



**US Army Corps  
of Engineers**®  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

# PUBLIC NOTICE

**Comment Period Begins: February 26, 2013**  
**Comment Period Ends: March 26, 2013**  
**File Number: NAE-2012-1039**  
**In Reply Refer To: Barbara Newman**  
**Phone: (978) 318-8515**  
**E-mail: Barbara.H.Newman**  
**@usace.army.mil**

The District Engineer has received a permit application to conduct work in waters of the United States as described below.

## **APPLICANT Pharmacia and Upjohn Company, LLC.**

**ACTIVITY** This project involves the cleanup of a contaminated site under a U.S. EPA Consent Order. The work includes excavation of contaminated soils from tidal mudflats, the discharge of fill in tidal wetlands for the construction of a hydraulic barrier, and the discharge of fill in freshwater wetlands for the placement of an impermeable soil cover. A detailed description and plans of the activity are attached.

## **WATERWAY AND LOCATION OF THE PROPOSED WORK**

This work is proposed in wetlands adjacent to, and in the mudflats of, the Quinnipiac River and South Creek, at 41 Stiles Lane, North Haven, Connecticut. The site coordinates are: Latitude 41° 22'27" N Longitude 72° 52' 36" W.

## **AUTHORITY**

Permits are required pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899
- Section 404 of the Clean Water Act
- Section 103 of the Marine Protection, Research and Sanctuaries Act).

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment

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and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

**ESSENTIAL FISH HABITAT**

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

This project will impact approximately three (3) acres of Essential Fish Habitat (EFH) for the thirty-five species on the attached list. This habitat consists of intertidal and tidal mudflats and tidal wetlands in a low salinity environment. Loss of this habitat may adversely affect some of these species. However, the District Engineer has made a preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding EFH conservation recommendations is being conducted and will be concluded prior to the final decision.

**NATIONAL HISTORIC PRESERVATION ACT**

Based on his initial review, the District Engineer has determined that the proposed work may impact properties listed in, or eligible for listing in, the National Register of Historic Places. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

**ENDANGERED SPECIES CONSULTATION**

The New England District, Army Corps of Engineers has reviewed the list of species protected under the Endangered Species Act of 1973, as amended, which might occur at the project site. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect any federally listed endangered or threatened species or their designated critical habitat. By this Public Notice, we are requesting that the appropriate Federal agency concur with our determination.

The States of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved **Coastal Zone Management Programs**. Where applicable the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the State concurrence or objection to the applicant's consistency statement.

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The following authorizations have been applied for, or have been, or will be obtained:

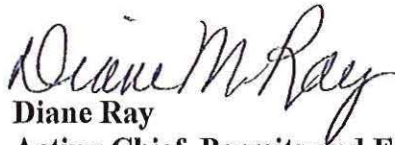
- (x) Permit, License or Assent from State.
- (x) Permit from Local Wetland Agency or Conservation Commission.
- (x) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. **Comments should be submitted in writing by the above date.** If you have any questions, please contact Barbara Newman at (978) 318-8515, (800) 343-4789 or (800) 362-4367, if calling from within Massachusetts.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

**THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.**



**Diane Ray**  
**Acting Chief, Permits and Enforcement Branch**  
**Regulatory Division**

If you would prefer not to continue receiving Public Notices by email, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at [bettina.m.chaisson@usace.army.mil](mailto:bettina.m.chaisson@usace.army.mil). You may also check here ( ) and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
PHONE: \_\_\_\_\_

**PROPOSED WORK AND PURPOSE**

The purpose of this work is to prevent migration of contaminated groundwater from the property into the Quinnipiac River, North and South Creek, and to prevent exposure by humans and wildlife to contaminated soils. These goals were established by the US Environmental Protection Agency (USEPA) and the Connecticut Department of Energy and Environmental Protection (CT DEEP) as part of a site wide cleanup (corrective measures) required by an Administrative Order under the Resource Conservation and Recovery Act (RCRA).

The eighty (80) acre site became contaminated through decades of its use as a chemical manufacturing facility. Three lagoons used during operations to dispose of all contaminated groundwater and soil still exist on the property, and are referred to on the attached plans as the Former Aeration lagoon and the North and South Piles. All manufacturing ceased in 1993 and most of the buildings were demolished. Current site use includes the operation and maintenance of the existing groundwater extraction system and a groundwater treatment facility. The currently existing groundwater treatment system is housed in the only major building on the Site.

The site remedy will impact wetlands and waters of the US during the following activities:

1. Construction of a groundwater hydraulic control system to prevent migration of groundwater off-site to the surrounding water bodies.
2. Installation of low permeability cover systems on the North and South Piles and the former Aeration Lagoon.
3. Installation of protective soil barriers on the remainder of the east side of the Site.
4. Removal of impacted sediments from two locations in the tidal flats of the Quinnipiac River and one location in South Creek. These impacts are further described below.

The hydraulic control system will consist of a subgrade, low-permeability, vertical hydraulic barrier wall and a groundwater extraction and conveyance system. Collected groundwater will be treated at the on-site ground water treatment facility prior to discharge to the Quinnipiac River in accordance with an approved National Pollutant Discharge Eliminating System (NPDES) permit. The purpose of this barrier is to contain impacted groundwater on-site. The chart below summarizes the impacts to the tidal wetlands from the hydraulic barrier.

<b>Permanent Inland Wetland Impacts due to hydraulic barrier</b>	Square feet	Acres
Inland wetland impact-1	3,903	0.09
Tidal wetland impact-1	17,669	0.41
Tidal wetland impact-2	34,658	0.80
Tidal wetland impact 4	568	0.01
<b>Total</b>	<b>56,798</b>	<b>1.31</b>

Varying types of soil covers are to be installed across the site. These soil covers are being used prevent rain water from moving through the contaminated soil and leaching contaminants into the groundwater below. The low permeability cover systems will be two feet thick and consist of a combination of geosynthetic materials and clean soils imported from off-site. Clean fill may also be required from off-site sources to be used to achieve the subgrade elevations to form the base for the establishment of the cover systems. The chart below summarizes the impacts to inland wetlands due to the soil covers.

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<b>Permanent Inland wetlands Impacts (Due to soil cover)</b>	Square feet	Acres
Impact-2	11,149	0.26
Impact-3	42,676	0.98
Impact-4	3,521	0.08
<b>Total</b>	<b>57,346</b>	<b>1.32</b>

Section of the tidal flats of the Quinnipiac River and South Creek will be excavated to remove contaminated sediments and will be replaced with clean soil. Sediment removal will be performed with mechanical equipment under dry conditions by installing cofferdams in any areas with standing water and dewatering the work area. A temporary bypass will be constructed upstream of the South Creek sediment removal area to dewater and isolate this area. The cofferdam will be constructed of a portable water-inflated temporary dam. The chart below summarizes the permanent and temporary impacts due to this work.

<b>Permanent and Temporary impacts Sediment Removal Area</b>	Square Feet	Acres
TF-1	6,841	0.16
TF-2	18,954	0.44
South Creek	266	0.01
<b>Total Permanent S.R. impacts</b>	<b>26,061</b>	<b>0.61</b>
<b>Temporary Tidal wetland impacts</b>		
Impact-3	5,564	0.13
Impact-4	12,225	0.28
Impact 5	262	0.01
Intertidal flat impact -3	22,862	0.52
Intertidal flat impact-4	9,671	0.22
<b>Total Temporary</b>	<b>50,584</b>	<b>1.16</b>

Excavated sediment will be placed in constructed sediment dewatering pads to allow the water to gravity drain, be collected and pumped to the groundwater treatment facility for treatment. The sediment dewatering areas will be located in upland areas to the northwest of TF-1 and TF-2. Aquatic species will be addressed inside the TF-1 and TF-2 work areas through netting and relocation to the Quinnipiac River, to the extent practicable, as the work areas are pumped dry. Dewatered sediment will be transported to a sediment amendment area in the former Aeration Lagoon or South Pile and placed below the low-permeability cover system. All excavated areas will be restored with clean coarse to medium grain sand material that is similar in character to sediment in non-depositional portions of the Quinnipiac River. If the work can be performed when the South Creek headwater ditch is dry, no damming system will be required. Otherwise a sand bag dam will be installed upstream and downstream of this work area.

These activities will require the use of excavators, bulldozers and dump trucks. Soil erosion and sediment controls will be installed prior to earth moving activities to prevent water quality impacts.

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There were many alternatives considered for the site remedy. In summary the following were presented for review:

- Twenty-five (25) soil/wastewater treatment residuals and dense non-aqueous phase liquid (DNAPL) remediation technologies, including 59 process options;
- Eighteen (18) groundwater remediation technologies, including 37 process options; and,
- Seven (7) sediment remediation technologies, including 19 process options.
- Sixty-two (62) Corrective Measures Study Area-specific alternatives for soil/Wastewater Treatment Residuals and DNAPL were evaluated.
- Thirty-three (33) of these Corrective Measures Study Area-specific alternatives were retained and combined with the retained groundwater and sediment technologies for use in the development of five Site-wide Corrective Measure Alternatives.

Based on the evaluation of alternatives presented in the Corrective Measures Study, USEPA and CT DEEP selected the proposal described above in their RCRA Final Decision on September 10, 2010.

Minimization of impacts was achieved by changing the originally proposed hydraulic barrier wall from a slurry wall to a soil mix wall. This reduced the impacts to tidal wetlands by one acre. The applicant states that the current impacts cannot be avoided because the USEPA approved objectives of preventing migration of groundwater and exposure to contaminated sediments, could not be achieved any other way with less impacts. The remaining unavoidable impacts will be mitigated for in the following manner:

- Creation of 6.5 acres of freshwater wetlands
- Enhancement of 22 acres of upland habitat
- Creation, enhancement and preservation of 7.75 acres of tidal wetlands on site and immediately adjacent to the Site.
- Restoration of approx. 0.61 acres of contaminated tidal wetlands, by excavation of the contaminated soil and its replacement with clean soil.

The work is also shown on the enclosed plans entitled "East Side Remedial Components Construction, USACE Section 404 Permit Plans, Pharmacia & Upjohn Company LLC Site, 41 Stiles Lane, North Haven, Connecticut;" on sixteen (16) sheets, and dated "January 2013." If you would like to review the application or mitigation plan for more details on the alternatives, proposed work, or mitigation, please contact Barbara Newman at the phone number or email listed above.

### Summary of Essential Fish Habitat (EFH) Designation

#### 10' x 10' Square Coordinates:

Boundary	North	East	South	West
Coordinate	41° 20.0' N	72° 50.0' W	41° 10.0' N	73° 00.0' W

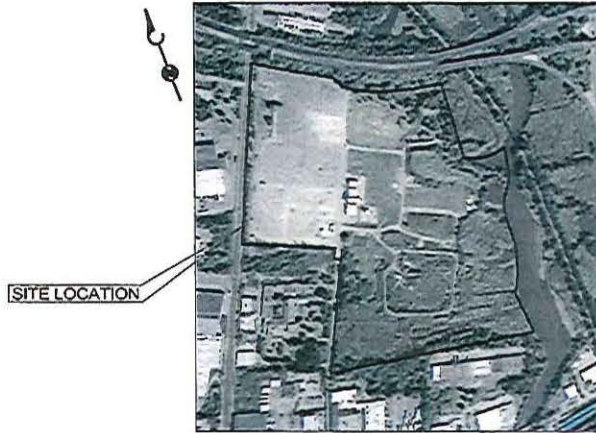
**Square Description (i.e. habitat, landmarks, coastline markers):** The waters within Long Island Sound within the square affecting south of the following: Woodmont, CT., West Haven, CT., New Haven, C., Fairhaven, CT., East Haven, CT., Monaquin, CT., Short Beach, CT., Whitneyville, CT., and Westville, CT., from just east of Johnson Point west past Merwin Pt. to Fairview Beach in Woodmont, CT.,. Also includes water around the following: Oyster River Pt., City Pt. Lighthouse Pt., Morgan Pt., South End Pt., Kelsey I., Johnson Pt., along with the Quinnipiac River. Also, the following features are affected: Townshend Ledge, Cow and Calf, Round Rock, and the Farm River.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic salmon ( <i>Salmo salar</i> )			X	X
Atlantic cod ( <i>Gadus morhua</i> )				
haddock ( <i>Melanogrammus aeglefinus</i> )				
pollock ( <i>Pollachius virens</i> )			X	X
whiting ( <i>Merluccius bilinearis</i> )				X
offshore hake ( <i>Merluccius albidus</i> )				
red hake ( <i>Urophycis chuss</i> )	X	X	X	X
white hake ( <i>Urophycis tenuis</i> )				
redfish ( <i>Sebastes fasciatus</i> )	n/a			
witch flounder ( <i>Glyptocephalus cynoglossus</i> )				
winter flounder ( <i>Pseudopleuronectes americanus</i> )	X	X	X	X
yellowtail flounder ( <i>Limanda ferruginea</i> )				
windowpane flounder ( <i>Scophthalmus aquosus</i> )	X	X	X	X
American plaice ( <i>Hippoglossoides platessoides</i> )				
ocean pout ( <i>Macrozoarces americanus</i> )				

Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )				
Atlantic sea scallop ( <i>Placopecten magellanicus</i> )				
Atlantic sea herring ( <i>Clupea harengus</i> )			X	X
monkfish ( <i>Lophius americanus</i> )				
bluefish ( <i>Pomatomus saltatrix</i> )			X	X
long finned squid ( <i>Loligo pealeii</i> )	n/a	n/a		
short finned squid ( <i>Illex illecebrosus</i> )	n/a	n/a		
Atlantic butterfish ( <i>Peprilus triacanthus</i> )				
Atlantic mackerel ( <i>Scomber scombrus</i> )	X	X	X	X
summer flounder ( <i>Paralichthys dentatus</i> )			X	
scup ( <i>Stenotomus chrysops</i> )	X	X	X	X
black sea bass ( <i>Centropristis striata</i> )	n/a		X	
surf clam ( <i>Spisula solidissima</i> )	n/a	n/a		
ocean quahog ( <i>Artica islandica</i> )	n/a	n/a		
spiny dogfish ( <i>Squalus acanthias</i> )	n/a	n/a		
tilefish ( <i>Lopholatilus chamaeleonticeps</i> )				
king mackerel ( <i>Scomberomorus cavalla</i> )	X	X	X	X
Spanish mackerel ( <i>Scomberomorus maculatus</i> )	X	X	X	X
cobia ( <i>Rachycentron canadum</i> )	X	X	X	X
sand tiger shark ( <i>Carcharias taurus</i> )		X		

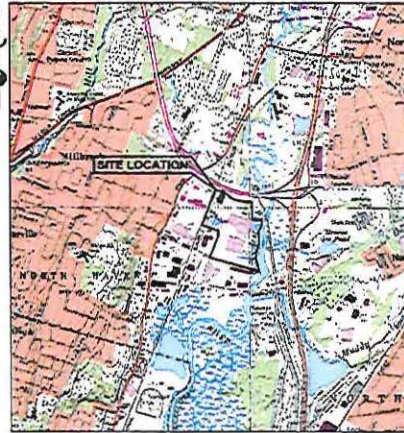


**EAST SIDE REMEDIAL COMPONENTS CONSTRUCTION  
USACE SECTION 404 PERMIT PLANS  
PHARMACIA & UPJOHN COMPANY LLC SITE  
41 STILES LANE  
NORTH HAVEN, CONNECTICUT**

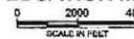


**VICINITY MAP**

SOURCE: AERIAL PHOTOGRAPH, SEPTEMBER 2009, DL COMPANIES.



**LOCATION MAP**



PREPARED FOR:

ON BEHALF OF PHARMACIA & UPJOHN COMPANY LLC

PREPARED BY:



2 Park Way, Suite 2A  
Upper Saddle River, New Jersey 07458  
Tel. (201) 574-4700 • Fax. (201) 236-1607  
January 2013

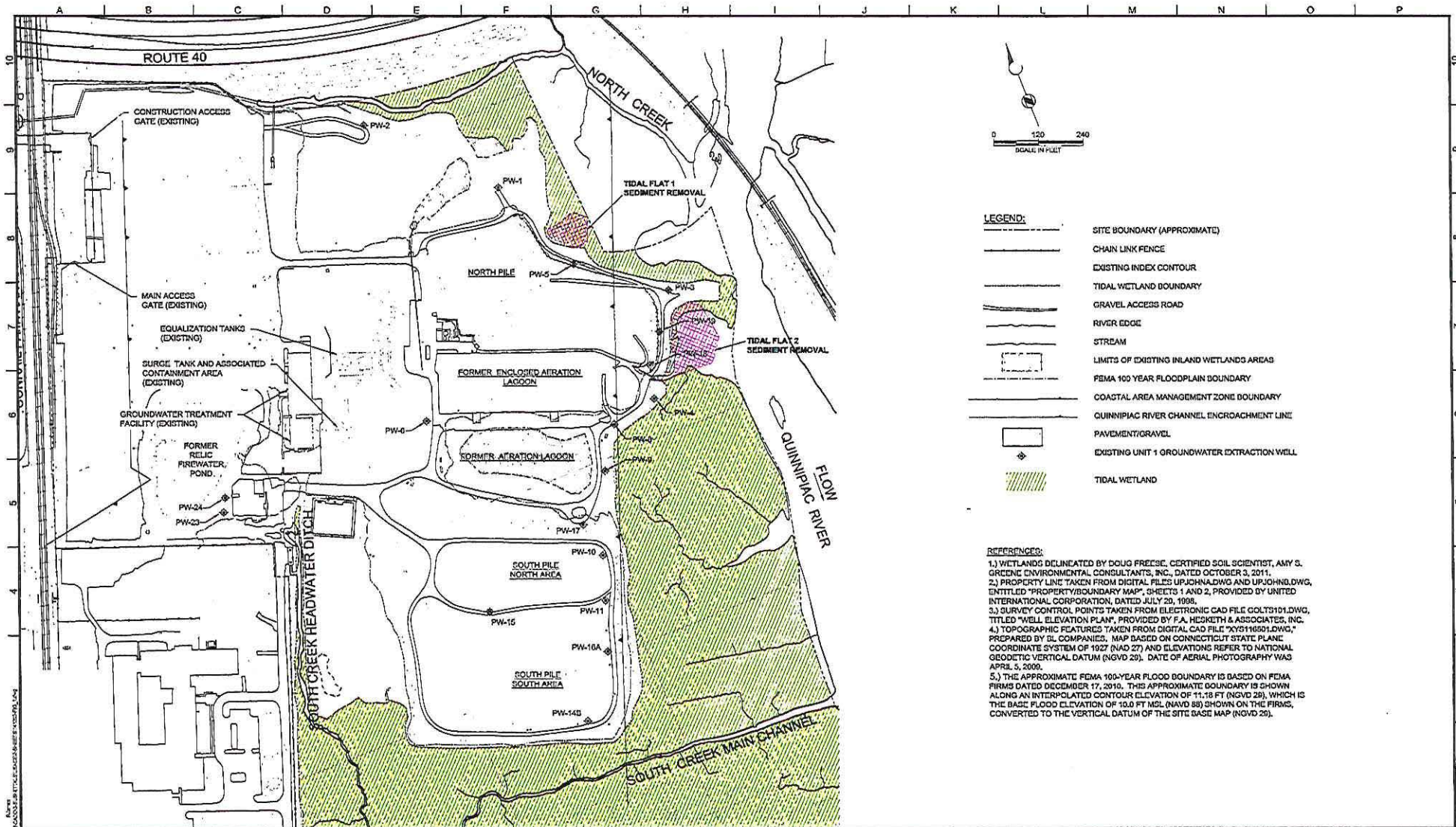
**LIST OF DRAWINGS**

DRAWING NUMBER	SHEET NUMBER	TITLE
1	1 of 10	TITLE FIGURE
2	1 of 10	EXISTING CONDITIONS PLAN
3	2 of 10	CT DEEP OLSPT TIDAL WETLAND IMPACT PLAN
4	3 of 10	CONCEPTUAL FINAL CONSTRUCTION
5	4 of 10	PROPOSED CONSTRUCTION ACTIVITIES
6	5 of 10	FINAL GRADING PLAN
7	6 of 10	SOUTH PILE AND FORMER ACRATION LAGOON CONSOLIDATION PLAN
8	7 of 10	ECOLOGICAL ENHANCEMENTS PLANTING PLAN
9	8 of 10	PROPOSED AREAS OF CUT/FILL TO ESTABLISH COVER SYSTEM SUBGRADE
10	9 of 10	REMEDIAL SITE LAYOUT AND SOIL AND EROSION SEDIMENT CONTROL PLAN
11	10 of 10	SOIL EROSION AND SEDIMENT CONTROL DETAILS
12	11 of 10	COVER SYSTEM AND CONSTRUCTION DETAILS
13	12 of 10	CONSTRUCTION DETAILS
14	13 of 10	EAST SIDE REMEDIAL COMPONENTS TIDAL FLAT NO. 1 AND SOUTH CREEK
15	14 of 10	SEDIMENT REMOVAL SITE PLAN & SECTIONS
16	15 of 10	EAST SIDE REMEDIAL COMPONENTS TIDAL FLAT NO. 2
17	16 of 10	SEDIMENT REMOVAL SITE PLAN & SECTION
18	17 of 10	EAST SIDE REMEDIAL COMPONENTS TIDAL FLATS AND SOUTH CREEK DETAILS

DATE: \_\_\_\_\_

JEFFREY R. CAPUTI  
PROFESSIONAL ENGINEER  
CT. LICENSE NO. 34493

APR 18 2013 10:30am  
 J:\Projects\2013\13-001\13-001.dwg



- LEGEND:**
- SITE BOUNDARY (APPROXIMATE)
  - CHAIN LINK FENCE
  - EXISTING INDEX CONTOUR
  - TIDAL WETLAND BOUNDARY
  - GRAVEL ACCESS ROAD
  - RIVER EDGE
  - STREAM
  - LIMITS OF EXISTING INLAND WETLANDS AREAS
  - FEMA 100 YEAR FLOODPLAIN BOUNDARY
  - COASTAL AREA MANAGEMENT ZONE BOUNDARY
  - QUINNIPAC RIVER CHANNEL ENCROACHMENT LINE
  - PAVEMENT/GRAVEL
  - EXISTING UNIT 1 GROUNDWATER EXTRACTION WELL
  - TIDAL WETLAND

**REFERENCES:**

- 1.) WETLANDS DELINEATED BY DOUG FREESE, CERTIFIED SOIL SCIENTIST, ARMY & GREENE ENVIRONMENTAL CONSULTANTS, INC., DATED OCTOBER 3, 2011.
- 2.) PROPERTY LINE TAKEN FROM DIGITAL FILES UPJOHN.DWG AND UPJOHN.DWG, ENTITLED "PROPERTY/BOUNDARY MAP", SHEETS 1 AND 2, PROVIDED BY UNITED INTERNATIONAL CORPORATION, DATED JULY 29, 1998.
- 3.) SURVEY CONTROL POINTS TAKEN FROM ELECTRONIC CAD FILE COLTS101.DWG, TITLED "WELL ELEVATION PLAN", PROVIDED BY F.A. HICKS & ASSOCIATES, INC.
- 4.) TOPOGRAPHIC FEATURES TAKEN FROM DIGITAL CAD FILE "XYS116501.DWG," PREPARED BY DL COMPANIES, MAP BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM OF 1927 (NAD 27) AND ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM (NGVD 29). DATE OF AERIAL PHOTOGRAPHY WAS APRIL 5, 2000.
- 5.) THE APPROXIMATE FEMA 100-YEAR FLOOD BOUNDARY IS BASED ON FEMA FIRMS DATED DECEMBER 17, 2010. THIS APPROXIMATE BOUNDARY IS SHOWN ALONG AN INTERPOLATED CONTOUR ELEVATION OF 11.15 FT (NGVD 29), WHICH IS THE BASIC FLOOD ELEVATION OF 10.0 FT MSL (NAVD 85) SHOWN ON THE FIRMS, CONVERTED TO THE VERTICAL DATUM OF THE SITE BASE MAP (NGVD 29).

**Brown Caldwell**  
 UPPER SADDLE RIVER, NJ

SUBMITTED: KERRY BOBAYCO  
 DATE: 10/25/12

APPROVED: JESSIE CASATE  
 DATE: 10/25/12

LINE IN 2 INCHES AT FULL SIZE (IF NOT P-SHOWN ACCORDING)	EXTERNAL REFERENCE FILES
DESIGNED: _____	FILED: _____
DRAWN: _____	FILED: _____
CHECKED: _____	FILED: _____
APPROVED: _____	FILED: _____

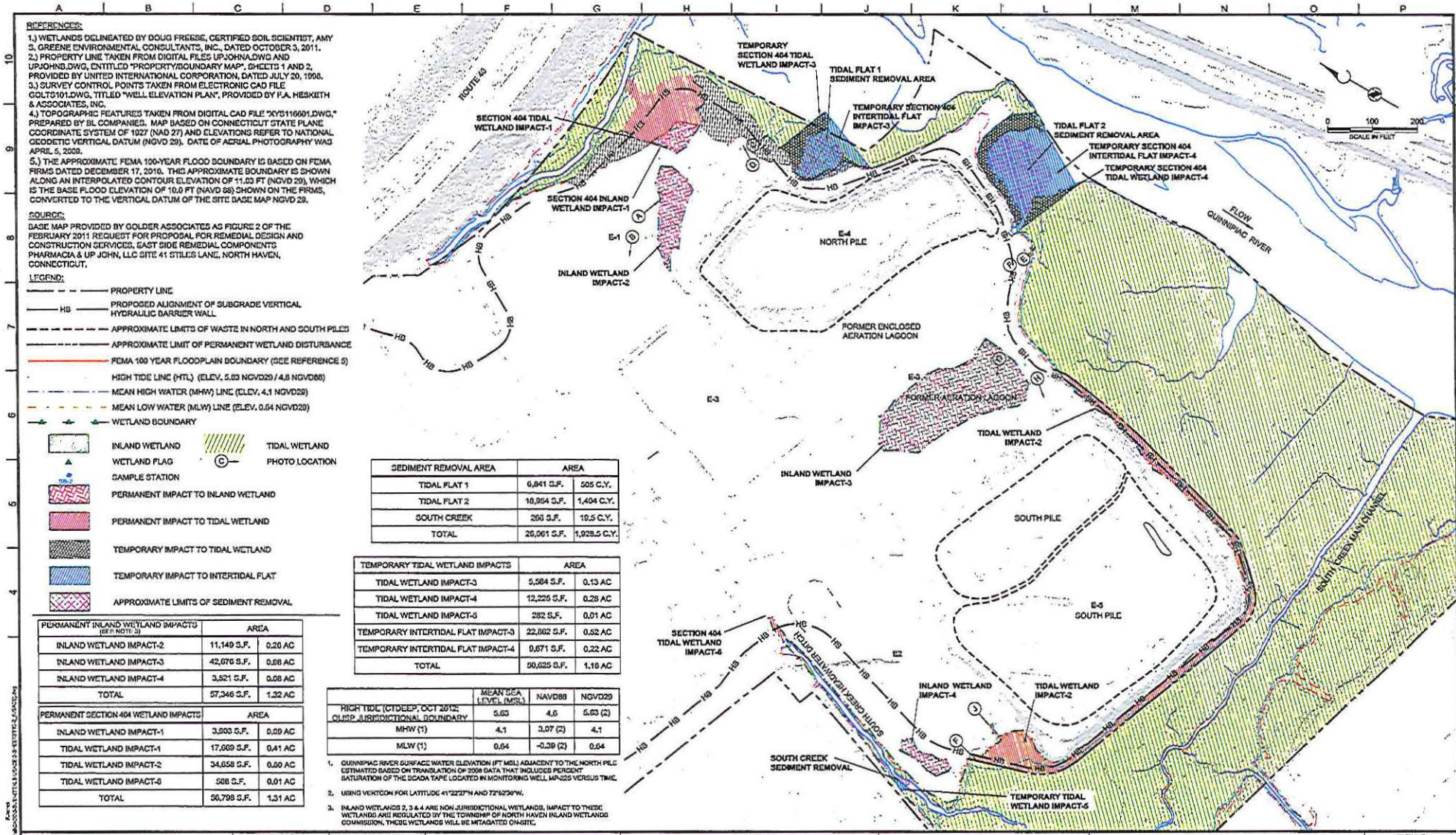
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

APPLICATION FOR USACE  
 SECTION 404 PERMIT PLANS  
 SUBMITTAL DRAWING PACKAGE  
 JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
 EAST SIDE REMEDIAL COMPONENTS  
 EXISTING CONDITIONS PLAN

FILENAME	141202.DWG
DL PROJECT NUMBER	141202
CLIENT PROJECT NUMBER	
DRAWING NUMBER	1
SHEET NUMBER	1 OF 16



**REFERENCES:**

- 1.) WETLANDS DELINEATED BY DOUG FRESSE, CERTIFIED SOIL SCIENTIST, AMY S. GREENE ENVIRONMENTAL CONSULTANTS, INC., DATED OCTOBER 3, 2011.
- 2.) PROPERTY LINE TAKEN FROM DIGITAL FILES UP JOHNAD.WG AND UPJOHNS.DWG, ENTITLED "PROPERTY/BOUNDARY MAP", SHEETS 1 AND 2, PROVIDED BY UNITED INTERNATIONAL CORPORATION, DATED JULY 20, 1990.
- 3.) SURVEY CONTROL POINTS TAKEN FROM ELECTRONIC CAD FILE GOLT5101.DWG, TITLED "WELL ELEVATION PLAN", PROVIDED BY F.A. HESKETH & ASSOCIATES, INC.
- 4.) TOPOGRAPHIC FEATURES TAKEN FROM DIGITAL CAD FILE "DYS116001.DWG", PREPARED BY BL COMPANIES. MAP BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM OF 1027 (NAD 27) AND ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM (NGVD 29). DATE OF AERIAL PHOTOGRAPHY WAS APRIL 5, 2009.
- 5.) THE APPROXIMATE FEMA 100-YEAR FLOOD BOUNDARY IS BASED ON FEMA FIRMS DATED DECEMBER 17, 2010. THIS APPROXIMATE BOUNDARY IS SHOWN ALONG AN INTERPOLATED CONTOUR ELEVATION OF 11.03 FT (NGVD 29), WHICH IS THE BASE FLOOD ELEVATION OF 10.0 FT (NAVD 88) SHOWN ON THE FIRMS, CONVERTED TO THE VERTICAL DATUM OF THE SITE BASE MAP NGVD 29.

**SOURCE:**  
 BASE MAP PROVIDED BY GOLDER ASSOCIATES AS FIGURE 2 OF THE FEBRUARY 2011 REQUEST FOR PROPOSAL FOR REMEDIAL DESIGN AND CONSTRUCTION SERVICES, EAST SIDE REMEDIAL COMPONENTS PHARMACIA & UP JOHN, LLC SITE 41 STILES LANE, NORTH HAVEN, CONNECTICUT.

- LEGEND:**
- PROPERTY LINE
  - PROPOSED ALIGNMENT OF SUBGRADE VERTICAL HYDRAULIC BARRIER WALL (HB)
  - APPROXIMATE LIMITS OF WASTE IN NORTH AND SOUTH PILES
  - APPROXIMATE LIMIT OF PERMANENT WETLAND DISTURBANCE
  - FEMA 100 YEAR FLOODPLAIN BOUNDARY (SEE REFERENCE 5)
  - HIGH TIDE LINE (HTL) (ELEV. 5.03 NAVD88 / 4.8 NGVD88)
  - MEAN HIGH WATER (MHW) LINE (ELEV. 4.1 NGVD29)
  - MEAN LOW WATER (MLW) LINE (ELEV. 0.64 NGVD29)
  - WETLAND BOUNDARY

- INLAND WETLAND WETLAND FLAG
- TIDAL WETLAND PHOTO LOCATION
- SAMPLE STATION
- PERMANENT IMPACT TO INLAND WETLAND
- PERMANENT IMPACT TO TIDAL WETLAND
- TEMPORARY IMPACT TO TIDAL WETLAND
- TEMPORARY IMPACT TO INTERTIDAL FLAT
- APPROXIMATE LIMITS OF SEDIMENT REMOVAL

SEDIMENT REMOVAL AREA	AREA
TIDAL FLAT 1	0,841 S.F. 505 C.Y.
TIDAL FLAT 2	10,954 S.F. 1,404 C.Y.
SOUTH CREEK	260 S.F. 10.5 C.Y.
<b>TOTAL</b>	<b>20,051 S.F. 1,920.5 C.Y.</b>

TEMPORARY TIDAL WETLAND IMPACTS	AREA
TIDAL WETLAND IMPACT-3	5,584 S.F. 0.13 AC
TIDAL WETLAND IMPACT-4	12,226 S.F. 0.28 AC
TIDAL WETLAND IMPACT-5	282 S.F. 0.01 AC
TEMPORARY INTERTIDAL FLAT IMPACT-3	22,802 S.F. 0.52 AC
TEMPORARY INTERTIDAL FLAT IMPACT-4	0,671 S.F. 0.22 AC
<b>TOTAL</b>	<b>50,625 S.F. 1.16 AC</b>

	MEAN SEA LEVEL (MSL)	NAVD88	NGVD29
HIGH TIDE (CTDEEP, OCT 2012; OUSEP JURISDICTIONAL BOUNDARY)	5.03	4.6	5.03 (2)
MHW (1)	4.1	3.97 (2)	4.1
MLW (1)	0.64	-0.39 (2)	0.64

1. QUINNIPIAC RIVER SURFACE WATER ELEVATION (FT MSL) ADJACENT TO THE NORTH PILE ESTIMATED BASED ON TRANSLATION OF 2009 DATA THAT INCLUDED PERCENT SATURATION OF THE SOGA TAPE LOCATED IN MONITORING WELL MP-225 VERSUS TIME.

2. USING VECTOR FOR LATITUDE 41°22'27"N AND 72°52'36"W.

3. INLAND WETLANDS 2, 3 & 4 ARE NON-JURISDICTIONAL WETLANDS. IMPACT TO THESE WETLANDS ARE REGULATED BY THE TOWNSHIP OF NORTH HAVEN INLAND WETLANDS COMMISSION. THESE WETLANDS WILL BE MITIGATED ON-SITE.

**Brown and Caldwell**  
 UPPER SADDLE RIVER, NJ

**DATE IS 2 INCHES**  
 4.1 MAX SCALE  
 (IF NOT 2" SCALE, ADD 0.005 IN/IN)

**DESIGNED BY:** RP  
**DRAWN BY:** RJ  
**CHECKED BY:** JH  
**APPROVED BY:** AS

**SUBMITTED BY:** JETH ROBERTS      **DATE:** 10/25/12  
**APPROVED BY:** JETH ROBERTS      **DATE:** 10/25/12

**EXTERNAL REFERENCE FILES**

FILE NAME	DATE	DESCRIPTION

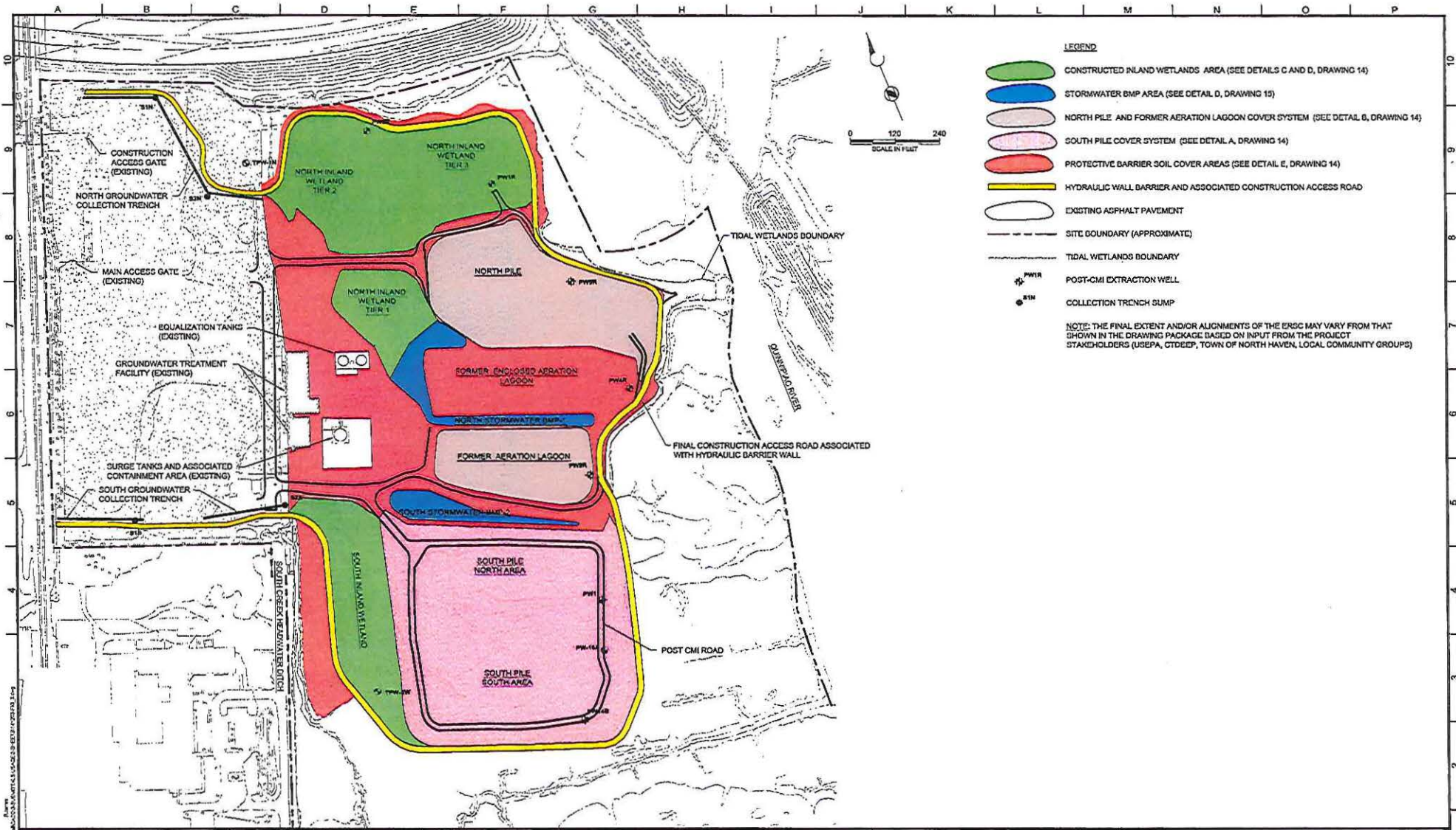
REVISIONS		BY	DATE	APP.
ZONE	REV.	DESCRIPTION		

APPLICATION FOR USAGE  
 SECTION 404 PERMIT PLANS  
 SUBMITTAL DRAWING PACKAGE  
 JANUARY 2013

USACE SECTION 404 IMPACT PLAN

PLAN NAME	
FIGURE NUMBER	
PROJECT NUMBER	
CLIENT PROJECT NUMBER	
DRAWING NUMBER	
2	
SHEET NUMBER	
2 OF 13	

JAN 15 2013 11:00 AM  
 FILED WITH USACE BUREAU OF RECONSTRUCTION PROJECTS SHEETS 13-01-01-000



- LEGEND**
- CONSTRUCTED INLAND WETLANDS AREA (SEE DETAILS C AND D, DRAWING 14)
  - STORMWATER BMP AREA (SEE DETAIL D, DRAWING 15)
  - NORTH PILE AND FORMER AERATION LAGOON COVER SYSTEM (SEE DETAIL B, DRAWING 14)
  - SOUTH PILE COVER SYSTEM (SEE DETAIL A, DRAWING 14)
  - PROTECTIVE BARRIER SOIL COVER AREAS (SEE DETAIL E, DRAWING 14)
  - HYDRAULIC WALL BARRIER AND ASSOCIATED CONSTRUCTION ACCESS ROAD
  - EXISTING ASPHALT PAVEMENT
  - SITE BOUNDARY (APPROXIMATE)
  - TIDAL WETLANDS BOUNDARY
  - PWH
  - STN

NOTE: THE FINAL EXTENT AND/OR ALIGNMENTS OF THE ERSC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM THE PROJECT STAKEHOLDERS (USEPA, CTDEEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS)

**Brown & Caldwell**  
 UPPER SADDLE RIVER, NJ

SUBMITTED:          DATE: 10/20/12  
 APPROVED:          DATE: 10/20/12

SCALE: 1/4" = 1'-0"	EXTERNAL REFERENCE FILES
BY: <u>        </u>	11/10/2011
CHECKED: <u>        </u>	11/10/2011
DESIGNED: <u>        </u>	11/10/2011
DRAWN: <u>        </u>	11/10/2011
PROJECT: <u>        </u>	11/10/2011
APPROVED: <u>        </u>	11/10/2011

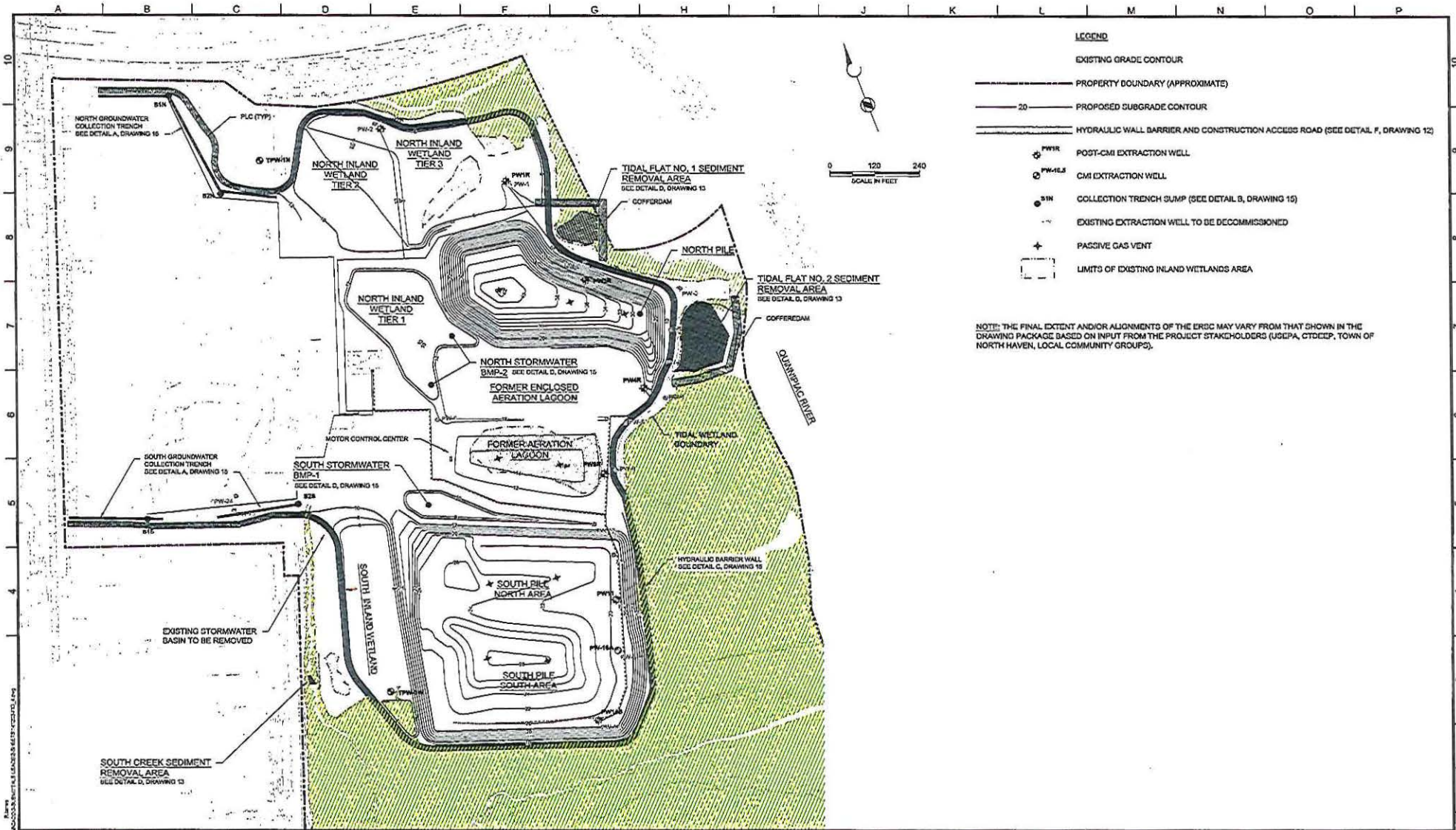
REVISIONS			
NO.	DESCRIPTION	BY	DATE

ZONE	REV.	DESCRIPTION	BY	DATE	APP.

APPLICATION FOR USACE  
 SECTION 404 PERMIT PLANS  
 SUBMITTAL DRAWING PACKAGE  
 JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
 EAST SIDE REMEDIAL COMPONENTS  
 CONCEPTUAL FINAL CONSTRUCTION

FILENAME	14100-010_3.dwg
SD PROJECT NUMBER	141003
CLIENT PROJECT NUMBER	
DRAWING NUMBER	3
SHEET NUMBER	3 OF 16



- LEGEND**
- EXISTING GRADE CONTOUR
  - PROPERTY BOUNDARY (APPROXIMATE)
  - 20' PROPOSED SUBGRADE CONTOUR
  - HYDRAULIC WALL BARRIER AND CONSTRUCTION ACCESS ROAD (SEE DETAIL F, DRAWING 12)
  - PWIR POST-CMI EXTRACTION WELL
  - PW-16.5 CMI EXTRACTION WELL
  - SIN COLLECTION TRENCH SUMP (SEE DETAIL B, DRAWING 15)
  - EXISTING EXTRACTION WELL TO BE DECOMMISSIONED
  - + PASSIVE GAS VENT
  - LIMITS OF EXISTING INLAND WETLANDS AREA

NOTE: THE FINAL EXTENT AND/OR ALIGNMENTS OF THE ERSC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM THE PROJECT STAKEHOLDERS (USEPA, CTDEEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS).

**Brown Caldwell**  
UPPER SADDLE RIVER, NJ

DATE: 1/15/12	CHECKED BY: JED
DATE: 1/22/12	CHECKED BY: JED
DATE: 1/22/12	APPROVED BY: JED

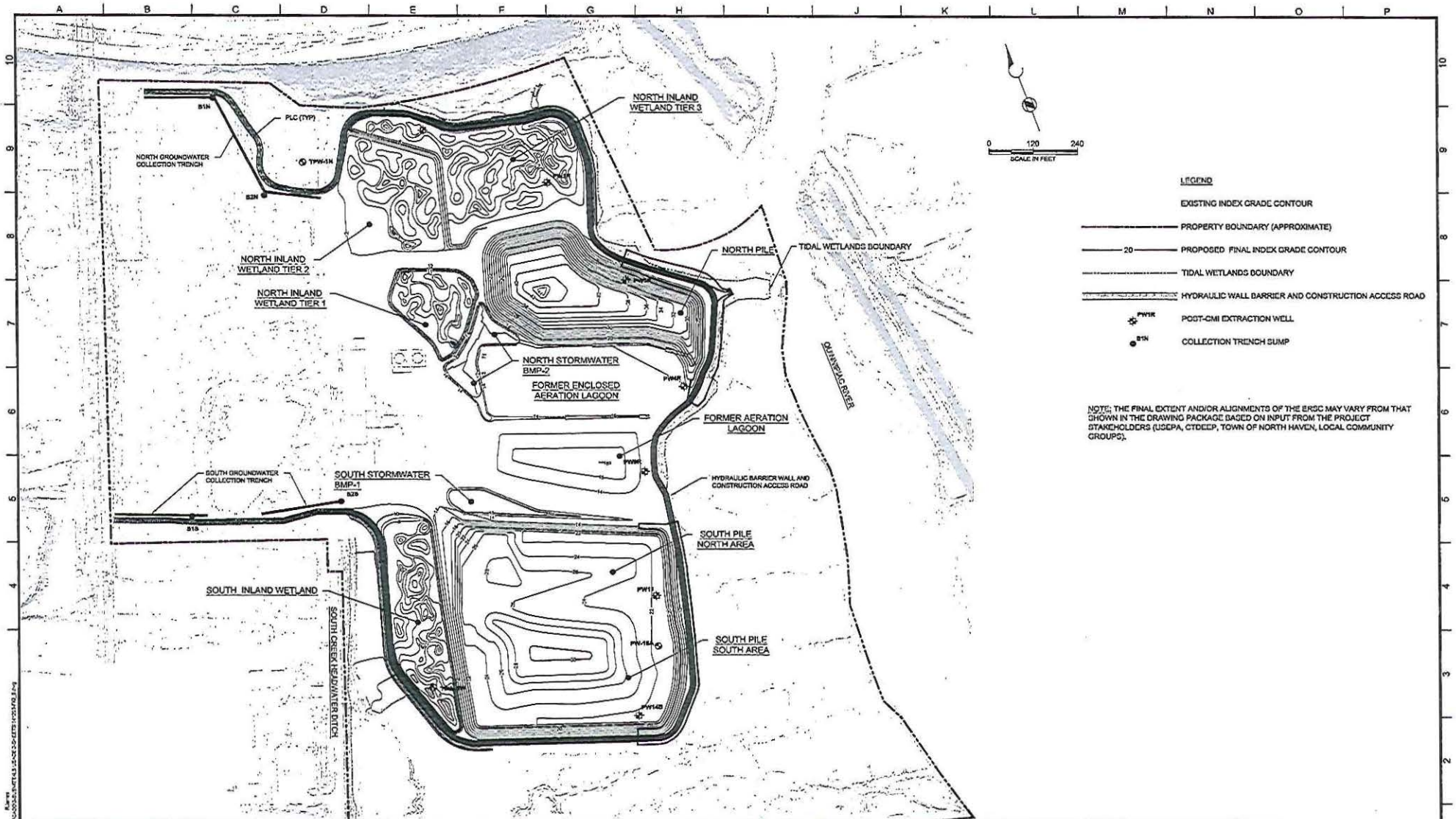
DATE	DESCRIPTION	BY	DATE	APP.

DATE: 1/15/12	DATE: 1/22/12
DATE: 1/22/12	DATE: 1/22/12

APPLICATION FOR USAGE  
SECTION 404 PERMIT PLANS  
SUBMITTAL DRAWING PACKAGE  
JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS  
OVERALL SITE PLAN  
PROPOSED CONSTRUCTION ACTIVITIES

FILE NAME	141203-010_4.dwg
PROJECT NUMBER	141203
CLIENT PROJECT NUMBER	
DRAWING NUMBER	4
SHEET NUMBER	4 OF 16



- LEGEND**
- EXISTING INDEX GRADE CONTOUR
  - PROPERTY BOUNDARY (APPROXIMATE)
  - 20 — PROPOSED FINAL INDEX GRADE CONTOUR
  - TIDAL WETLANDS BOUNDARY
  - HYDRAULIC WALL BARRIER AND CONSTRUCTION ACCESS ROAD
  - ⊕ PW1R POST-CMI EXTRACTION WELL
  - ⊕ B1N COLLECTION TRENCH SUMP

NOTE: THE FINAL EXTENT AND/OR ALIGNMENTS OF THE ERSC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM THE PROJECT STAKEHOLDERS (USEPA, CTDEEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS).

**Brown and Caldwell**  
UPPER SADDLE RIVER, NJ

DESIGNED: [initials]  
DRAWN: [initials]  
CHECKED: [initials]  
APPROVED: [initials]

DATE: 10/23/12  
DATE: 10/23/12

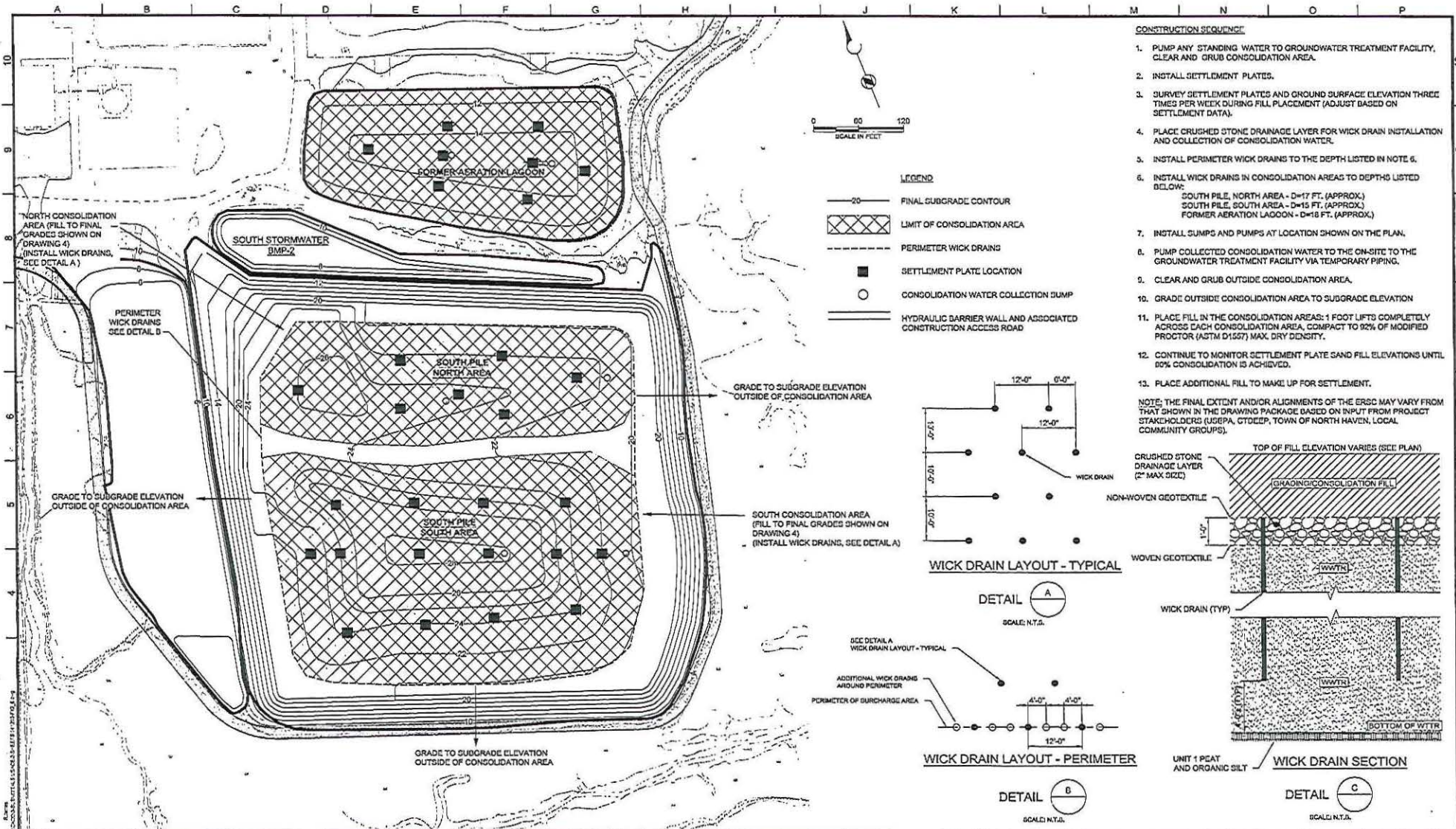
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REVISIONS				
ZONE	REV.	DESCRIPTION	BY	DATE

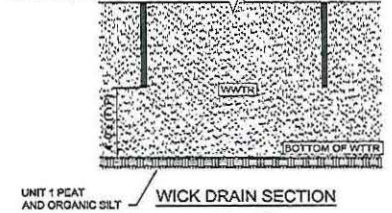
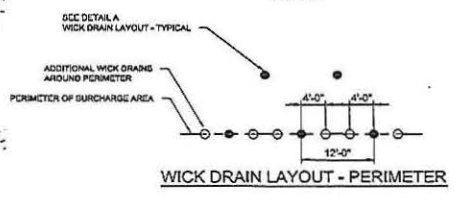
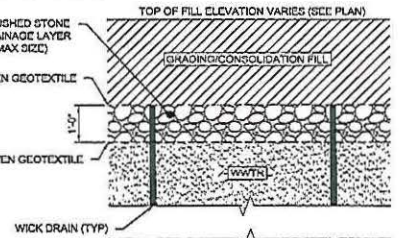
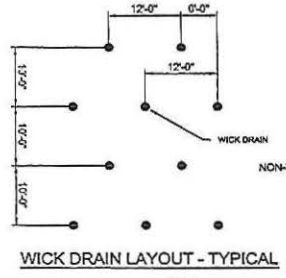
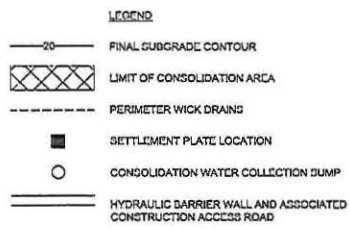
APPLICATION FOR USACE  
SECTION 404 PERMIT PLANS  
SUBMITTAL DRAWING PACKAGE  
JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS  
OVERALL SITE PLAN  
FINAL GRADING PLAN

FILENAME	141503-FIG_5.dwg
BC PROJECT NUMBER	141503
CLIENT PROJECT NUMBER	
DRAWING NUMBER	5
SHEET NUMBER	5
OF	18



- CONSTRUCTION SEQUENCE**
1. PUMP ANY STANDING WATER TO GROUNDWATER TREATMENT FACILITY, CLEAR AND GRUB CONSOLIDATION AREA.
  2. INSTALL SETTLEMENT PLATES.
  3. SURVEY SETTLEMENT PLATES AND GROUND SURFACE ELEVATION THREE TIMES PER WEEK DURING FILL PLACEMENT (ADJUST BASED ON SETTLEMENT DATA).
  4. PLACE CRUSHED STONE DRAINAGE LAYER FOR WICK DRAIN INSTALLATION AND COLLECTION OF CONSOLIDATION WATER.
  5. INSTALL PERIMETER WICK DRAINS TO THE DEPTH LISTED IN NOTE 6.
  6. INSTALL WICK DRAINS IN CONSOLIDATION AREAS TO DEPTHS LISTED BELOW:  
SOUTH PILE, NORTH AREA - D=17 FT. (APPROX.)  
SOUTH PILE, SOUTH AREA - D=15 FT. (APPROX.)  
FORMER AERATION LAGOON - D=18 FT. (APPROX.)
  7. INSTALL SUMPS AND PUMPS AT LOCATION SHOWN ON THE PLAN.
  8. PUMP COLLECTED CONSOLIDATION WATER TO THE ON-SITE TO THE GROUNDWATER TREATMENT FACILITY VIA TEMPORARY PIPING.
  9. CLEAR AND GRUB OUTSIDE CONSOLIDATION AREA.
  10. GRADE OUTSIDE CONSOLIDATION AREA TO SUBGRADE ELEVATION
  11. PLACE FILL IN THE CONSOLIDATION AREAS: 1 FOOT LIFTS COMPLETELY ACROSS EACH CONSOLIDATION AREA, COMPACT TO 92% OF MODIFIED PROCTOR (ASTM D1557) MAX. DRY DENSITY.
  12. CONTINUE TO MONITOR SETTLEMENT PLATE SAND FILL ELEVATIONS UNTIL 80% CONSOLIDATION IS ACHIEVED.
  13. PLACE ADDITIONAL FILL TO MAKE UP FOR SETTLEMENT.
- NOTE: THE FINAL EXTENT AND/OR ALIGNMENTS OF THE ERSC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM PROJECT STAKEHOLDERS (USEPA, CTDEEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS).



**Brown and Caldwell**  
UPPER SADDLE RIVER, NJ

SUBMITTER: JUDITH BOLACH DATE: 10/20/12  
APPROVER: JESSIE CASATI DATE: 10/22/12

LINE IS 7 INCHES	EXTERNAL REFERENCE FILES
ALL FILL MATERIAL SHALL BE PLACED AND COMPACTED IN 6\"/>	
DESIGNED BY: JWB	TECHNICAL REVIEWER: JWB
DRAWN BY: JWB	CLIENT: PHARMACIA & UPJOHN COMPANY
CHECKED BY: JWB	PROJECT: EAST SIDE REMEDIAL COMPONENTS
APPROVED BY: JWB	DATE: 10/22/12

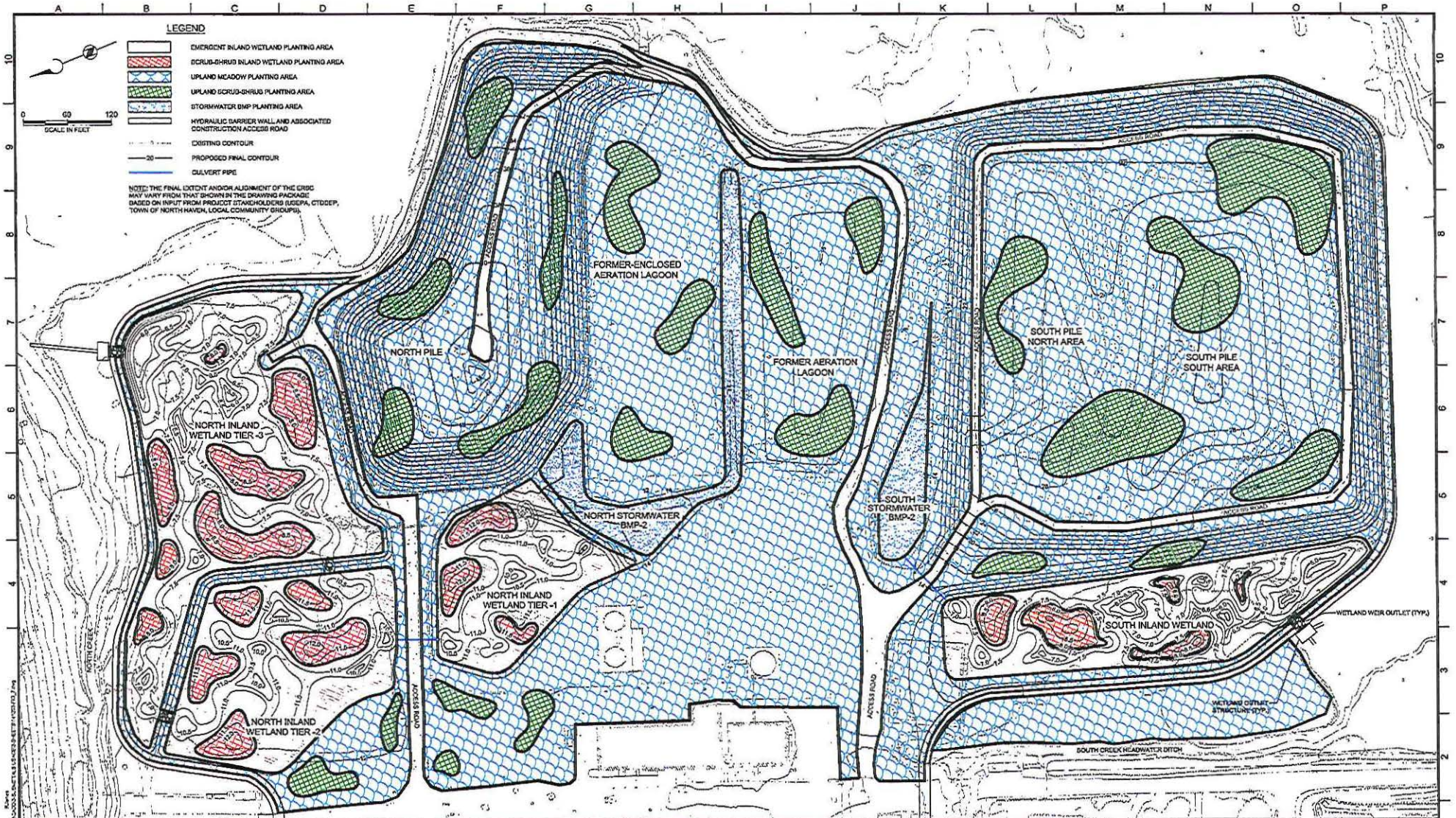
REVISIONS				
NO.	REV.	DESCRIPTION	BY	DATE

ZONE	REV.	DESCRIPTION	BY	DATE	APP.

APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS SOUTH PILE AND FORMER AERATION LAGOON CONSOLIDATION PLAN

FILE NAME: 141001010_04040
80 PRODUCT NUMBER: 1410010
CLIENT PROJECT NUMBER: 1410010
DRAWING NUMBER: 6
SHEET NUMBER: 6 OF 16



NOTE: THE FINAL EXTENT AND/OR ALIGNMENT OF THE ERDC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM PROJECT STAKEHOLDERS (USEPA, CTDEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS).

**Brown and Caldwell**  
UPPER SADDLE RIVER, NJ

SUBMITTED: KEITH BOGATCH DATE: 10/22/12  
APPROVED: KEITH BOGATCH DATE: 10/22/12

DESIGNED: MAN  
DRAWN: JFC  
CHECKED:  
APPROVED:

EXTERNAL REFERENCE FILES  
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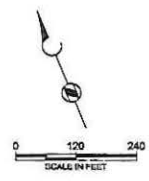
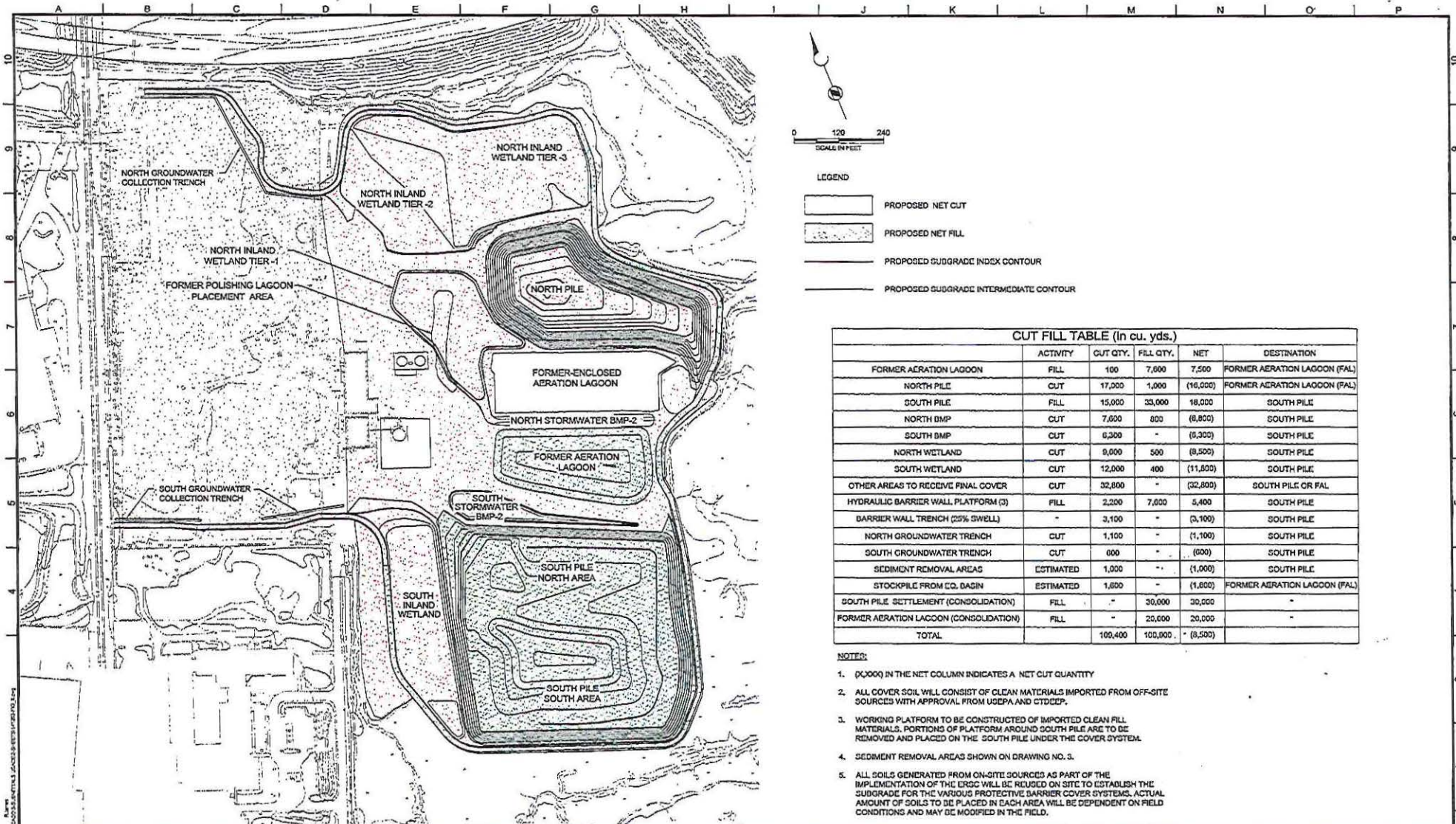
REVISIONS				
NO.	REV.	DESCRIPTION	BY	DATE

APPLICATION FOR USAGE  
SECTION 404 PERMIT PLANS  
SUBMITTAL DRAWING PACKAGE  
JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS  
ECOLOGICAL ENHANCEMENTS  
PLANTING PLAN

FILENAME: 141200-010\_7.dwg  
 00 PROJECT NUMBER: 141903  
 CLIENT PROJECT NUMBER:  
 DRAWING NUMBER:  
 7  
 SHEET NUMBER: 7 OF 15





- LEGEND**
- PROPOSED NET CUT
  - PROPOSED NET FILL
  - PROPOSED SUBGRADE INDEX CONTOUR
  - PROPOSED SUBGRADE INTERMEDIATE CONTOUR

CUT FILL TABLE (In cu. yds.)						
	ACTIVITY	CUT QTY.	FILL QTY.	NET	DESTINATION	
	FORMER AERATION LAAGOON	FILL	100	7,600	7,500	FORMER AERATION LAAGOON (FAL)
	NORTH PILE	CUT	17,000	1,000	(16,000)	FORMER AERATION LAAGOON (FAL)
	SOUTH PILE	FILL	15,000	33,000	18,000	SOUTH PILE
	NORTH BMP	CUT	7,000	800	(6,800)	SOUTH PILE
	SOUTH BMP	CUT	6,300	-	(6,300)	SOUTH PILE
	NORTH WETLAND	CUT	9,000	500	(8,500)	SOUTH PILE
	SOUTH WETLAND	CUT	12,000	400	(11,600)	SOUTH PILE
	OTHER AREAS TO RECEIVE FINAL COVER	CUT	32,800	-	(32,800)	SOUTH PILE OR FAL
	HYDRAULIC BARRIER WALL PLATFORM (3)	FILL	2,200	7,000	5,400	SOUTH PILE
	BARRIER WALL TRENCH (25% SWELL)	-	3,100	-	(3,100)	SOUTH PILE
	NORTH GROUNDWATER TRENCH	CUT	1,100	-	(1,100)	SOUTH PILE
	SOUTH GROUNDWATER TRENCH	CUT	000	-	(600)	SOUTH PILE
	SEDIMENT REMOVAL AREAS	ESTIMATED	1,000	-	(1,000)	SOUTH PILE
	STOCKPILE FROM EQ. BASIN	ESTIMATED	1,600	-	(1,600)	FORMER AERATION LAAGOON (FAL)
	SOUTH PILE SETTLEMENT (CONSOLIDATION)	FILL	-	30,000	30,000	-
	FORMER AERATION LAAGOON (CONSOLIDATION)	FILL	-	20,000	20,000	-
	<b>TOTAL</b>		<b>100,400</b>	<b>100,800</b>	<b>(8,500)</b>	

- NOTES:**
- (XXXX) IN THE NET COLUMN INDICATES A NET CUT QUANTITY
  - ALL COVER SOIL WILL CONSIST OF CLEAN MATERIALS IMPORTED FROM OFF-SITE SOURCES WITH APPROVAL FROM USEPA AND CTDEP.
  - WORKING PLATFORM TO BE CONSTRUCTED OF IMPORTED CLEAN FILL MATERIALS. PORTIONS OF PLATFORM AROUND SOUTH PILE ARE TO BE REMOVED AND PLACED ON THE SOUTH PILE UNDER THE COVER SYSTEM.
  - SEDIMENT REMOVAL AREAS SHOWN ON DRAWING NO. 3.
  - ALL SOILS GENERATED FROM ON-SITE SOURCES AS PART OF THE IMPLEMENTATION OF THE ERSC WILL BE REUSED ON SITE TO ESTABLISH THE SUBGRADE FOR THE VARIOUS PROTECTIVE BARRIER COVER SYSTEMS. ACTUAL AMOUNT OF SOILS TO BE PLACED IN EACH AREA WILL BE DEPENDENT ON FIELD CONDITIONS AND MAY BE MODIFIED IN THE FIELD.

**Brown and Caldwell**  
UPPER SADDLE RIVER, NJ

LINE IS 2 INCHES AT FULL SIZE  
OF 11" X 17" HOLES (NON-COPY)

DESIGNED BY: JPH  
DRAWN BY: JAC  
CHECKED BY: JAC  
APPROVED BY: JAC

EXTERNAL REFERENCE FILE

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DATE: 10/29/12

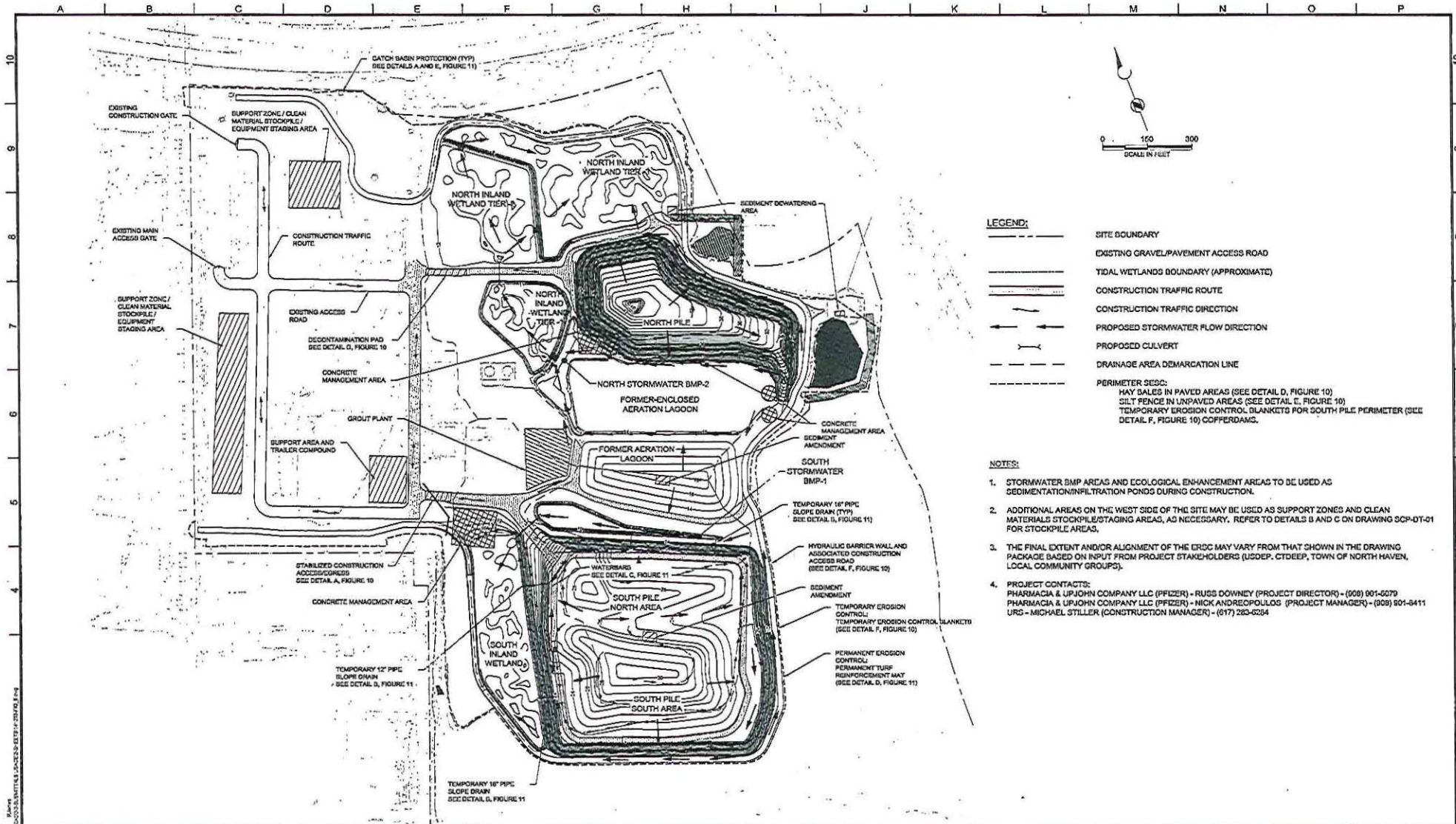
NO.	REV.	DESCRIPTION	BY	DATE	APP.

APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE

EAST SIDE REMEDIAL COMPONENTS PROPOSED AREAS OF CUT/FILL TO ESTABLISH COVER SYSTEM SUBGRADE

FILENAME: 141700-PRO\_0.dwg  
NO. PROJECT NUMBER: 141700  
CLIENT PROJECT NUMBER:  
DRAWING NUMBER:  
8  
SHEET NUMBER OF 15



- LEGEND:**
- SITE BOUNDARY
  - EXISTING GRAVEL/PAVEMENT ACCESS ROAD
  - TIDAL WETLANDS BOUNDARY (APPROXIMATE)
  - CONSTRUCTION TRAFFIC ROUTE
  - CONSTRUCTION TRAFFIC DIRECTION
  - PROPOSED STORMWATER FLOW DIRECTION
  - PROPOSED CULVERT
  - DRAINAGE AREA DEMARCATION LINE
  - PERIMETER SECC:
    - HAY BALES IN PAVED AREAS (SEE DETAIL D, FIGURE 10)
    - SILT FENCE IN UNPAVED AREAS (SEE DETAIL E, FIGURE 10)
    - TEMPORARY EROSION CONTROL BLANKETS FOR SOUTH PILE PERIMETER (SEE DETAIL F, FIGURE 10) COFFERDAMS.

- NOTES:**
- STORMWATER BMP AREAS AND ECOLOGICAL ENHANCEMENT AREAS TO BE USED AS SEDIMENTATION/INFILTRATION PONDS DURING CONSTRUCTION.
  - ADDITIONAL AREAS ON THE WEST SIDE OF THE SITE MAY BE USED AS SUPPORT ZONES AND CLEAN MATERIALS STOCKPILE/STAGING AREAS, AS NECESSARY. REFER TO DETAILS B AND C ON DRAWING SCP-DT-01 FOR STOCKPILE AREAS.
  - THE FINAL EXTENT AND/OR ALIGNMENT OF THE ERCC MAY VARY FROM THAT SHOWN IN THE DRAWING PACKAGE BASED ON INPUT FROM PROJECT STAKEHOLDERS (USDEP, CTDEEP, TOWN OF NORTH HAVEN, LOCAL COMMUNITY GROUPS).
  - PROJECT CONTACTS:**  
 PHARMACIA & UPJOHN COMPANY LLC (PFIZER) - RUSS DOWNEY (PROJECT DIRECTOR) - (800) 801-6079  
 PHARMACIA & UPJOHN COMPANY LLC (PFIZER) - NICK ANDREOPOLLOS (PROJECT MANAGER) - (908) 801-8411  
 URS - MICHAEL STILLER (CONSTRUCTION MANAGER) - (617) 283-6264

**Brown and Caldwell**  
 UPPER SADDLE RIVER, NJ

LINE IS 3/8 INCHES AT FULL SIZE (IF NOT 1/4" SCALE APPROXIMATE)

EXTERNAL REFERENCE FILES

DATE: 10/23/12

DATE: 10/23/12

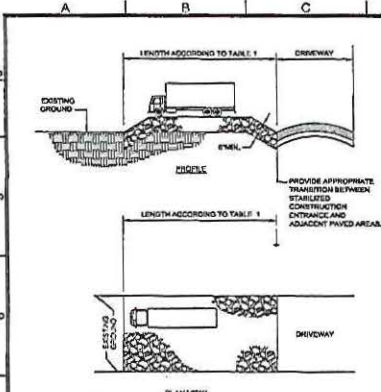
REVISIONS				
NO.	REV.	DESCRIPTION	BY	DATE

APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE

EAST SIDE REMEDIAL COMPONENTS REMEDIAL SITE LAYOUT AND SOIL EROSION AND SEDIMENT CONTROL PLAN

FILENAME: 14770-013\_01.dwg  
 BC PROJECT NUMBER: 147703  
 CLIENT PROJECT NUMBER: 147703  
 DRAWING NUMBER: 9  
 SHEET NUMBER: 9 OF 16



- CRITICAL CRITERIA**
1. STONE, CURB, STREET STANDARD SPECIFICATIONS SECTION 6.04.01.01 AS PER USE. CLEAN, CRUSHED, ANGULAR, DRYBLENDED CONCRETE OF EQUAL OR BETTER QUALITY MAY BE SUBSTITUTED BUT WILL REQUIRE MORE FREQUENT UPDATING AND MAINTENANCE.
  2. THICKNESS - NOT LESS THAN 6 INCHES.
  3. QUALITY - ROAD FABRICATION GEOTEKSTILE CONSISTENT WITH MANUFACTURERS RECOMMENDATIONS FOR INTENDED USE.
  4. WIDTH - NOT LESS THAN FULL WIDTH OF POINTS OF IMPACT OR EGRESS.
  5. LINES - 10 FEET MINIMUM SPACING BETWEEN THE STABILIZER CONCRETE STRIPS OR GRAVELS OR 150 FEET MINIMUM WHERE STRIPS ARE FINE GRAINED GRAVELS OR SILT. EXCEPT WHERE TRAVEL LENGTH IS LESS THAN 80 OR 100 FEET RESPECTIVELY. THESE LENGTHS MAY BE INCREASED WHERE FIELD CONDITIONS INDICATE. INFORMATION FROM LOCAL AGENCIES SHALL BE OBTAINED FIRST FROM THE CONSTRUCTION AGENCIES. THE LENGTH OF THE STABILIZED PAD SHALL BE AS SHOWN IN TABLE BELOW. WHERE THE SLOPE OF THE ACCESS ROAD EXCEEDS 5% OR FOR USE AT POINTS OF DRIVELANDS, SUBSURFACE DRAINAGE CHANNEL, FILTER OR GEOTEKSTILE SHALL BE INSTALLED BEFORE INSTALLING THE STABILIZED CONSTRUCTION ENTRANCE.

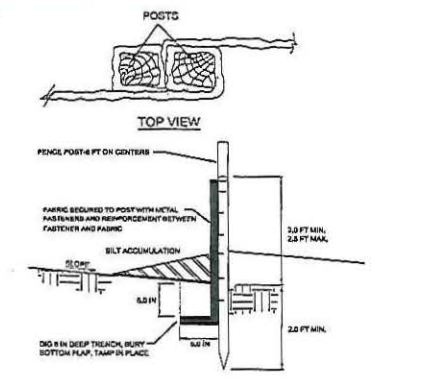
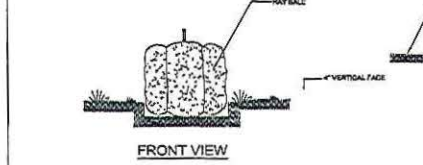
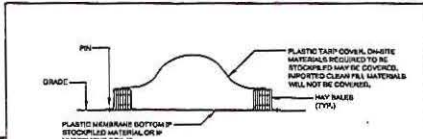
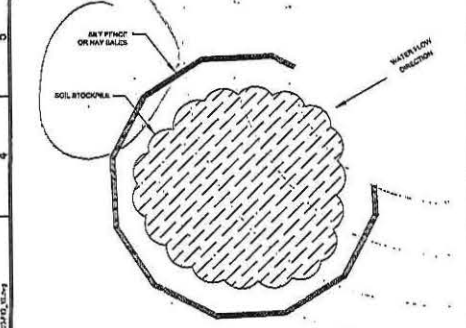
**TABLE 1**  
LENGTHS OF CONSTRUCTION ACCESS ON SLOPING ROADWAYS

PERCENT SLOPE OF ROADWAY	CONCRETE GRAINED GRAVELS	7 MIL GRANITE G-50
0 TO 2%	50 FT.	100 FT.
2 TO 4%	100 FT.	200 FT.
> 4%	100 FT. TOP SURFACE ENHANCED WITH FABRIC BASE COURSE	200 FT.

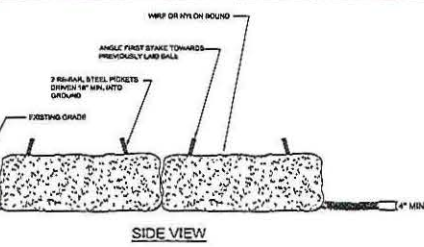
- MAINTENANCE**
1. THE ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT INTO ADJACENT PAVED AREAS. THIS MAY INCLUDE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LINES AS CONDITIONS DEMAND. AND FRESH AIRBORNE CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT, ALL SEDIMENT, SPILLED, DROPPED, WASHED, OR TRACKED INTO ADJACENT PUBLIC OR PRIVATE OR OTHER IMPERVIOUS SURFACES MUST BE REMOVED IMMEDIATELY.
  2. WHERE ACCUMULATION OF DIRT/SEDIMENT IS INADEQUATELY CLEANED OR REMOVED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER WILL BE REQUIRED TO CLEAN PAVED OR IMPERVIOUS SURFACES.
  3. ALL OTHER ACCESS POINTS WHICH ARE NOT STABILIZED SHALL BE CLOSED OFF.

**STABILIZED CONSTRUCTION ACCESS**

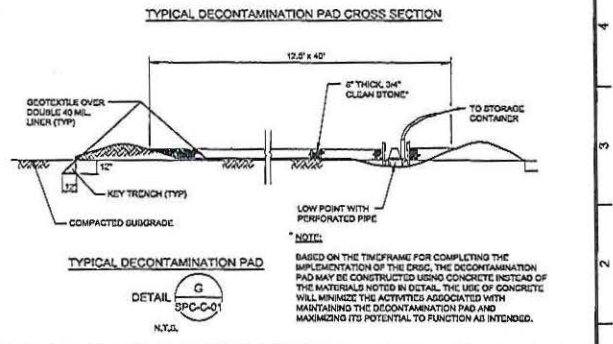
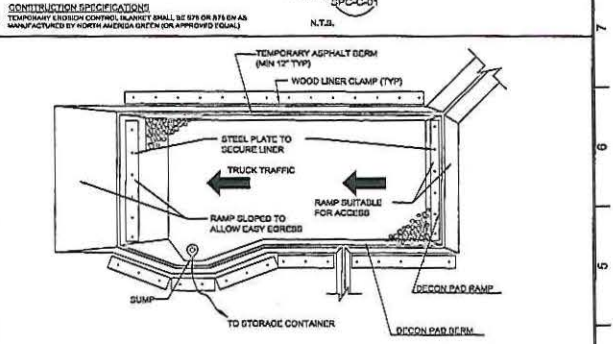
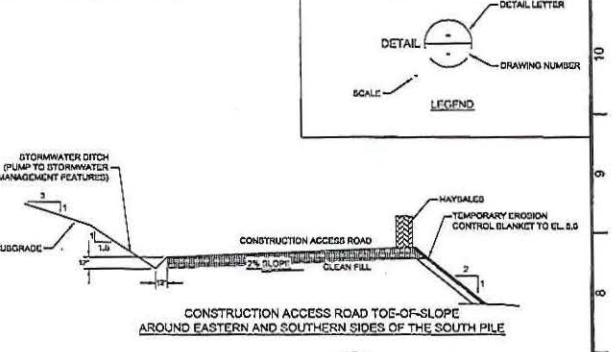
DETAIL A  
SPC-C-01  
N.T.S.



- CONSTRUCTION SPECIFICATIONS**
1. WOODEN FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER 2" OR 3" TYPE OR HARDWOOD.
  2. FILTER CLOTH TO BE FASTENED SECURELY TO WOODEN FENCE WITH TIES SPACED EVERY 24" AT TOP AND SIDES. FENCE SHALL BE WOODEN WIRE, IF AVAILABLE, REINFORCED WITH TWO STRIPS OF FILTER CLOTH ALONG EACH OTHER THEY SHALL BE OVERLAPPED BY 2 INCHES AND POLYESTER.
  3. PREPARED LATE SHALL BE GLOVAL, BENTONITIC, OR APPROVED EQUIVALENT. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "TRUCKS" DEVELOP IN THE SILT FENCE.



- CONSTRUCTION SPECIFICATIONS**
1. BALE SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ADJACENT THE ADJACENT BALES.
  2. EACH BALE SHALL BE INTERLOCKED IN THE SOIL A MINIMUM OF FOUR INCHES, AND PLACED SO THE BALE IS HORIZONTAL.
  3. BALE SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR REBAR DRIVEN THROUGH THE BALE. THE FIRST STAKE OR REBAR SHALL BE DRIVEN TOWARDS THE PREVIOUSLY Laid BALE AT AN ANGLE TO FORCE THE BALE TOGETHER. STAKES SHALL BE DRIVEN PUSH WITH THE BALE.
  4. BACKFILL AND COMPACT REGRADED FILL ALONG HAYBALE PADGING. THE FLOW INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
  5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPACT STORM FLOW OR DRAINAGE.



**Brown and Caldwell**  
UPPER SADDLE RIVER, NJ

DATE	DESCRIPTION
10/22/12	REVISION 1
10/22/12	REVISION 2
10/22/12	REVISION 3
10/22/12	REVISION 4
10/22/12	REVISION 5
10/22/12	REVISION 6
10/22/12	REVISION 7
10/22/12	REVISION 8
10/22/12	REVISION 9
10/22/12	REVISION 10

REV.	DESCRIPTION	BY	DATE	APP.

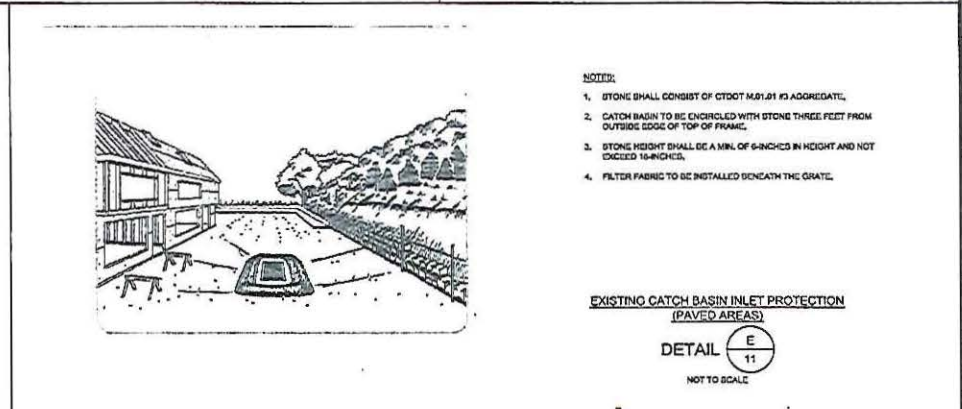
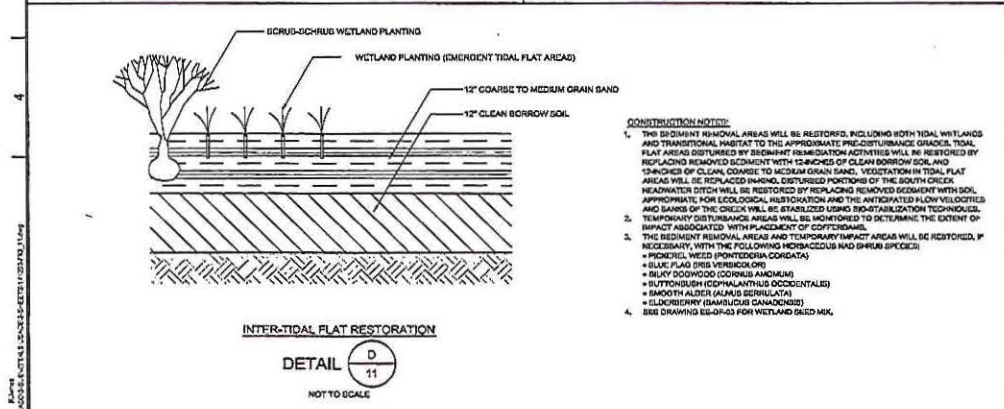
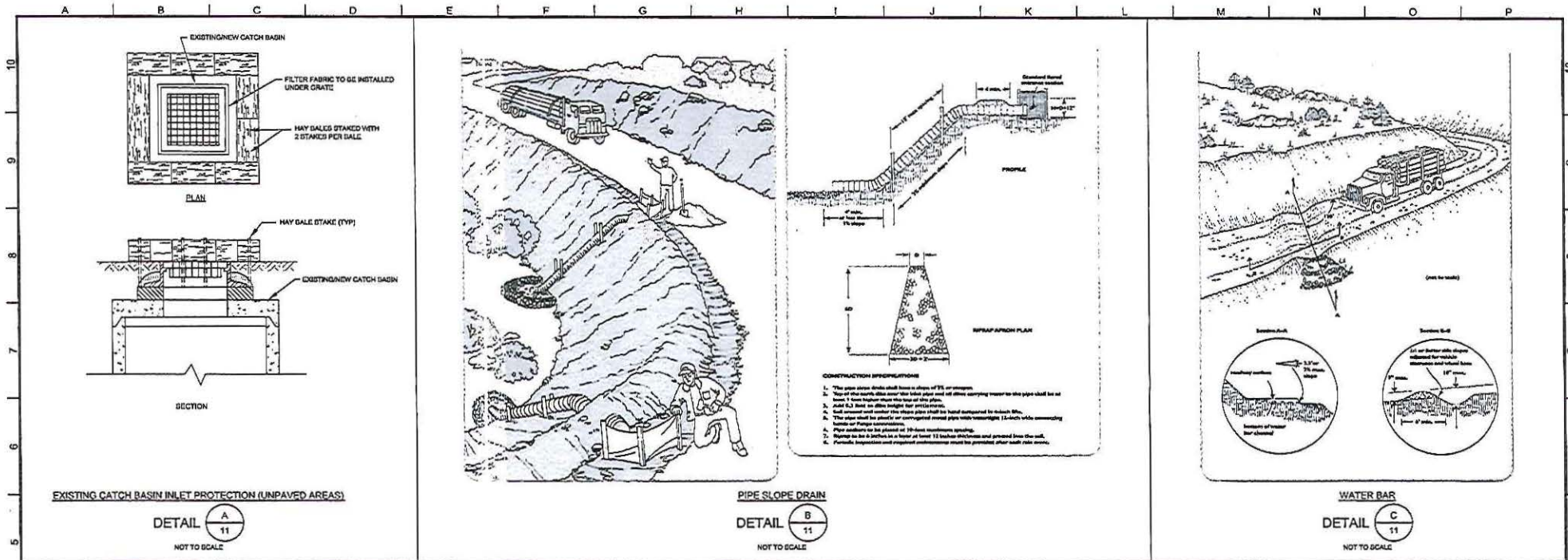
APPLICATION FOR USAGE  
SECTION 404 PERMIT PLANS  
SUBMITTAL DRAWING PACKAGE  
JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS  
SOIL EROSION AND SEDIMENT CONTROL  
DETAILS

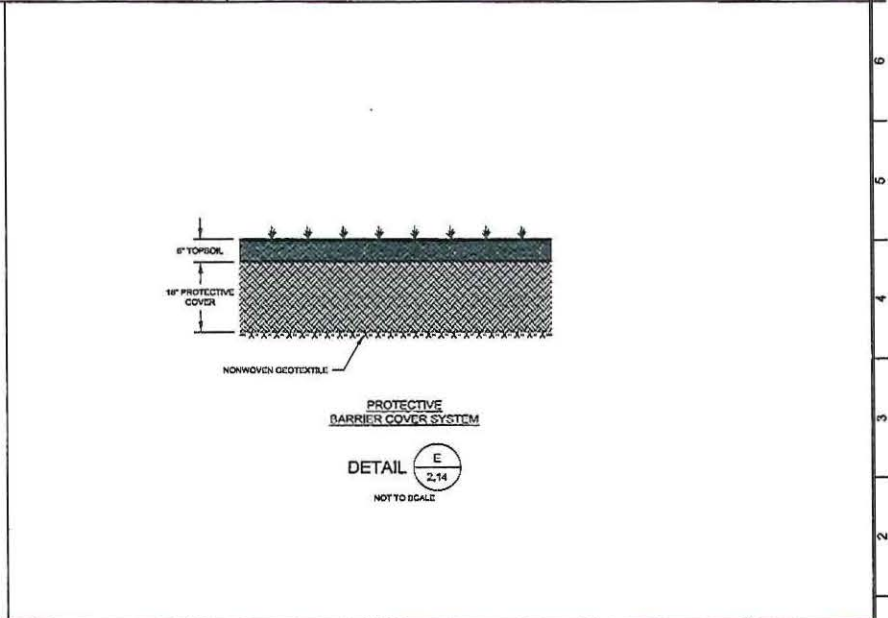
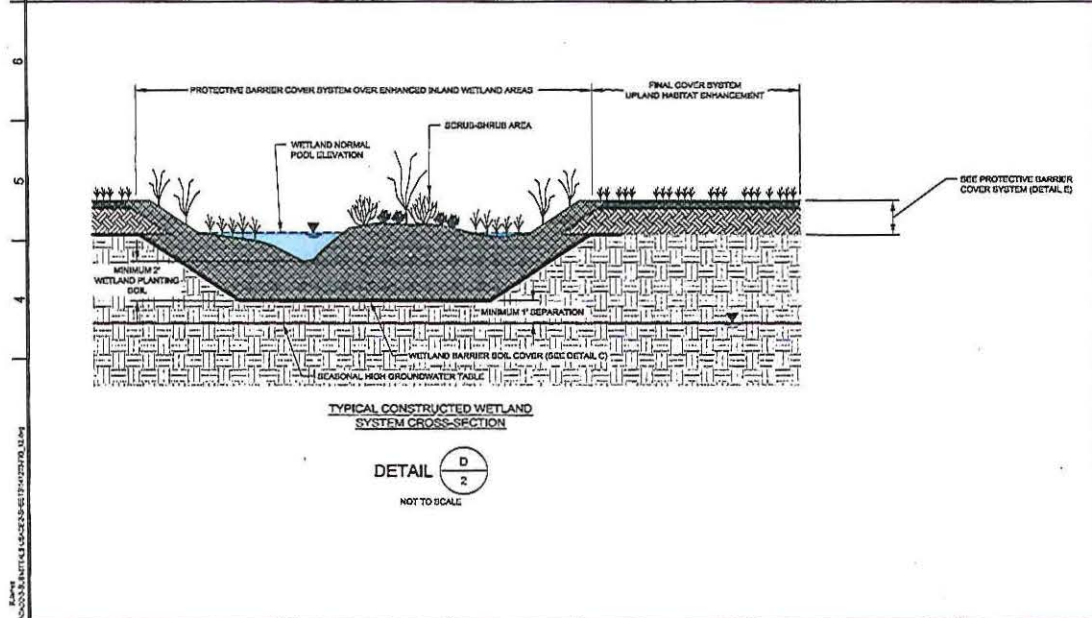
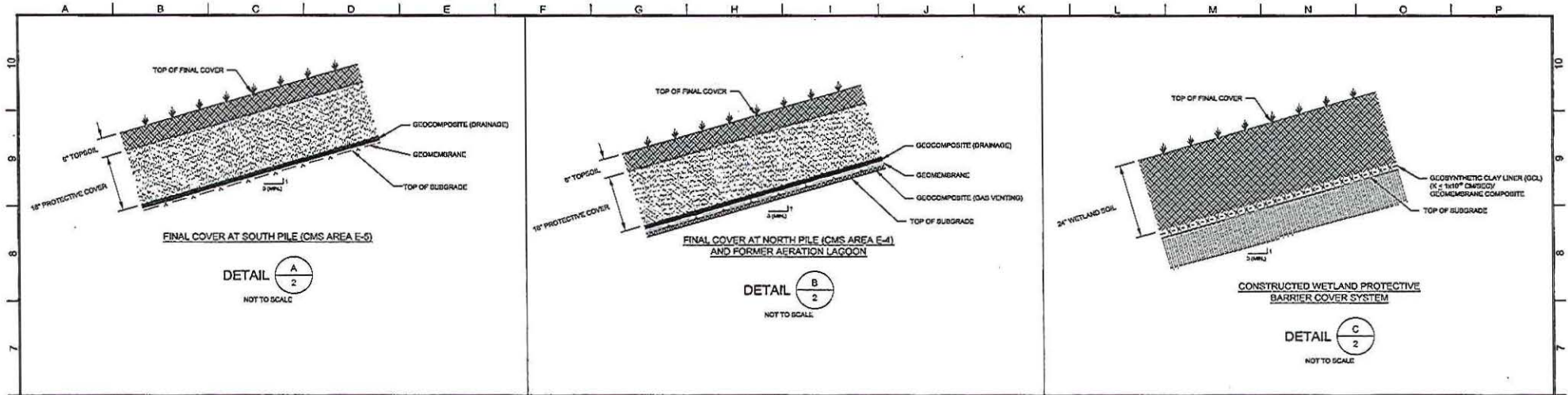
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SG PROJECT NUMBER	141203
CLIENT PROJECT NUMBER	
DRAWING NUMBER	10
SHEET NUMBER	10 OF 16

SUBMITTED: JESSIE BOGATCH  
APPROVED: JESSIE BOGATCH

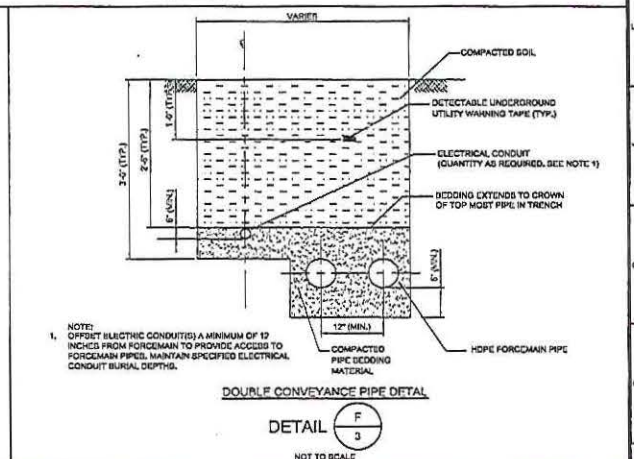
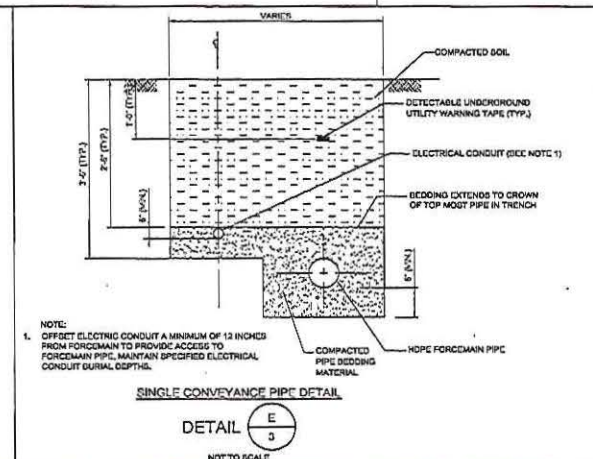
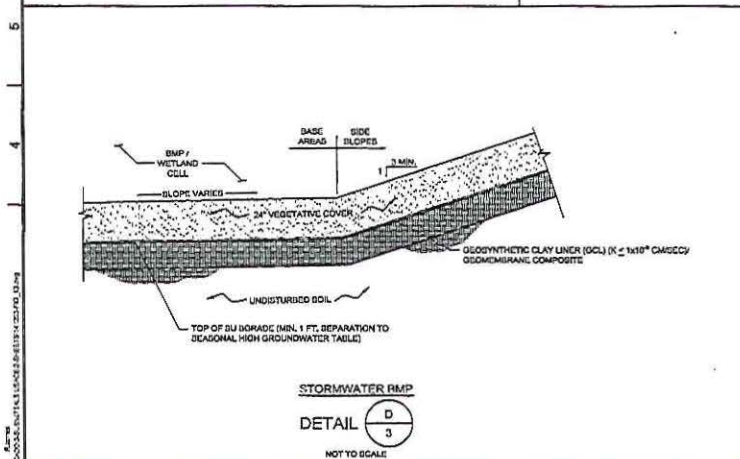
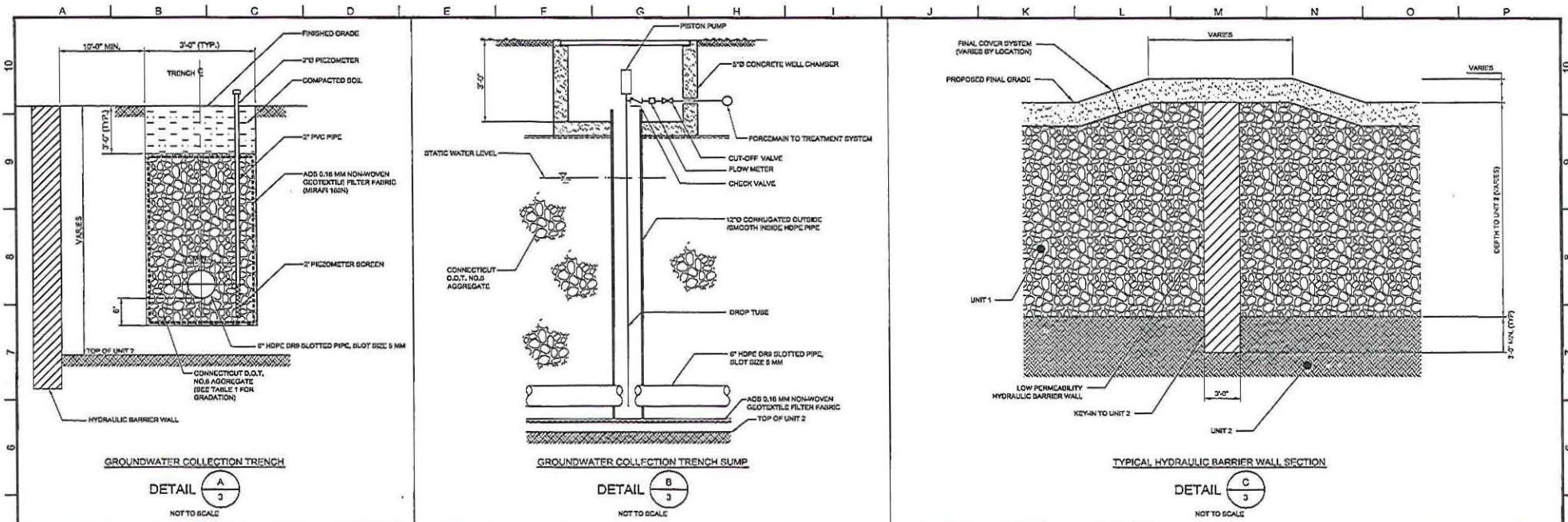
DATE: 10/22/12  
DATE: 10/22/12



<b>Brown and Caldwell</b> UPPER SADDLE RIVER, NJ		LINK (1/2" INCHES) AT FULL SIZE IF NOT FULL SIZE, INDICATE SCALE	EXTERNAL REFERENCE FILES (LIST FILE NAMES)	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>REV.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> <th>APP.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	REV.	DESCRIPTION	BY	DATE	APP.							APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013	PHARMACIA & UPJOHN COMPANY LLC SITE EAST SIDE REMEDIAL COMPONENTS SOIL EROSION AND SEDIMENT CONTROL DETAILS	PLANNAME 141001.P11_11.dwg DC PROJECT NUMBER 141001 CLIENT PROJECT NUMBER 11 SHEET NUMBER 11 OF 16
NO.	REV.	DESCRIPTION	BY	DATE	APP.														
SUBMITTED: KEITH BOGATCH PROJECT MANAGER		DATE: 10/25/12	DESIGNED: EPF	DRAWING: JRD	CHECKED: JRD	APPROVED: JRD	DATE: 10/25/12												
APPROVED: JEFFREY CAPUTO PROJECT MANAGER		DATE: 10/25/12	CHECKED: JRD	APPROVED: JRD	DATE: 10/25/12	APPROVED: JRD	DATE: 10/25/12												



<b>Brown Caldwell</b> UPPER SADDLE RIVER, NJ SUBMITTED: KEITH BOGATCH DATE: 10/20/12 APPROVED: JEFFREY GAVIN DATE: 10/23/12	LINE IS 3 INCHES AT FULL SCALE (IF NOT IN SCALE COMMENTS) DESIGNED: JMB DRAWN: JTG CHECKED: CHECKED: APPROVED:	EXTERNAL REFERENCE FILE: 141203-12-01-01-01 141203-12-01-01-01-01	<table border="1"> <thead> <tr> <th colspan="5">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>REV.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS					NO.	REV.	DESCRIPTION	BY	DATE																										APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013	PHARMACIA & UPJOHN COMPANY LLC SITE EAST SIDE REMEDIAL COMPONENTS COVER SYSTEM AND CONSTRUCTION DETAILS	FILENAME: 141203-12-01-01-01-01.dwg SHEET NUMBER: 141203 CLIENT PROJECT NUMBER: DRAWING NUMBER: 12 SHEET NUMBER: OF 16
	REVISIONS																																								
NO.	REV.	DESCRIPTION	BY	DATE																																					



**Brown and Caldwell**  
 UPPER SADDLE RIVER, NJ

SUBMITTED: JKH/BDG/01/10 DATE: 10/28/12  
 APPROVED: JERRY GARDNER DATE: 10/28/12

LINE #	DESCRIPTION	DATE

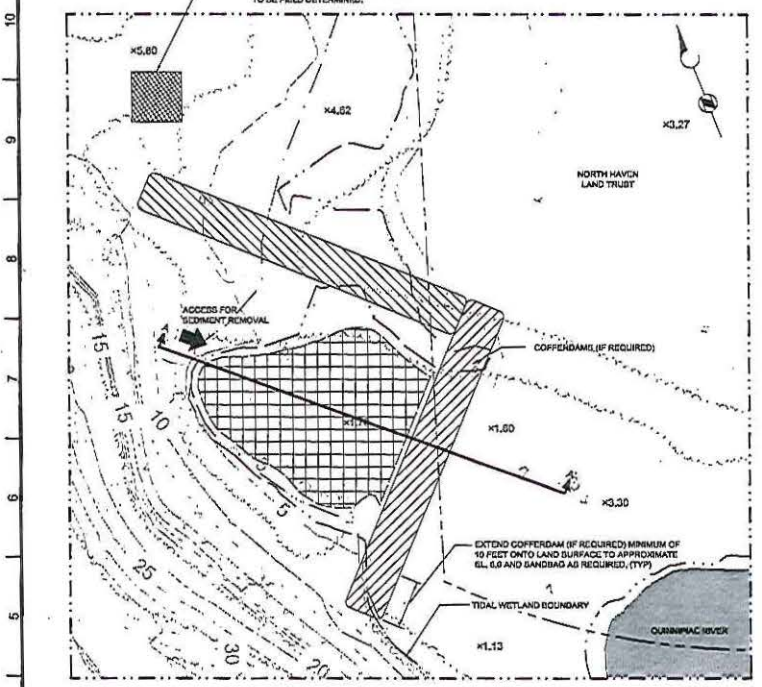
REV.	DESCRIPTION	BY	DATE	APP.

APPLICATION FOR USAGE SECTION 404 PERMIT PLANS  
 SUBMITTAL DRAWING PACKAGE  
 JANUARY 2013

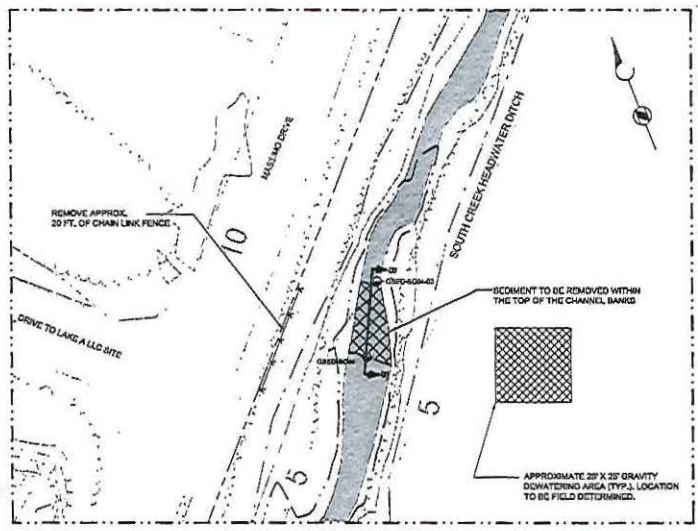
PHARMACIA & UPJOHN COMPANY LLC SITE  
 EAST SIDE REMEDIAL COMPONENTS  
 CONSTRUCTION DETAILS

FILENAME: 1412021010\_13.dwg  
 PROJECT NUMBER: 141202  
 CLIENT PROJECT NUMBER: 141202  
 DRAWING NUMBER: 13  
 SHEET NUMBER OF 16

A B C D E F G H I J K L M N O P



TIDAL FLAT NO. 1  
PARTIAL PLAN  
SCALE: 1" = 30'

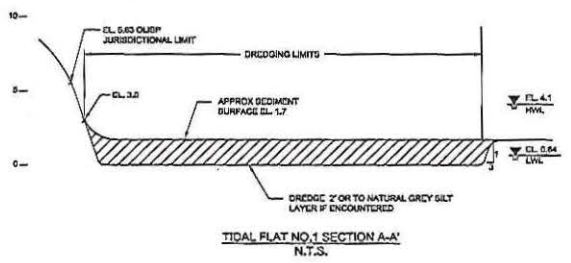


SOUTH CREEK  
PARTIAL PLAN  
SCALE: 1" = 20'

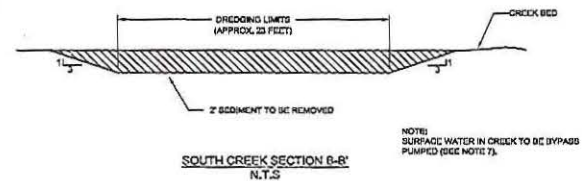
**LEGEND:**

	SEDIMENT REMOVAL BOUNDARY
	PROPERTY LINE (SEE REFERENCE 2)
	APPROXIMATE EXTENT OF SURFACE WATER AT MEAN LOW WATER
	TIDAL WETLAND BOUNDARY
	MEAN LOW WATER
	MEAN HIGH WATER
	SEDIMENT REMOVAL AREA

- CONSTRUCTION NOTES:**
1. TOPOGRAPHIC FEATURES TAKEN FROM DIGITAL CAD FILE "01S116091.DWG," DATED APRIL 5, 2009, PREPARED BY DL COMPANIES, MAP BASED ON CONNECTICUT STATE PLANS COORDINATE SYSTEM OF 1927 (NAD 27) AND ELEVATIONS REFER TO NATIONAL GEOGRID VERTICAL DATUM (NGVD 29).
  2. PROPERTY LINE TAKEN FROM DIGITAL FILES UPJOHN.DWG AND UPJOHN.LOW, ENTITLED "PROPERTY BOUNDARY MAP", SHEETS 1 AND 2, PROVIDED BY UNITED INTERNATIONAL CORPORATION, DATED JULY 20, 1998.
  3. IMPACTED SEDIMENT WILL BE REMOVED TO A DEPTH OF NO MORE THAN TWO FEET OR TO THE TOP OF THE UNDERLYING GREY SILT LAYER.
  4. EXTENT OF SEDIMENT REMOVAL FOR SOUTH CREEK HEADWATER DITCH IS A 400 SQUARE FOOT AREA BETWEEN BENCHMARK LOCATIONS 0952-0094 AND 0952-0094-03.
  5. THE SEDIMENT REMEDIATION WORK MAY NEED TO BE PERFORMED DURING PERIODS WHEN THERE ARE NO TIMING RESTRICTIONS TO PROTECT FISH SPECIES. IF RESTRICTIONS DO APPLY, THE WORK WILL BE SCHEDULED AROUND THOSE DATES (I.E. WORK WILL NOT PROCEED FROM MARCH 1 TO JUNE 30).
  6. CLEARING WILL BE REQUIRED AT T-41 BUT WILL BE ADPT TO A MINIMUM THE BENCHMARK OF T-41 AND T-42 WILL BE UTILIZED TO ACCESS THE SEDIMENT REMOVAL AREA. MANSARD DRIVE LOCATED IMMEDIATELY WEST OF THE SOUTH CREEK SEDIMENT REMOVAL AREA WILL BE USED FOR ACCESS TO THIS WORK AREA.
  7. SEDIMENT REMOVAL WILL BE PERFORMED UNDER DRY CONDITIONS BY DEWATERING THE WORK AREA. COFFERDAMS MAY BE USED DEPENDING ON CONDITIONS AT THE TIME OF THE WORK, TO ENSURE THAT THE EXCAVATION WILL BE IN THE DRY. IF THE WORK CAN BE PERFORMED WHEN THE SOUTH CREEK HEADWATER DITCH IS DRY, NO DAM WILL BE REQUIRED. OTHERWISE, A SAND BAG DAM WILL BE INSTALLED UPSTREAM AND DOWNSTREAM OF THE WORK AREA AND WATER WILL BE PUMPED AROUND WITH 6 INCH D65-PHATIC PUMP, SEE DETAIL 3 ON SHEET TP-0401.
  8. SINCE THE SEDIMENT REMOVAL AREAS WILL BE ISOLATED FROM THE RIVER AND SOUTH CREEK, SILT CURTAINS WILL NOT BE REQUIRED. AQUATIC SPECIES WILL BE ADDRESSED INSIDE THE T-41 WORK AREA THROUGH NETTING AND RELOCATION TO THE QUINNIPAC RIVER, TO THE EXTENT PRACTICABLE, AS THE WORK AREA ARE PUMPED DRY.
  9. SURFACE WATER WITHIN SIX (6) INCHES OF THE SEDIMENT SURFACE AND PORE WATER/SEAWATER FROM GRAVITY DEWATERING WITHIN THE SEDIMENT REMOVAL AREAS WILL BE PUMPED TO THE SOWT EQUALIZATION TANK. A DUPLEX 20 MICRON BAG FILTER WILL BE USED TO FILTER SUSPENDED SOLIDS.
  10. REMOVED SEDIMENT WILL BE GRAVITY DEWATERED IN THE UPLAND AREAS SHOWN. THE EXCAVATED SEDIMENT WILL BE TRANSPORTED TO THE FORMER AERATION LAGOON (FAL) ON SOUTH HILL PILE AND WILL BE STABILIZED WITH AN EXPECTED ADDITION OF 10% PORTLAND CEMENT BY WEIGHT.
  11. DEWATERED AND/OR AMENDED SEDIMENT WILL BE CONSOLIDATED UNDER THE LOW POROSABILITY COVER SYSTEM AT THE FAL OR SOUTH PILE.



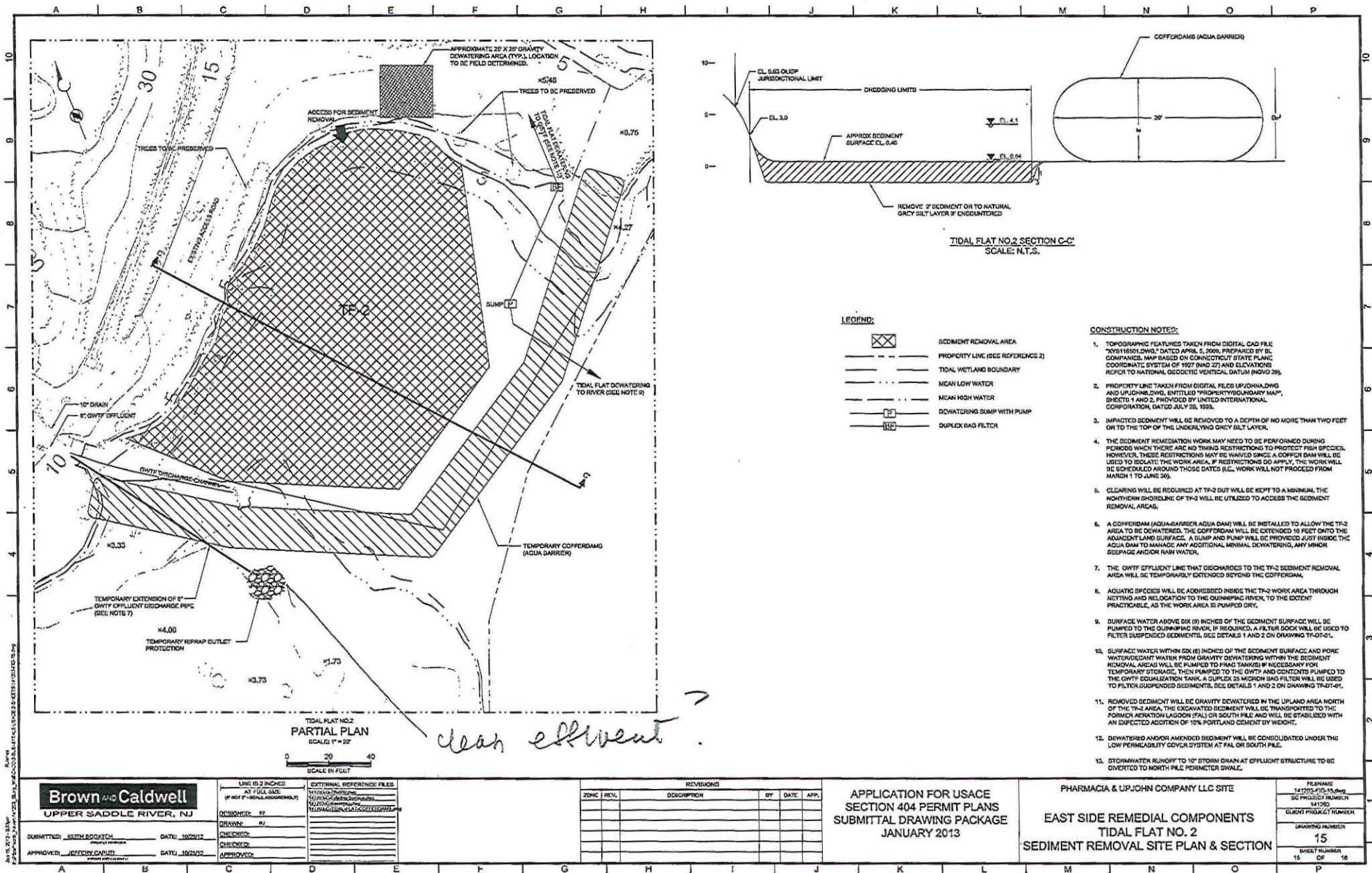
TIDAL FLAT NO. 1 SECTION A-A'  
N.T.S.



SOUTH CREEK SECTION B-B'  
N.T.S.

<p><b>Brown and Caldwell</b> UPPER SADDLE RIVER, NJ</p>		<p>LINE IS 2 INCHES AT FULL SIZE IF NOT 2"=1" (SCALE ACCORDINGLY)</p> <p>DESIGNED BY: [blank]</p> <p>DRAWN BY: [blank]</p> <p>CHECKED BY: [blank]</p> <p>APPROVED BY: [blank]</p>	<p>EXTERNAL REFERENCE FILES</p> <p>01S116091.DWG 01S116091.LOW 01S116091.MAP 01S116091.PDF 01S116091.TIF 01S116091.XREF</p>	<p>REVISIONS:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ZONE</th> <th>REV.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> <th>APP.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>					ZONE	REV.	DESCRIPTION	BY	DATE	APP.																									<p>APPLICATION FOR USAGE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013</p>		<p>PHARMACIA &amp; UPJOHN COMPANY LLC SITE</p> <p>EAST SIDE REMEDIAL COMPONENTS TIDAL FLAT NO. 1 AND SOUTH CREEK SEDIMENT REMOVAL SITE PLAN &amp; SECTIONS</p>		<p>FILENAME: 14102013014.dwg</p> <p>DC PROJECT NUMBER: 141100</p> <p>CLIENT PROJECT NUMBER: [blank]</p> <p>DRAWING NUMBER: 14</p> <p>SHEET NUMBER OF: 15</p>
				ZONE	REV.	DESCRIPTION	BY	DATE	APP.																																		
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A B C D E F G H I J K L M N O P



TIDAL FLAT NO. 2  
PARTIAL PLAN  
SCALE: 1" = 20'  
0 20 40  
SCALE IN FEET

*clean effluent*

**Brown & Caldwell**  
UPPER SADDLE RIVER, NJ

SUBMITTED: KEITH BOGATCH DATE: 10/20/12  
APPROVED: JEFFREY CARLISI DATE: 10/20/12

LINE IS 3/8" INCHES AT FULL SIZE (IF NOT 3/8" SMALL AS OTHERWISE NOTED)	EXTERNAL REFERENCE FILES
DESIGNED BY: JJ	1) TYPICAL DRAINAGE
DRAWN BY: BJ	2) TYPICAL COFFERDAM
CHECKED BY: BJ	3) TYPICAL DRAINAGE
CHECKED BY: BJ	4) TYPICAL COFFERDAM
APPROVED BY: BJ	5) TYPICAL DRAINAGE
	6) TYPICAL COFFERDAM

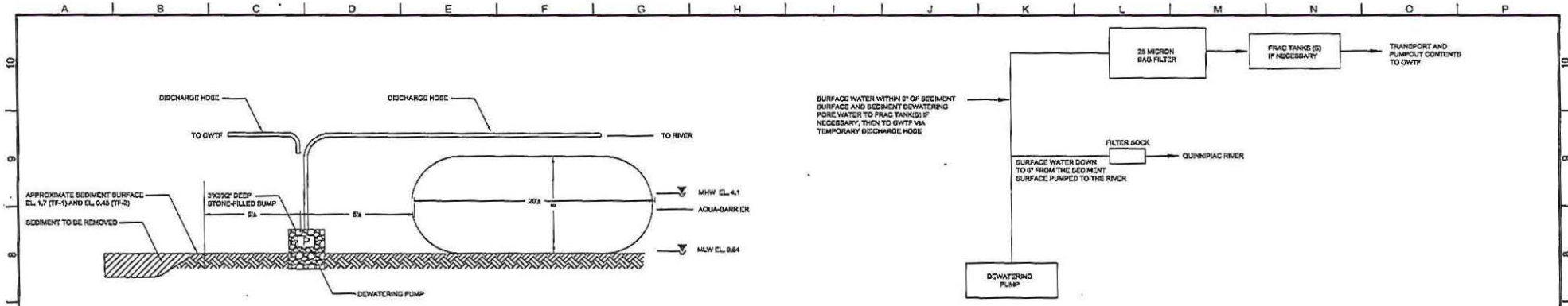
REVISIONS				
NO.	REV.	DESCRIPTION	BY	DATE

APPLICATION FOR USACE SECTION 404 PERMIT PLANS  
SUBMITTAL DRAWING PACKAGE  
JANUARY 2013

PHARMACIA & UPJOHN COMPANY LLC SITE  
EAST SIDE REMEDIAL COMPONENTS  
TIDAL FLAT NO. 2  
SEDIMENT REMOVAL SITE PLAN & SECTION

REVISION:	141205-010-15-000
GC PROJECT NUMBER:	141205
CLIENT PROJECT NUMBER:	
DRAWING NUMBER:	15
SHEET NUMBER:	15
OF:	16

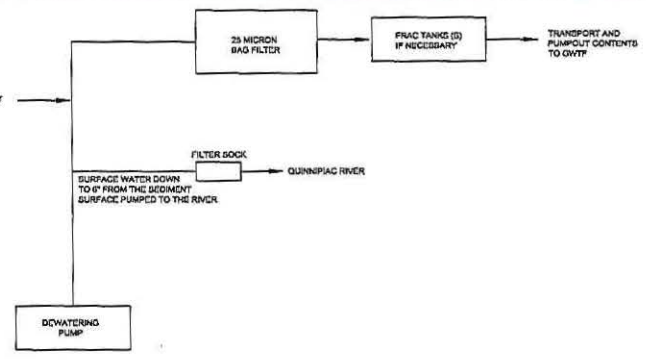




TIDAL FLAT DEWATERING DETAIL

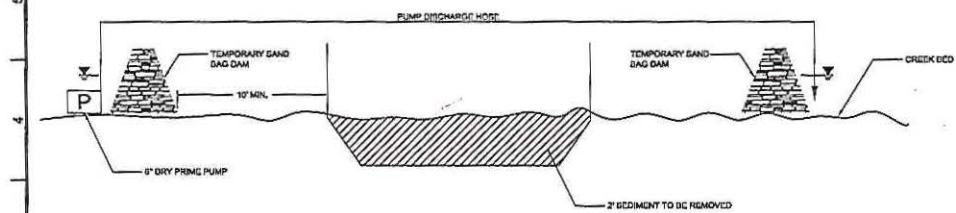
DETAIL 1  
FIG-15  
SCALE: N.T.S.

SURFACE WATER WITHIN 0' OF SEDIMENT SURFACE AND SEDIMENT DEWATERING PORE WATER TO FRAC TANK(S) IF NECESSARY, THEN TO GWTF VIA TEMPORARY DISCHARGE HOSE



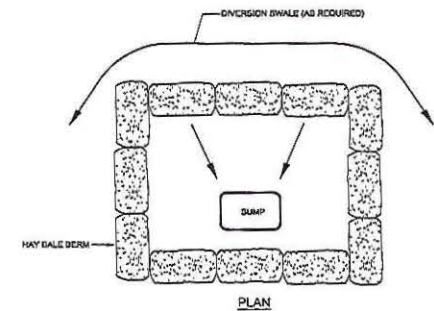
SEDIMENT DEWATERING FLOW SCHEMATIC

DETAIL 2  
FIG-16  
SCALE: N.T.S.

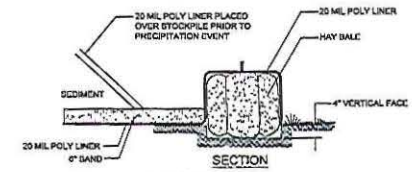


SOUTH CREEK TEMPORARY BYPASS

DETAIL 3  
FIG-15  
SCALE: N.T.S.



PLAN



SECTION

SEDIMENT DEWATERING AREA DETAIL

DETAIL 4  
FIG-15  
SCALE: N.T.S.

<b>Brown and Caldwell</b> UPPER SADDLE RIVER, NJ		LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY) DESIGNED: [ ] DRAWN: [ ] CHECKED: [ ] APPROVED: [ ]	EXTERNAL REFERENCE FILES 11122441200000	REVISIONS <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>ZONE</th> <th>REV.</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> <th>APP.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	ZONE	REV.	DESCRIPTION	BY	DATE	APP.																																																													APPLICATION FOR USACE SECTION 404 PERMIT PLANS SUBMITTAL DRAWING PACKAGE JANUARY 2013	PHARMACIA & UPJOHN COMPANY LLC SITE EAST SIDE REMEDIAL COMPONENTS TIDAL FLATS AND SOUTH CREEK DETAILS	FILENAME: 141722-FIG-15.dwg DC PROJECT NUMBER: 141722 CLIENT PROJECT NUMBER: DRAWING NUMBER: SHEET NUMBER: 16 OF 16
ZONE	REV.	DESCRIPTION	BY	DATE	APP.																																																																				
SUBMITTED: KEITH HODATCH DATE: 10/26/12 APPROVED: JEFFREY GARDNER DATE: 10/23/12		SUBMITTED: [ ] DATE: [ ] APPROVED: [ ] DATE: [ ]		SUBMITTED: [ ] DATE: [ ] APPROVED: [ ] DATE: [ ]		SUBMITTED: [ ] DATE: [ ] APPROVED: [ ] DATE: [ ]		SUBMITTED: [ ] DATE: [ ] APPROVED: [ ] DATE: [ ]																																																																	