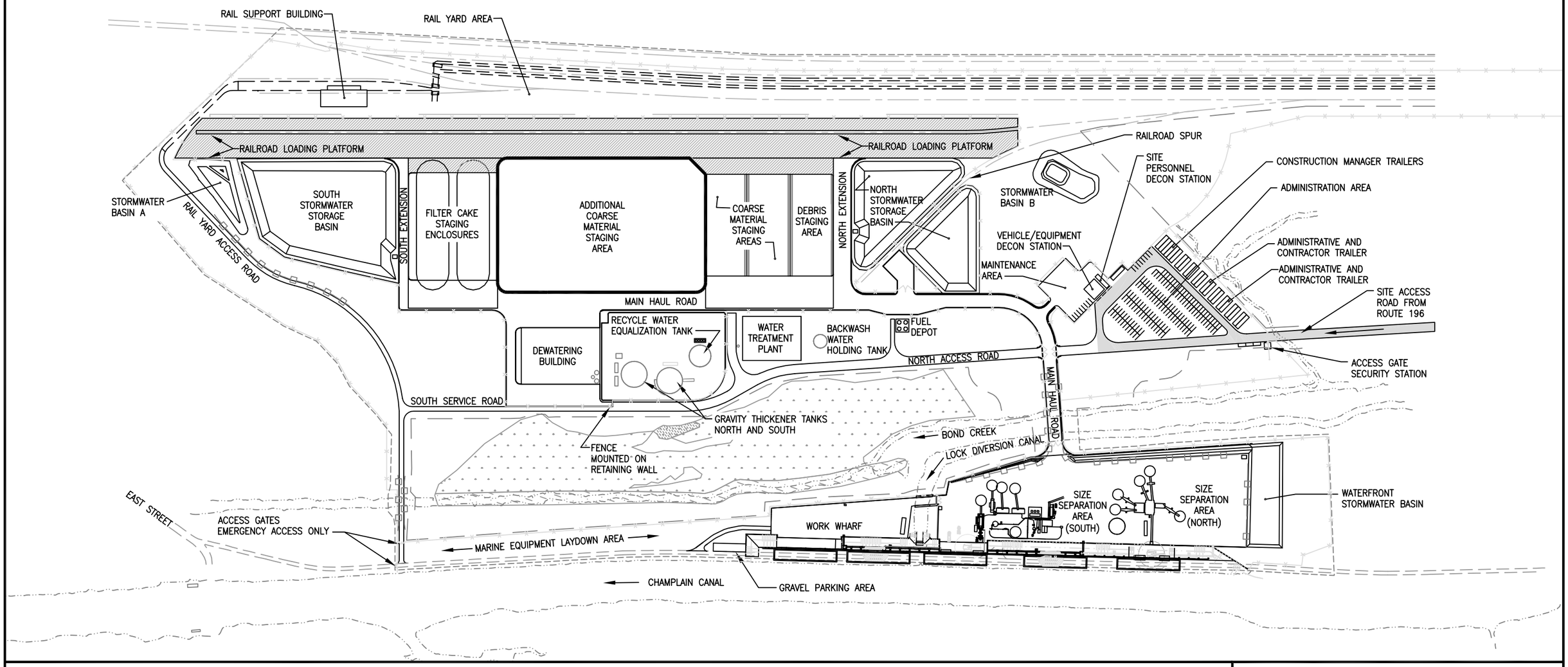
Equipment Item	Inspection Required	Frequency
DESANDING UNITS		
Vibratory Dewatering Screens	Screens	Daily
	Springs	Daily
	Screen Supports	Daily
	Screen Tension Legs	Daily
	Vibrator Motor Bolts	Daily
	Bearings	Daily
Conveyors	Drive System	Daily
	Rollers	Daily
	Belts	Daily
	Gear Case	Daily
	E-Stop System	Daily
Wheel Motors	Gear Case	Daily
	Guards	Daily
	Bearings	Daily
	Drive System	Daily
	Bearings / Seal Water	Daily
	Shaft Couplers / Belt and Sheave	Daily
	Guards	Daily

Attachment 1B
(continued)
Equipment Inspection Schedule – North Size Separation Area

Equipment Item	Inspection Required	Frequency
DESANDING UNITS (continued)		
Bucket Wheel	Wheel VFD Settings	Daily
	Ladder and walkway	Daily
	Buckets	Daily
TANKS AND ACCESSORIES		
Screen Deck Make-up Water Feed Pumps (1-lead / 1-lag)	Gear Case Lube	Daily
	Bearings / Seal Water	Daily
	Shaft Couplers / Belt and Sheave	Daily
	Guards	Daily
	Discharge Pressures	Daily
Hydrocyclone Overflow Tank Mixers	Gear Case Fluids	Weekly
	Shaft Couplers	Weekly
	Shaft Flange Lugs	Weekly
	Shaft Seals	Weekly
	Coupler Guards	Weekly
	Bearings	Weekly
Size Separation Process Water Storage Tank	High Level Alarm	Daily
	Low Level Alarm	Daily
	Valves	Daily
	Flanges	Daily
	Piping	Daily
	Walkways	Daily
	Handrails	Daily
	Ladders	Daily
Triple and Double Deck Screen Tanks	High Level Alarm	Daily
	Low Level Alarm	Daily
	Valves	Daily
	Flanges	Daily
	Piping	Daily
	Walkways	Daily
	Handrails	Daily
	Ladders	Daily

Attachment 2B
Maintenance Activities at North Size Separation Area

Equipment Item	Maintenance Category	Daily[1]	Weekly	Monthly
TRIPLE & DOUBLE DECK SCREEN SYSTEMS				
Vibratory Screen	Inspection	✓		
	Lubrication	✓		
	Scheduled Maintenance			✓
Underflow Pumps	Inspection	✓		
	Lubrication		✓	
	Scheduled Maintenance			✓
DESANDING UNITS				
Vibratory Screen Deck	Inspection	✓		
	Lubrication		✓	
	Scheduled Maintenance			✓
Bucket Wheels	Inspection	✓		
	Lubrication		✓	
	Scheduled Maintenance			✓
Feed Pumps	Inspection	✓		
	Lubrication		✓	
	Scheduled Maintenance			✓
TANKS AND ACCESSORIES				
Tank Mixers	Inspection	✓		
	Lubrication			✓
	Scheduled Maintenance			✓
Tanks	Inspection	✓		
	Scheduled Maintenance			✓



NOTES:

1. BASE MAP INFORMATION SUPPLIED BY ARCADIS AND SHAW.
2. ADDITIONAL COARSE MATERIAL STAGING AREA AND SECOND GRAVITY THICKENER TANK (NORTH) WERE CONSTRUCTED IN 2011 AND 2012.
3. SIZE SEPARATION AREA (NORTH) WAS CONSTRUCTED IN 2012.

300 150 0 300

SCALE: 1" = 300'

LEGEND:

- GUIDE RAIL
- SITE PERIMETER FENCE
- FORESTED AREA
- EMERGENT WETLANDS
- SITE ACCESS ROAD FROM ROUTE 196
- RAILROAD LOADING PLATFORM

FIGURE 2-1

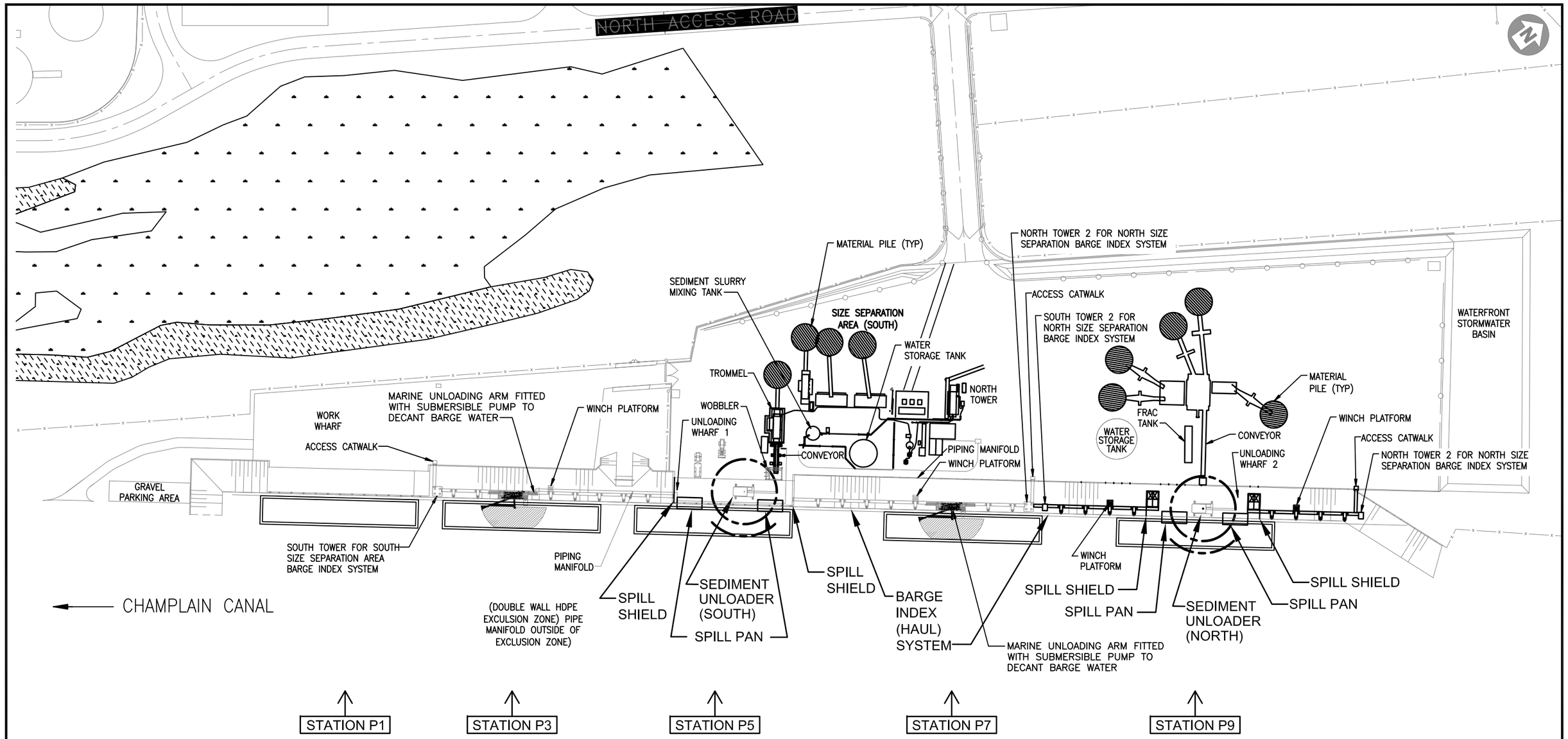
GENERAL ELECTRIC COMPANY
HUDSON RIVER PCBs SUPERFUND SITE
FACILITY OPERATIONS & MAINTENANCE PLAN

PROCESSING FACILITY SITE PLAN
(PROCESSING & RAIL YARD FACILITY)

PARSONS

GE COMPANY - PARSONS PROJECT OFFICE, BUILDING 40-2, 381 BROADWAY FT. EDWARD, NY 12828

FILE NAME: C:\USERS\P005684A\DESKTOP\GEHR-RAWP\442209-PFSP-FIGURES-2013.DWG
PLOT DATE: 2/11/2015 11:12 AM PLOTTED BY: SMITH, NICOLE



SOURCE:

BASE MAP INFORMATION SUPPLIED BY ARCADIS AND SHAW.

120 60 0 120

SCALE: 1" = 120'

LEGEND:

UNLOADING MACHINE WORKING DISTANCE

UNLOADING MACHINE OUTER MAXIMUM DISTANCE

GUIDE RAIL

SITE PERIMETER FENCE

BARGE

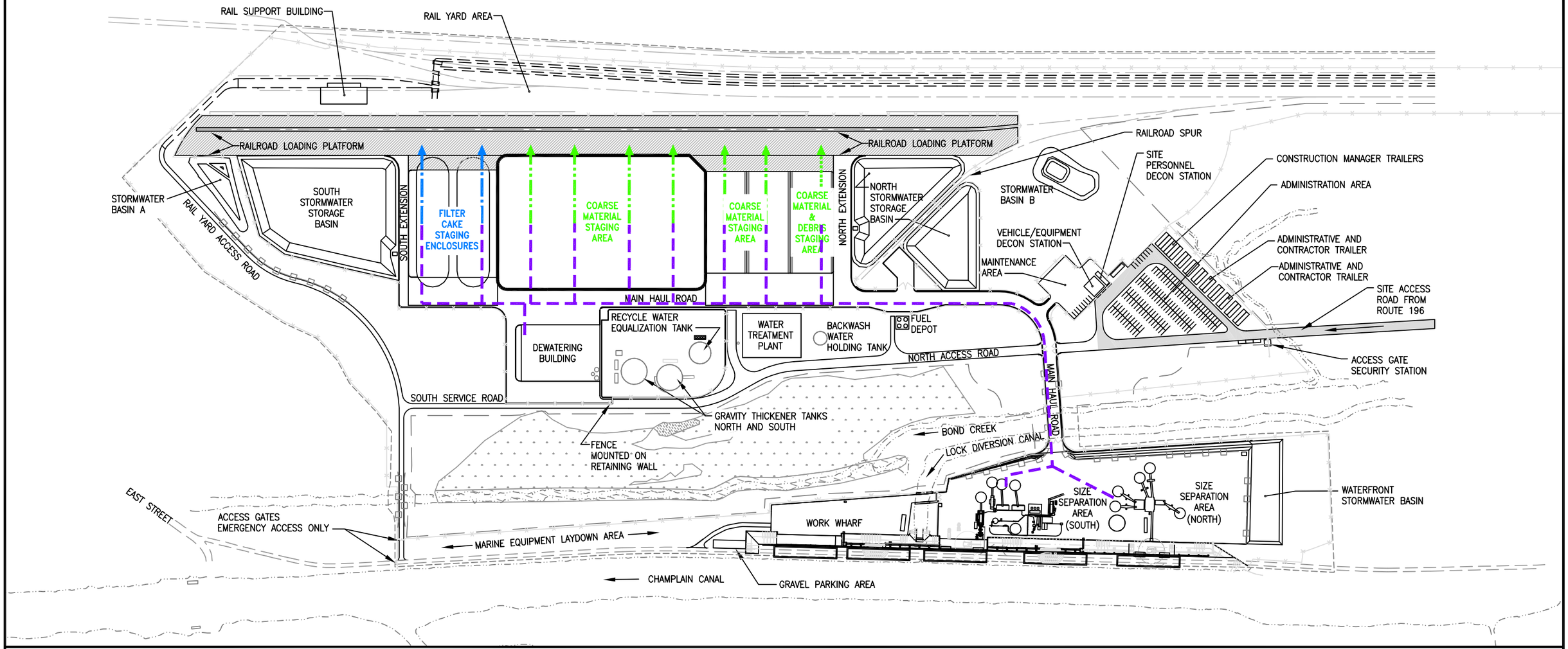
FIGURE 2-3

GENERAL ELECTRIC COMPANY
HUDSON RIVER PCBs SUPERFUND SITE
FACILITIES OPERATIONS & MAINTENANCE PLAN

BARGE UNLOADING SEQUENCE AND LAYOUT

PARSONS
GE COMPANY – PARSONS PROJECT OFFICE, BUILDING 40–1,
381 BROADWAY FT. EDWARD, NY 12828

FILE NAME: C:\USERS\P005684A\DESKTOP\GEHR–RAWP\BARGE UNLOADING LAYOUT–2013.DWG
PLOT DATE: 2/11/2015 10:46 AM PLOTTED BY: SMITH, NICOLE



NOTES:

1. BASE MAP INFORMATION SUPPLIED BY ARCADIS AND SHAW.
2. ADDITIONAL COARSE MATERIAL STAGING AREA AND SECOND GRAVITY THICKENER TANK (NORTH) WERE CONSTRUCTED IN 2011.
3. SIZE SEPARATION AREA (NORTH) WAS CONSTRUCTED IN 2012.
4. FILTER CAKE STAGING ENCLOSURES AND COARSE MATERIAL STAGING AREAS ARE MANAGED AS BOTH TSCA AND NON-TSCA AREAS. REFER TO SECTION 2.1.

- MATERIAL TRANSPORT TO STAGING AREAS & FILTER CAKE STAGING ENCLOSURES
- COARSE MATERIAL LOADING TO RAIL YARD PLATFORM
- COARSE MATERIAL & DEBRIS LOADING TO RAIL YARD PLATFORM
- FILTER CAKE LOADING TO RAIL YARD PLATFORM

LEGEND:

- GUIDE RAIL
- SITE PERIMETER FENCE
- FORESTED AREA
- EMERGENT WETLANDS
- SITE ACCESS ROAD FROM ROUTE 196
- RAILROAD LOADING PLATFORM

300 150 0 300

SCALE: 1" = 300'

FIGURE 2-4

GENERAL ELECTRIC COMPANY
HUDSON RIVER PCBs SUPERFUND SITE
FACILITIES OPERATIONS & MAINTENANCE PLAN

ON-SITE MATERIAL TRANSPORT ROUTES (PROCESSING & RAIL YARD FACILITY)

PARSONS
GE COMPANY - PARSONS PROJECT OFFICE, BUILDING 40-2, 381 BROADWAY FT. EDWARD, NY 12828

FILE NAME: C:\USERS\P005684A\DESKTOP\GEHR-RAWP\442209-PFSP-FIGURES-2013.DWG
PLOT DATE: 2/11/2015 11:15 AM PLOTTED BY: SMITH, NICOLE