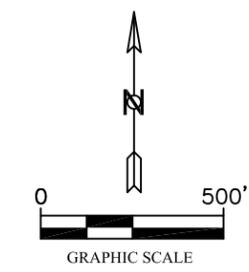
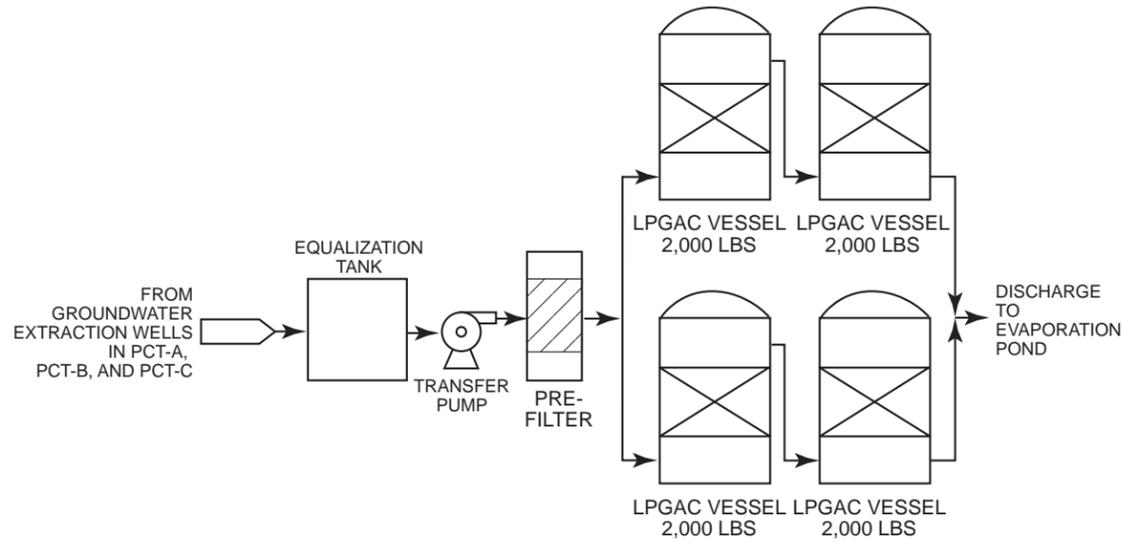


- LEGEND:**
- LIMITS OF STUDY AREA (AREAS 1-4)
 - PSCT TRENCH
 - PCT EXTRACTION TRENCH
 - CLAY BARRIER
 - EXISTING RCRA CAP
 - PROPOSED RCRA CAP
 - EVAPOTRANSPIRATIVE (ET) CAP
 - ECO CAP - SOIL CAP (RCF POND)
 - LINED EVAPORATION POND (A-SERIES POND)
 - LINED RETENTION BASIN (POND A-5, POND 13)
 - EXCAVATION (5') AND BACKFILL
 - EXCAVATION (20') AND BACKFILL
 - EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
 - PROPOSED ASPHALT COVER
 - 5' EXCAVATION AND BACKFILL TO GRADE
 - UNCAPPED AREA INCLUDING GRADING AND BMPs
 - LNAPL IN UPPER HSU
 - DNAPL IN UPPER HSU
 - DNAPL IN LOWER HSU
 - ? - ? - POTENTIAL EXTENT OF DNAPL IN LOWER HSU
 - EXISTING MONITORING WELL
 - EXISTING EXTRACTION WELL
 - PCT AND PSCT EXTRACTION WELLS
 - NAPL-ONLY EXTRACTION WELL
 - EXISTING PIEZOMETER
 - PROPOSED UPPER HSU MONITORING WELL
 - LHSU MONITORING WELL
 - RIP RAP
 - CHANNELED STORMWATER FLOW
 - NATURAL STORMWATER FLOW

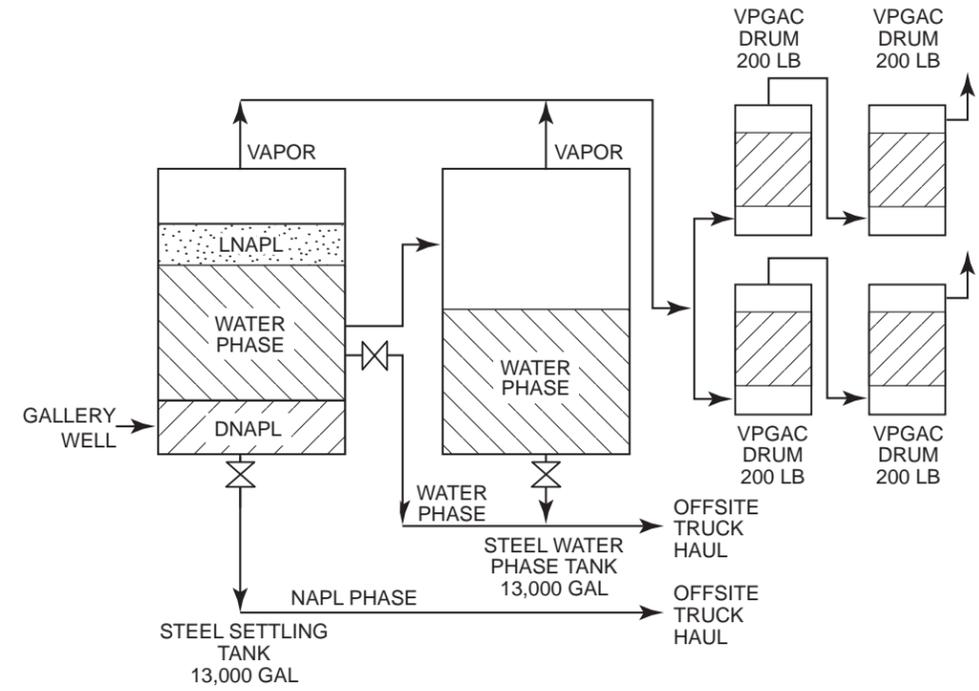
- NOTES:**
1. THE REMEDIAL ALTERNATIVE INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AN ET CAP IN FS AREA 2, EXCAVATION IN FS AREA 3 AND AN ECO CAP IN AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
 2. A NEW 11-ACRE LINED EVAPORATION POND IS PROPOSED IN THE FOOTPRINT OF THE A-SERIES POND.
 3. THE TREATED PSCT AND EXTRACTED PCT GROUNDWATER IS SENT TO THE EVAPORATION POND IN THE FOOTPRINT OF A-SERIES POND.
 4. RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
 5. THIS REMEDIAL ALTERNATIVE FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND DNAPL/LNAPL-ONLY EXTRACTION FROM 16 WELLS IN THE SOUTHERN PART OF THE P/S LANDFILL.
 6. CAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, DISCHARGED THROUGH OR AROUND WETLANDS AND ONTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.



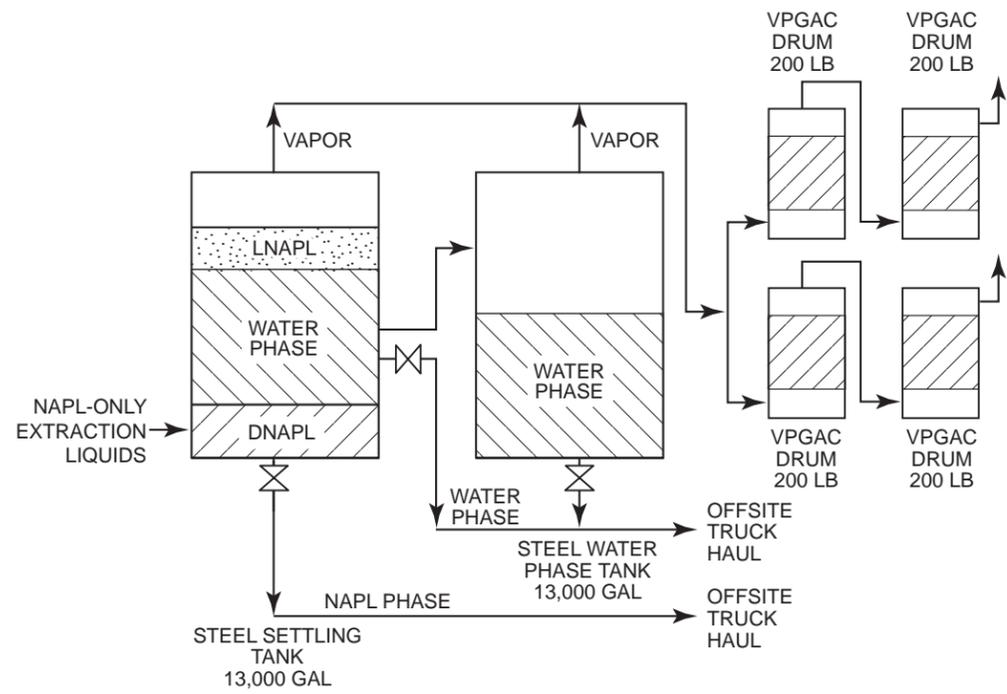
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
					
		130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259			
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
		SITESIDE REMEDIAL ALTERNATIVE #2 LARGER EVAPORATION POND			
FIGURE 12-1A					



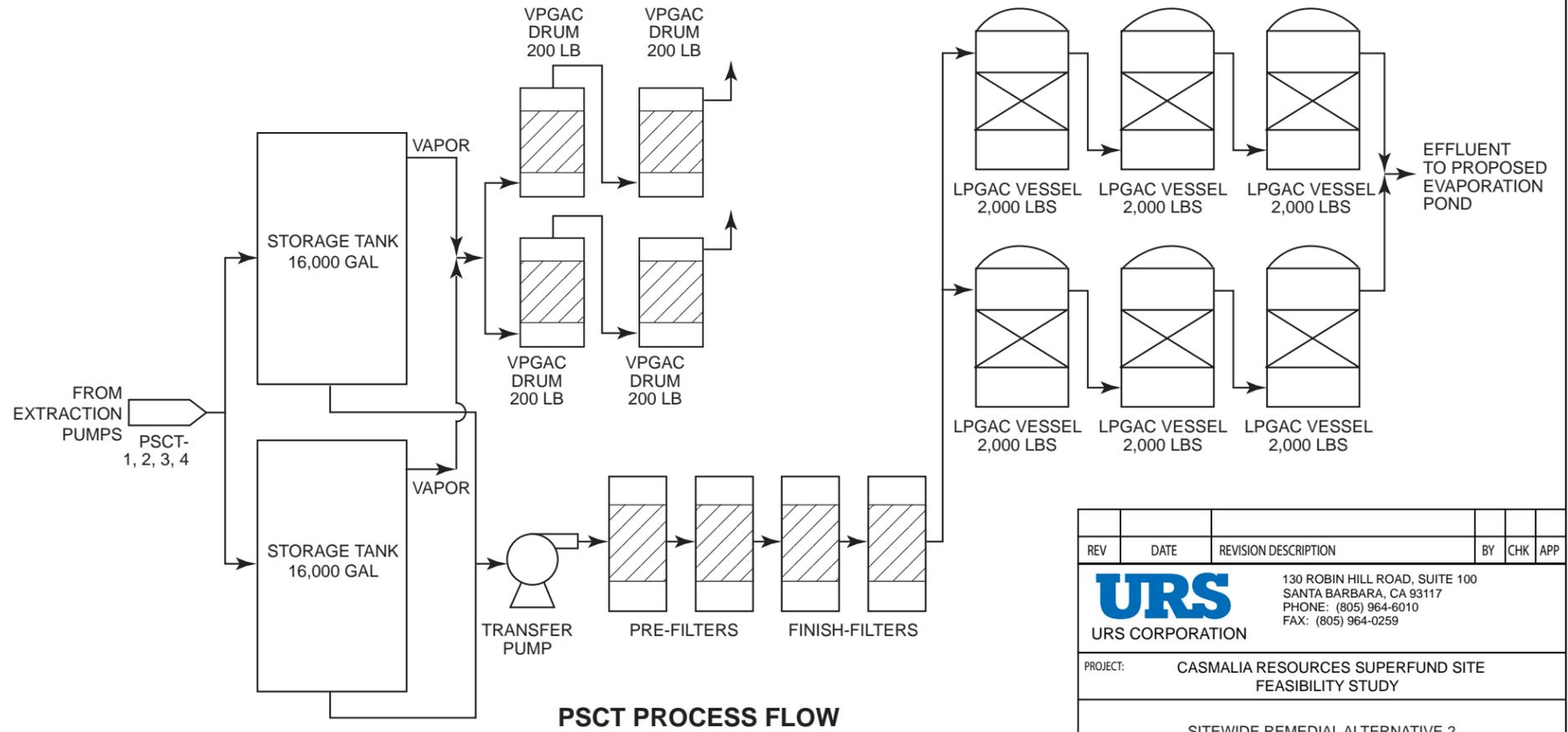
PCT-A, PCT-B, AND PCT-C PROCESS FLOW



GALLERY WELL PROCESS FLOW

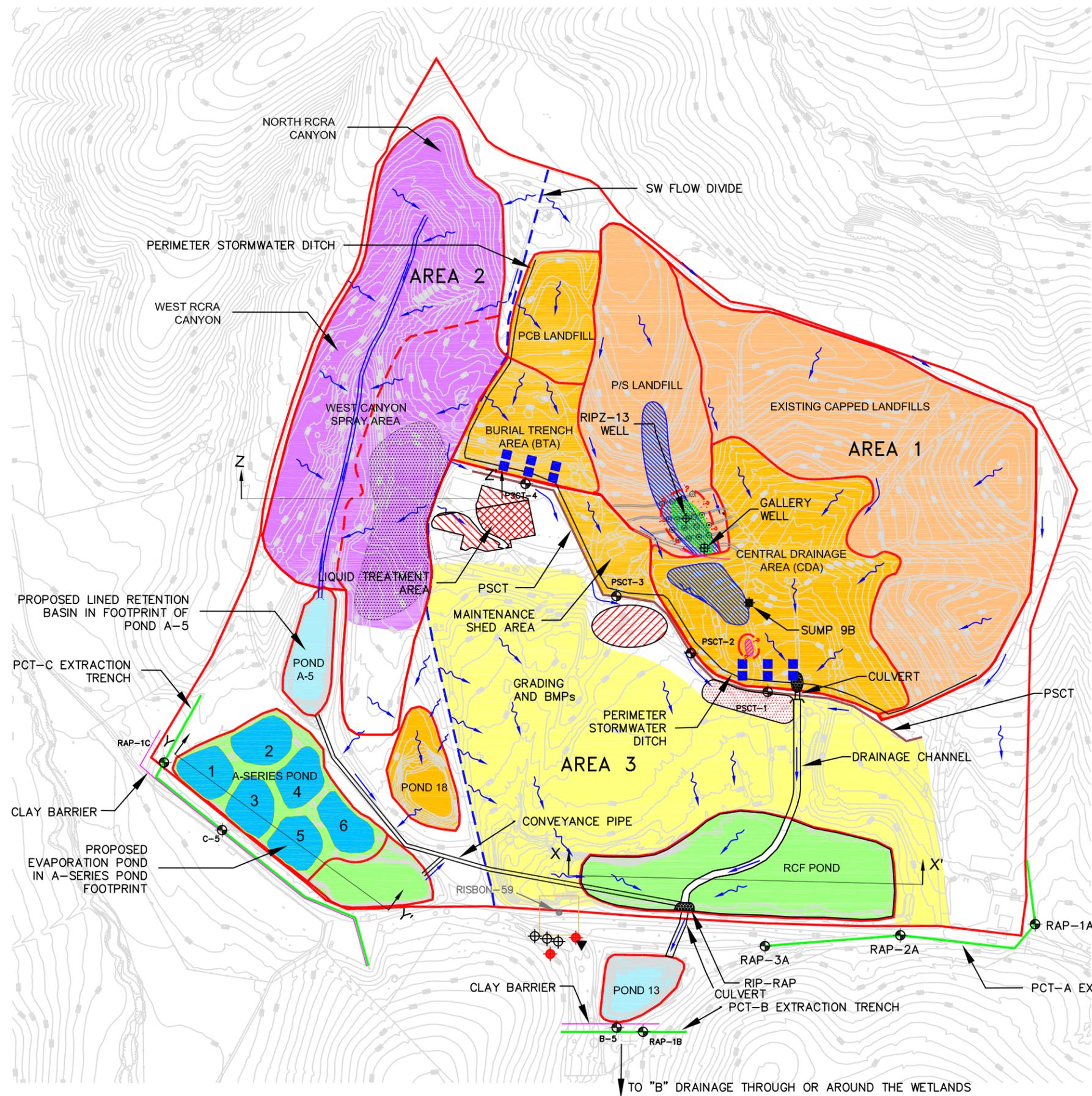


NAPL-ONLY EXTRACTION PROCESS FLOW



PSCT PROCESS FLOW

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<p>130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259</p>					
<p>PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY</p>					
<p>SITEWIDE REMEDIAL ALTERNATIVE 2 PROCESS FLOW DIAGRAM</p>					
<p>FIGURE 12-1B</p>					



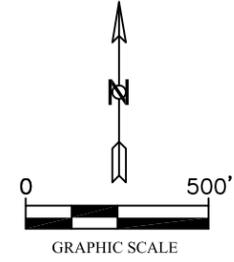
LEGEND:

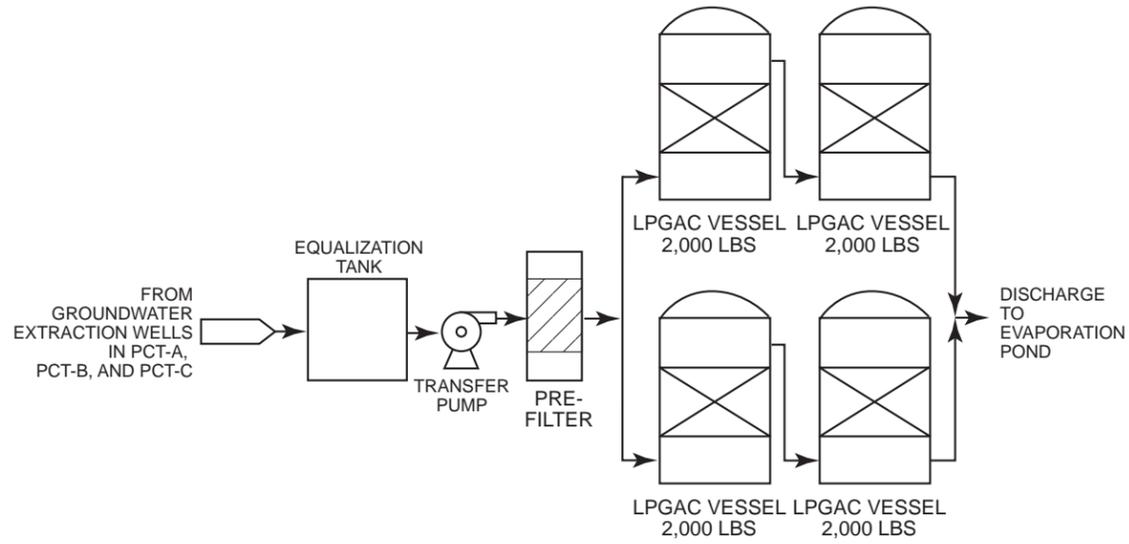
- LIMITS OF STUDY AREA (AREAS 1-4)
- PSCT TRENCH
- PCT EXTRACTION TRENCH
- CLAY BARRIER
- EXISTING RCRA CAP
- PROPOSED RCRA CAP
- EVAPOTRANSPIRATIVE (ET) CAP AND/OR HYBRID CAP
- ECO CAP - SOIL CAP (RCF POND)
- LINED EVAPORATION POND (A-SERIES POND)
- LINED RETENTION BASIN (POND A-5, POND 13)
- 5' EXCAVATION WITH ET CAP
- EXCAVATION (5') AND BACKFILL
- EXCAVATION (20') AND BACKFILL
- EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
- PROPOSED ASPHALT COVER
- UNCAPPED AREA INCLUDING GRADING AND BMPs
- LNAPL IN UPPER HSU
- DNAPL IN UPPER HSU
- DNAPL IN LOWER HSU
- - - POTENTIAL EXTENT OF DNAPL IN LOWER HSU
- ⊕ EXISTING MONITORING WELL
- ⊕ EXISTING EXTRACTION WELL
- ⊕ PCT AND PSCT EXTRACTION WELLS
- ⊕ NAPL-ONLY EXTRACTION WELL
- ▼ EXISTING PIEZOMETER
- ⊕ PROPOSED UPPER HSU MONITORING WELL
- ⊕ LHSU MONITORING WELL
- RIP RAP
- CHANNЕLED STORMWATER FLOW
- ~ NATURAL STORMWATER FLOW

NOTES:

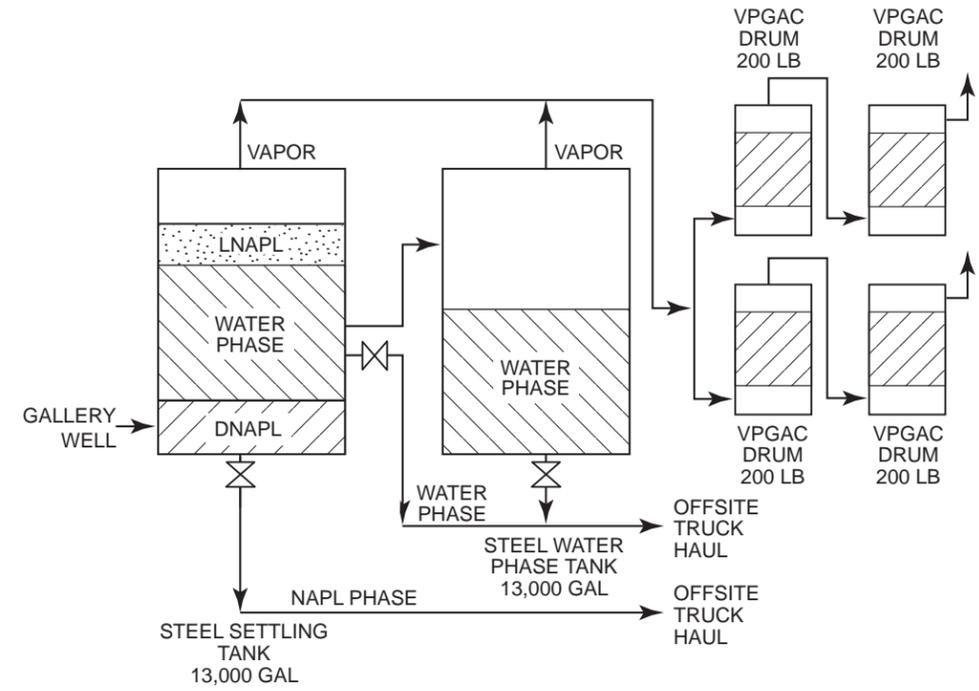
1. THE REMEDIAL ALTERNATIVE ASSUMES AN ET CAP FOR FS AREA 2, BUT THE ACTUAL CAP TYPE AND DETAILS WILL BE DETERMINED DURING REMEDIAL DESIGN. THIS REMEDIAL ALTERNATIVE ALSO INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AND AN ECO CAP AND LINED PONDS IN FS AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
2. A NEW 6-ACRE EVAPORATION POND IS PROPOSED AS SIX 1-ACRE PONDS IN THE FOOTPRINT OF THE A-SERIES POND.
3. THE TREATED PSCT AND EXTRACTED PCT GROUNDWATER IS SENT TO THE EVAPORATION POND IN THE FOOTPRINT OF A-SERIES POND.
4. RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
5. THIS REMEDIAL ALTERNATIVE FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND DNAPL/LNAPL-ONLY EXTRACTION FROM 16 WELLS IN THE SOUTHERN PART OF THE P/S LANDFILL.
6. CAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, DISCHARGED THROUGH OR AROUND THE WETLANDS AND ONTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
SITEWIDE REMEDIAL ALTERNATIVE #3 SMALLER EVAPORATION POND					
FIGURE 12-2A					

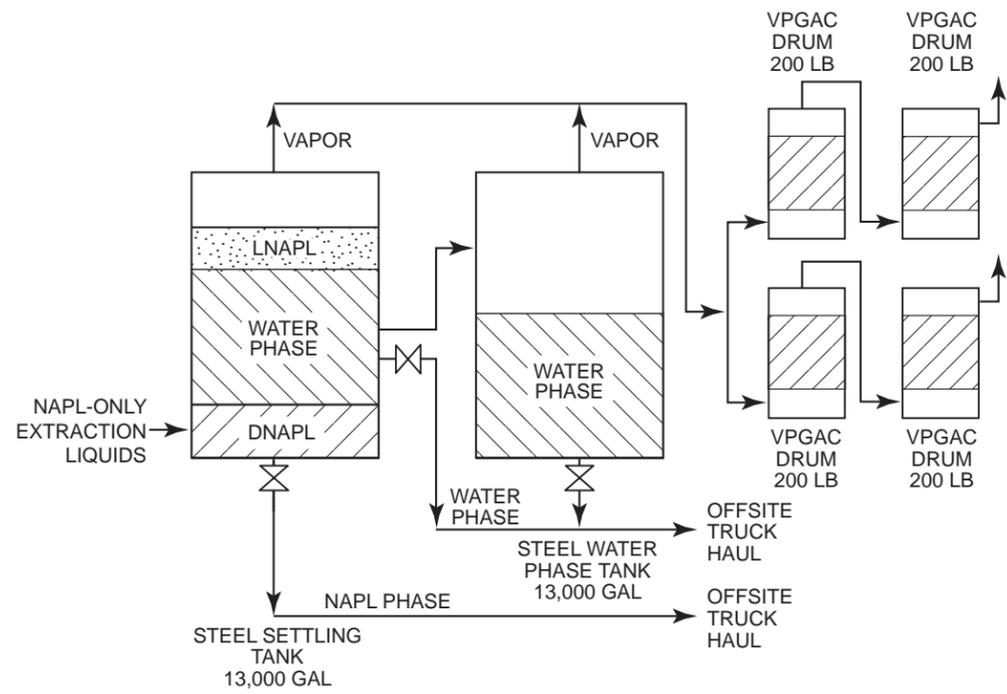




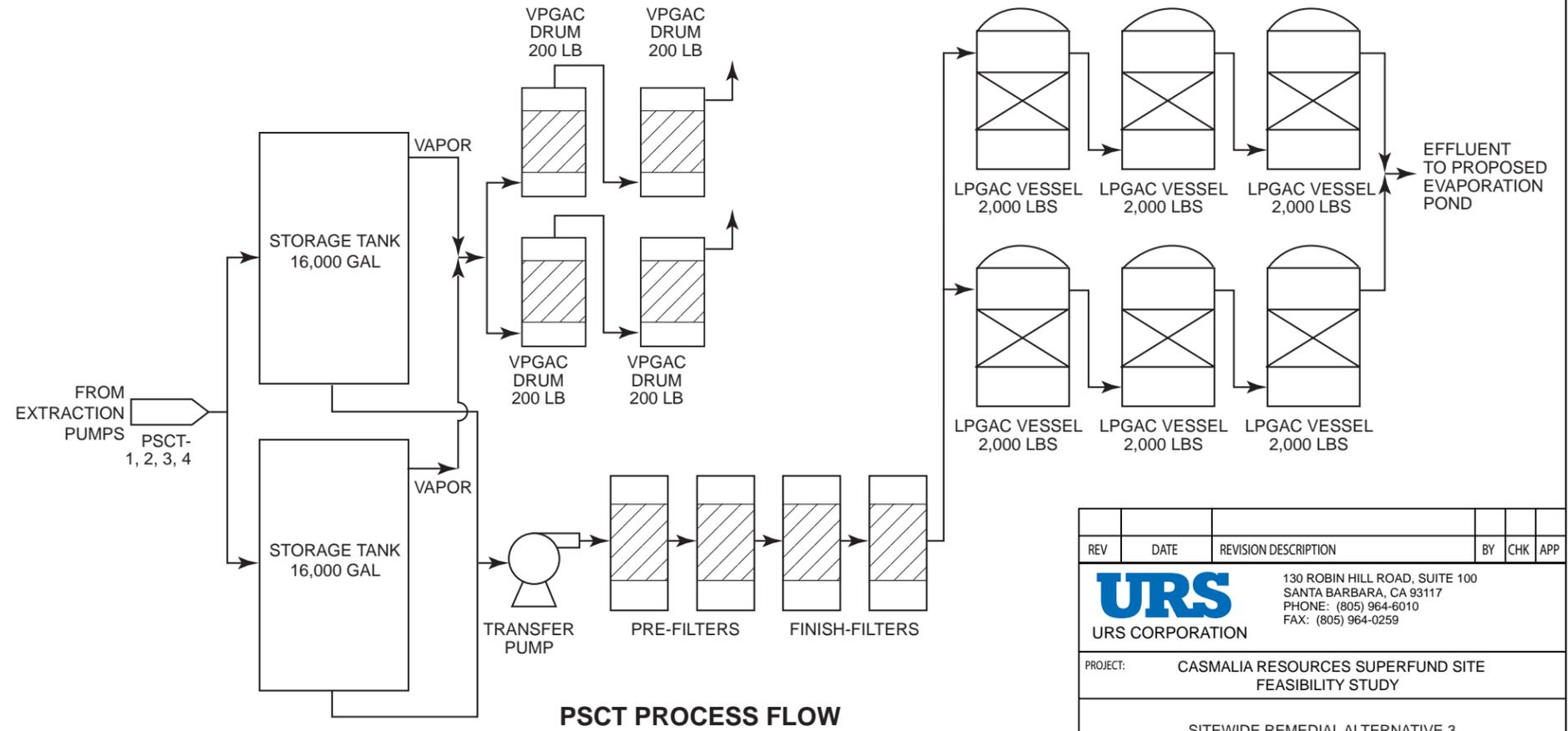
PCT-A, PCT-B, AND PCT-C PROCESS FLOW



GALLERY WELL PROCESS FLOW

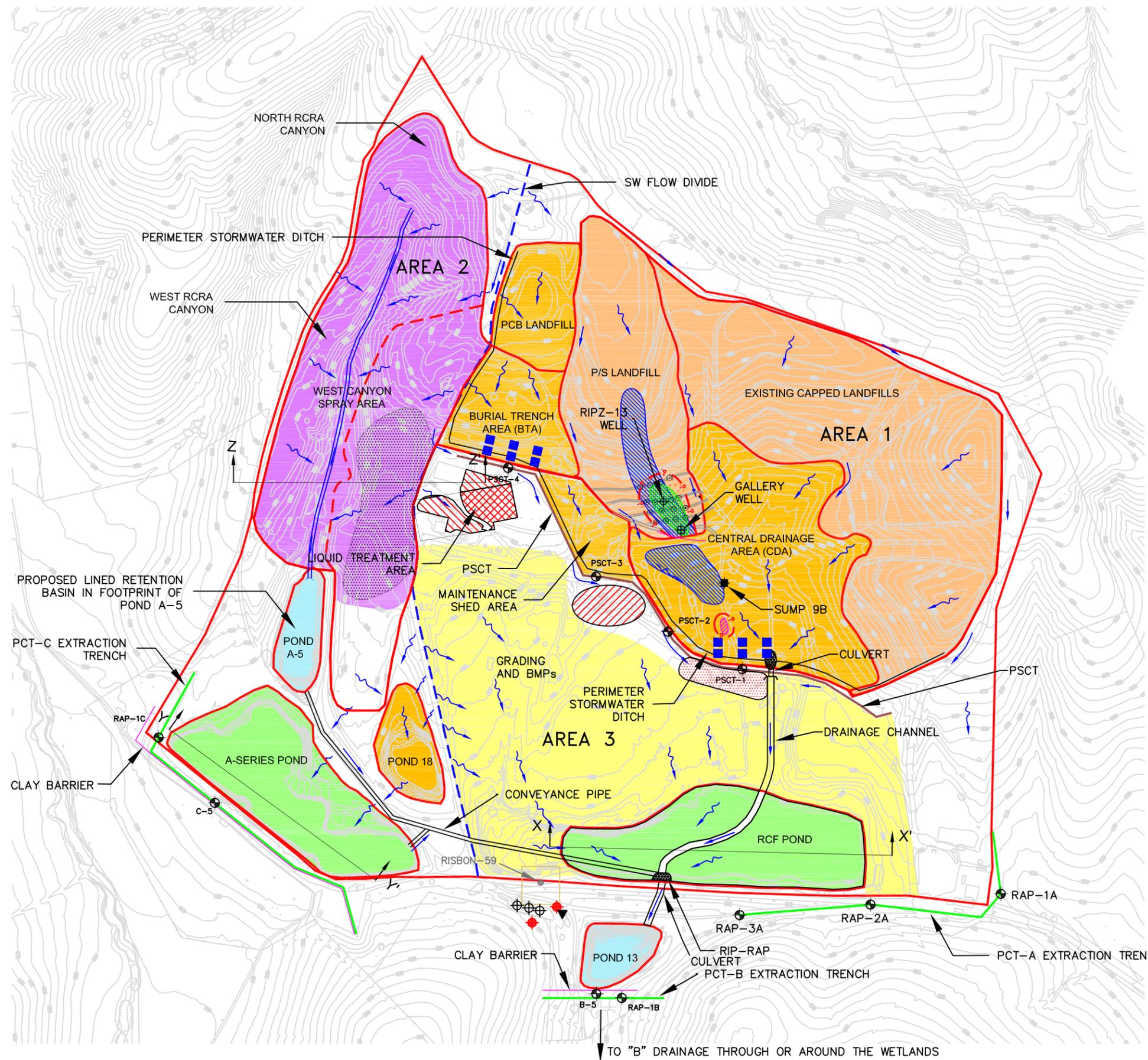


NAPL-ONLY EXTRACTION PROCESS FLOW



PSCT PROCESS FLOW

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<p>130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259</p>					
<p>PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY</p>					
<p>SITEWIDE REMEDIAL ALTERNATIVE 3 PROCESS FLOW DIAGRAM</p>					
<p>FIGURE 12-2B</p>					



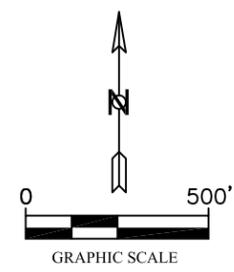
LEGEND:

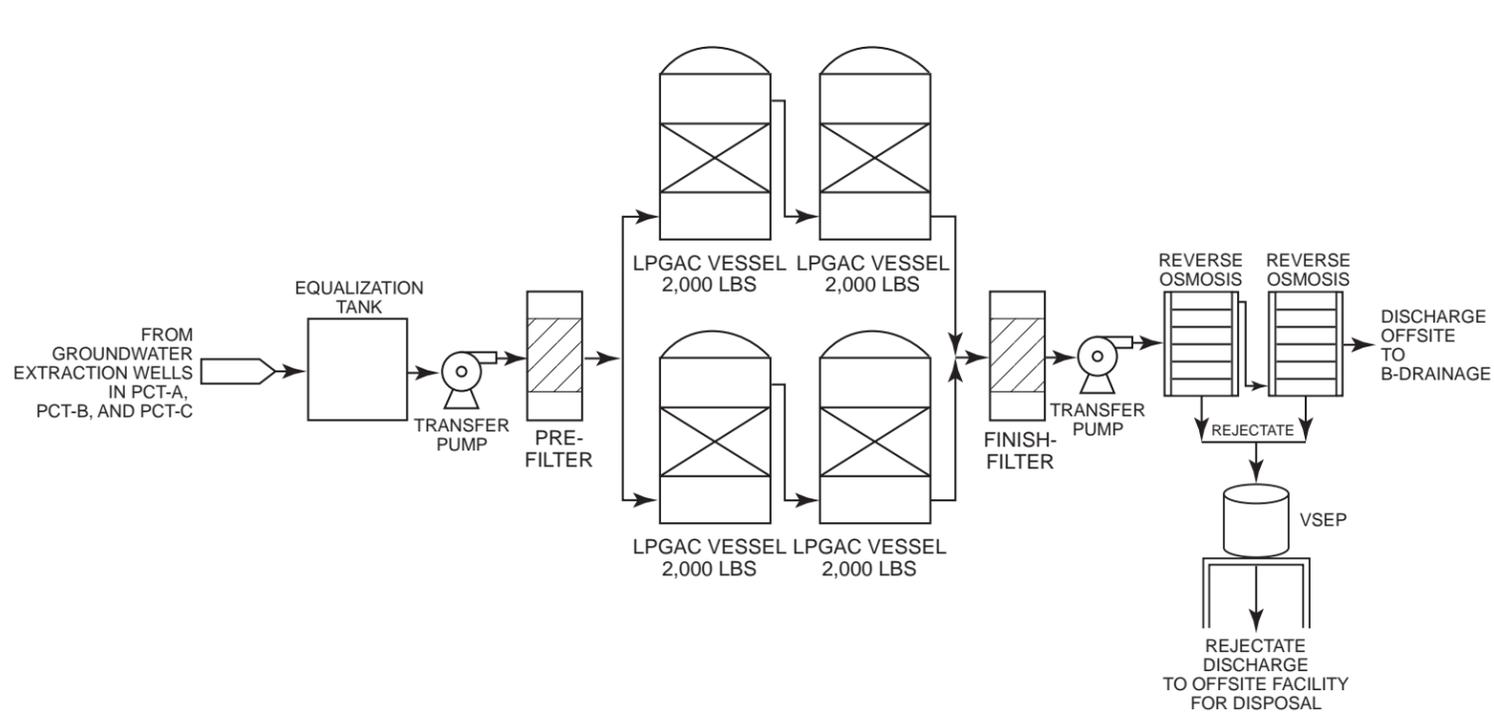
- LIMITS OF STUDY AREA (AREAS 1-4)
- PSCT TRENCH
- PCT EXTRACTION TRENCH
- CLAY BARRIER
- EXISTING RCRA CAP
- PROPOSED RCRA CAP
- EVAPOTRANSPIRATIVE (ET) CAP AND/OR HYBRID CAP
- ECO CAP - SOIL CAP (A-SERIES, RCF POND)
- LINED RETENTION BASIN (POND A-5, POND 13)
- 5' EXCAVATION WITH ET CAP
- EXCAVATION (5') AND BACKFILL
- EXCAVATION (20') AND BACKFILL
- EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
- PROPOSED ASPHALT COVER
- UNCAPPED AREA INCLUDING GRADING AND BMPs
- LNAPL IN UPPER HSU
- DNAPL IN UPPER HSU
- DNAPL IN LOWER HSU
- - - POTENTIAL EXTENT OF DNAPL IN LOWER HSU
- ⊕ EXISTING MONITORING WELL
- ⊕ EXISTING EXTRACTION WELL
- ⊕ PCT AND PSCT EXTRACTION WELLS
- ⊕ NAPL-ONLY EXTRACTION WELL
- ▼ EXISTING PIEZOMETER
- ⊕ PROPOSED UPPER HSU MONITORING WELL
- ⊕ LHSU MONITORING WELL
- ⊕ RIP RAP
- CHANNЕLED STORMWATER FLOW
- NATURAL STORMWATER FLOW

NOTES:

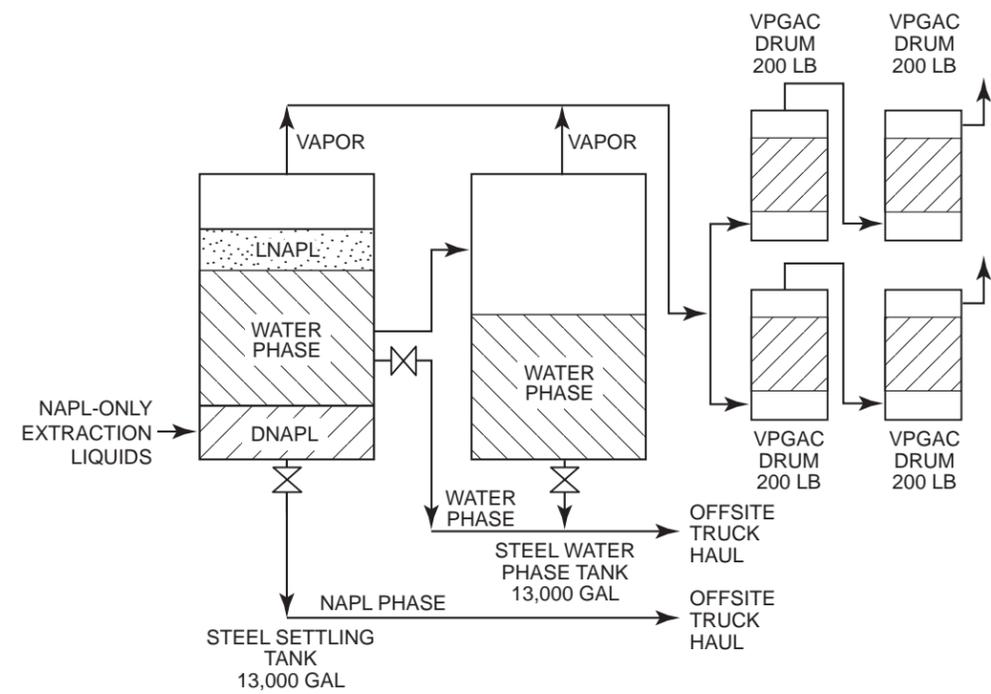
1. THE REMEDIAL ALTERNATIVE ASSUMES AN ET CAP FOR FS AREA 2, BUT THE ACTUAL CAP TYPE AND DETAILS WILL BE DETERMINED DURING REMEDIAL DESIGN. THIS REMEDIAL ALTERNATIVE ALSO INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AND AN ECO CAP IN FS AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
2. THE PSCT AND PCT GROUNDWATER IS TREATED FOR VOC'S AND INORGANICS IN AN ONSITE LIQUIDS TREATMENT PLANT AND DISCHARGED OFFSITE TO CASMALIA CREEK UNDER A SITE-SPECIFIC NPDES PERMIT.
3. RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
4. THIS REMEDIAL ALTERNATIVE FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND DNAPL/LNAPL-ONLY EXTRACTION FROM 16 WELLS IN THE SOUTHERN PART OF THE P/S LANDFILL.
6. CAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, TO DISCHARGED THROUGH OR AROUND THE WETLANDS AND ONTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> 130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259 </div>					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
SITESIDE REMEDIAL ALTERNATIVE #4 NO EVAPORATION POND					
FIGURE 12-3A					

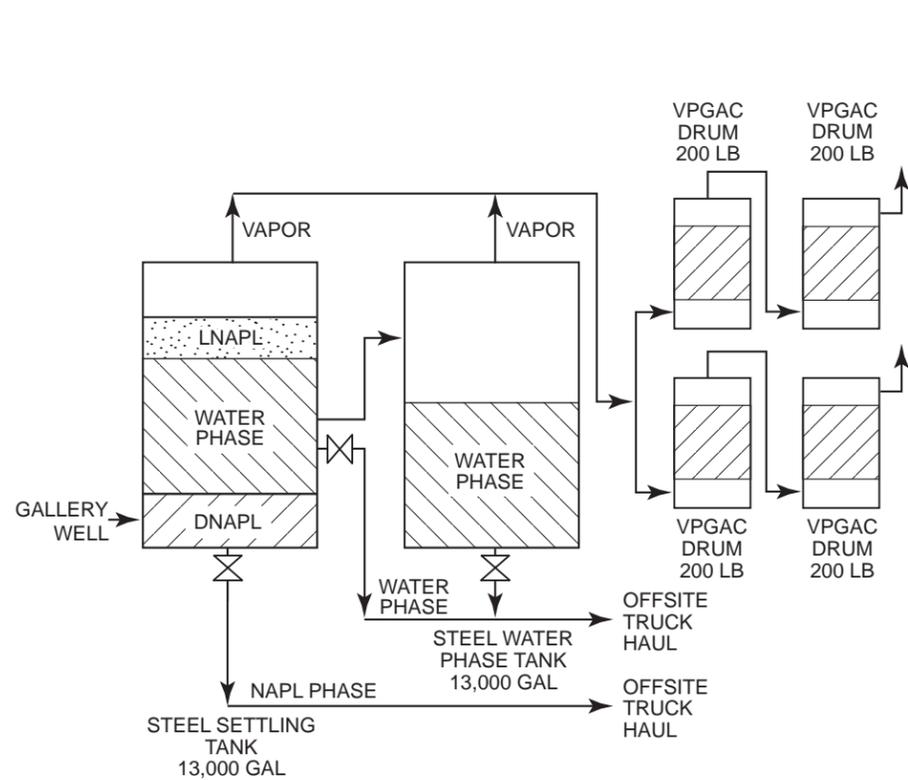




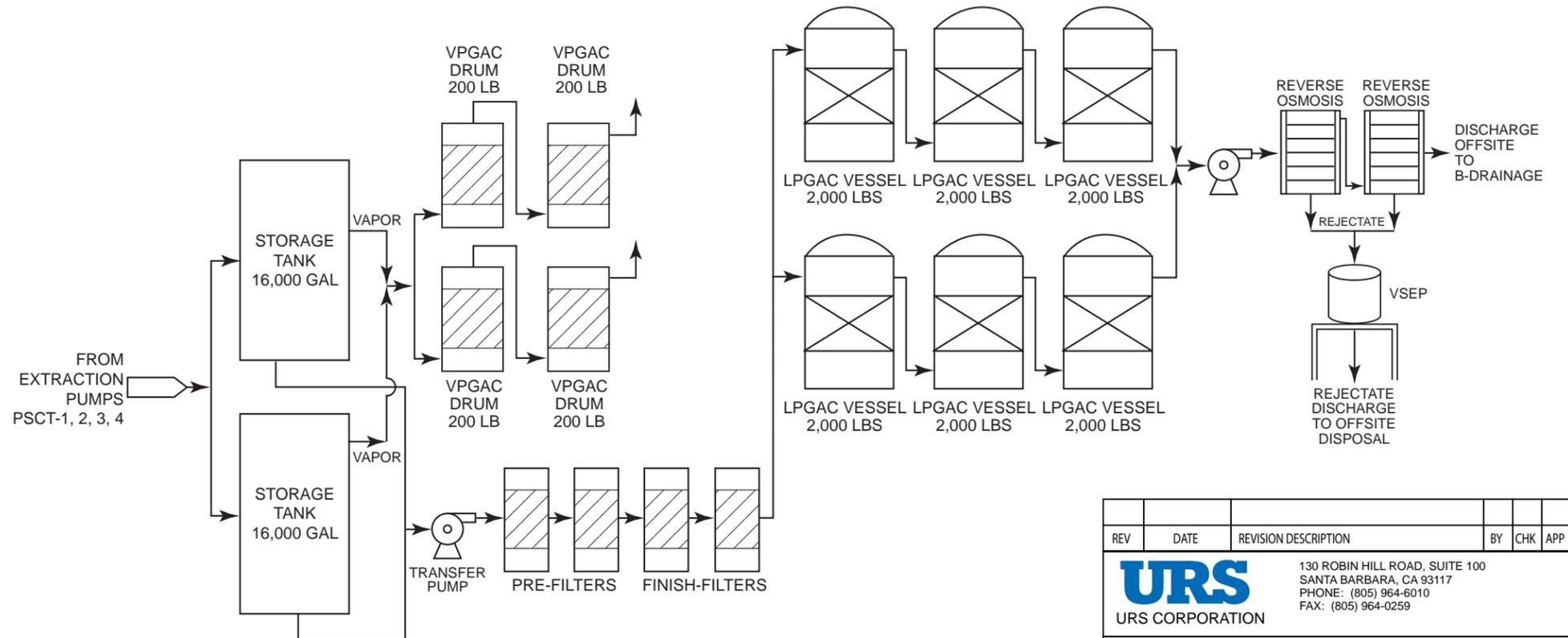
PCT-A, PCT-B, AND PCT-C PROCESS FLOW



NAPL-ONLY EXTRACTION PROCESS FLOW



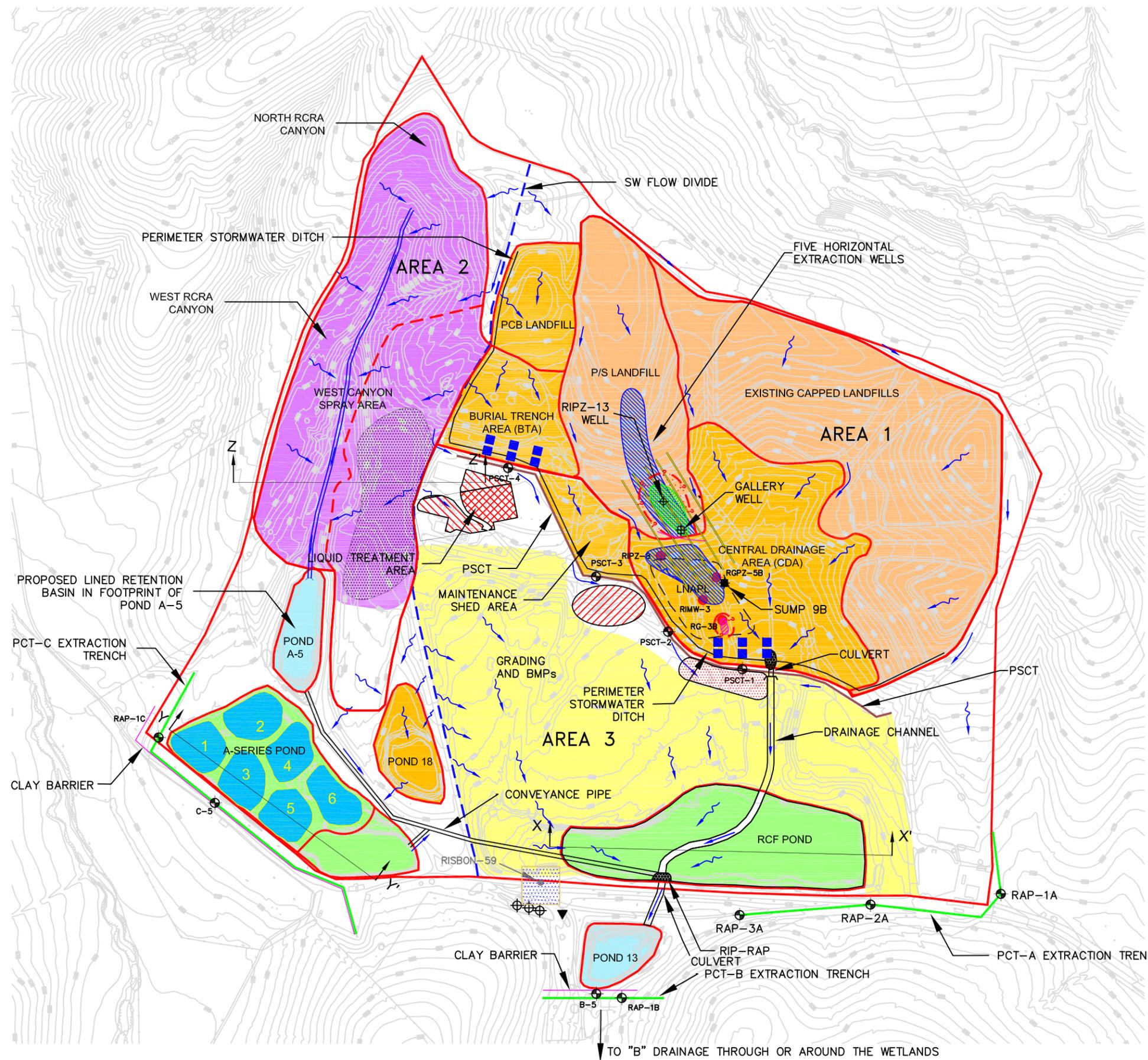
GALLERY WELL PROCESS FLOW



PSCT PROCESS FLOW

NOTE:
The treatment system for the PSCT and PCT flow were included as two separate systems in the FS cost estimate. Alternately, these two systems may be combined into one common LPGAC and RO system.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
					
130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY					
SITEWIDE ALTERNATIVE 4 PROCESS FLOW DIAGRAM					
FIGURE 12-3B					



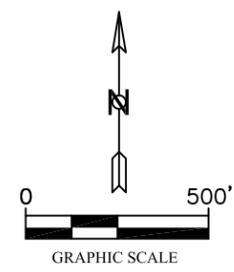
LEGEND:

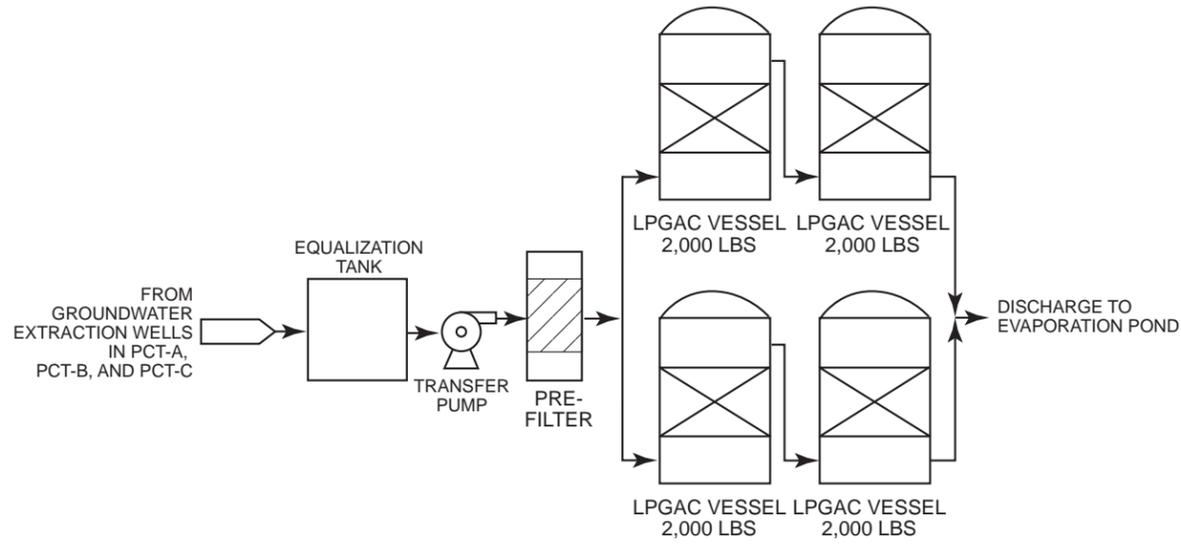
- LIMITS OF STUDY AREA (AREAS 1-4)
- PSCT TRENCH
- PCT EXTRACTION TRENCH
- CLAY BARRIER
- HORIZONTAL WELL
- EXISTING RCRA CAP
- PROPOSED RCRA CAP
- EVAPOTRANSPIRATIVE (ET) CAP AND/OR HYBRID CAP
- ECO CAP - SOIL CAP (A-SERIES, RCF POND)
- LINED RETENTION BASIN (POND A-5, POND 13)
- 5' EXCAVATION WITH ET CAP
- EXCAVATION (5') AND BACKFILL
- EXCAVATION (20') AND BACKFILL
- EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
- PROPOSED ASPHALT COVER
- UNCAPPED AREA INCLUDING GRADING AND BMPs
- EXCAVATION (50') AND BACKFILL
- LNAPL IN UPPER HSU
- DNAPL IN UPPER HSU
- DNAPL IN LOWER HSU
- EXISTING MONITORING WELL FOR LNAPL SKIMMER
- ⊕ EXISTING MONITORING WELL
- ⊕ EXISTING EXTRACTION WELL
- ⊕ PCT AND PSCT EXTRACTION WELLS
- ▼ EXISTING PIEZOMETER
- LHSU MONITORING WELL
- RIP RAP
- CHANNLED STORMWATER FLOW
- NATURAL STORMWATER FLOW
- ? - POTENTIAL EXTENT OF DNAPL IN LOWER HSU

NOTES:

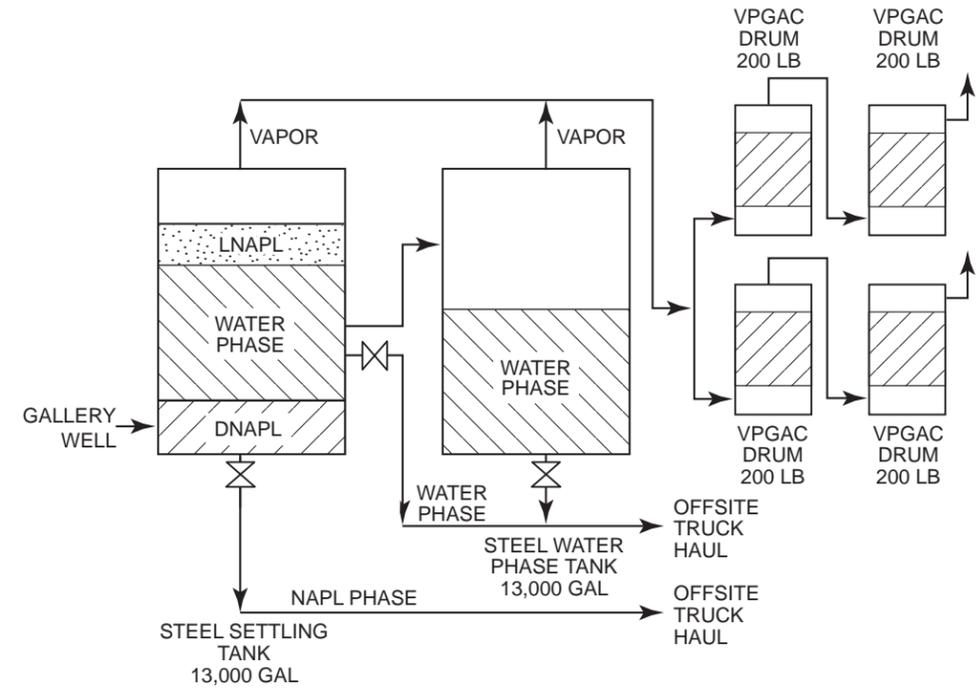
1. THE REMEDIAL ALTERNATIVE ASSUMES AN ET CAP FOR FS AREA 2, BUT THE ACTUAL CAP TYPE AND DETAILS WILL BE DETERMINED DURING REMEDIAL DESIGN. THIS REMEDIAL ALTERNATIVE ALSO INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AND AN ECO CAP AND LINED PONDS IN FS AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
2. A NEW 6-ACRE EVAPORATION POND IS PROPOSED AS SIX 1-ACRE PONDS IN THE FOOTPRINT OF THE A-SERIES POND.
3. THE TREATED PSCT AND EXTRACTED PCT GROUNDWATER IS SENT TO THE EVAPORATION POND IN THE FOOTPRINT OF A-SERIES POND.
4. RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
5. THIS REMEDIAL ALTERNATIVE FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND P/S LANDFILL DE-WATERING WITH HORIZONTAL WELLS IN THE SOUTHERN PART OF THE LANDFILL. LIQUIDS FROM DE-WATERING P/S LANDFILL ARE SENT OFFSITE FOR DISPOSAL.
6. CAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, DISCHARGED THROUGH OR AROUND THE WETLANDS AND ONTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <p>130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259</p> </div>					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
		SITESIDE REMEDIAL ALTERNATIVE #5 EVAPORATION POND + P/S LANDFILL DE-WATERING			
FIGURE 12-4A					

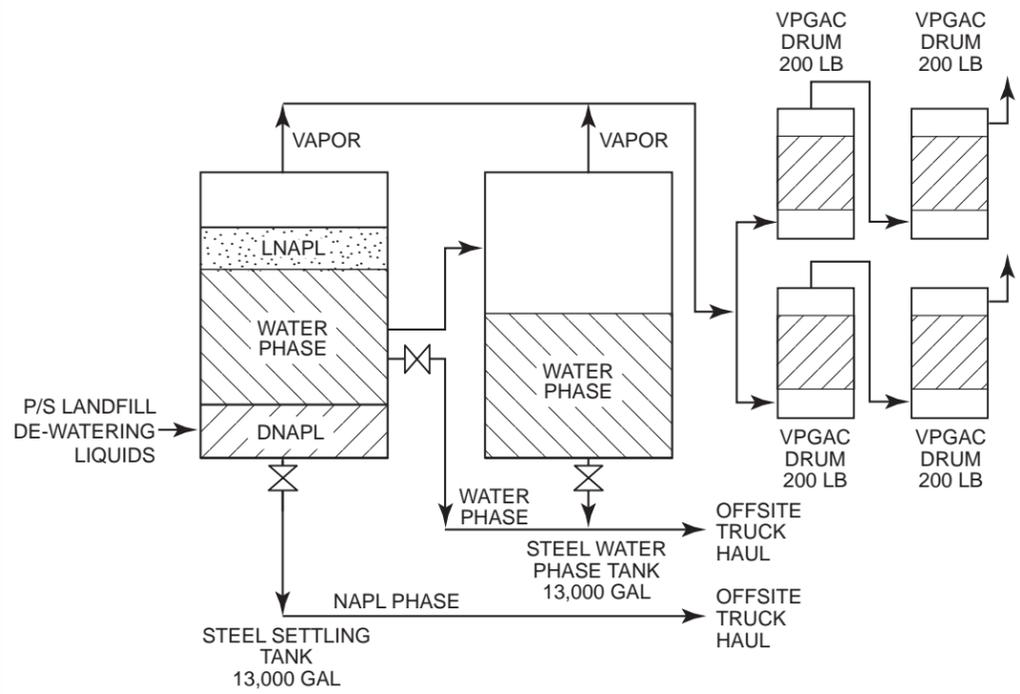




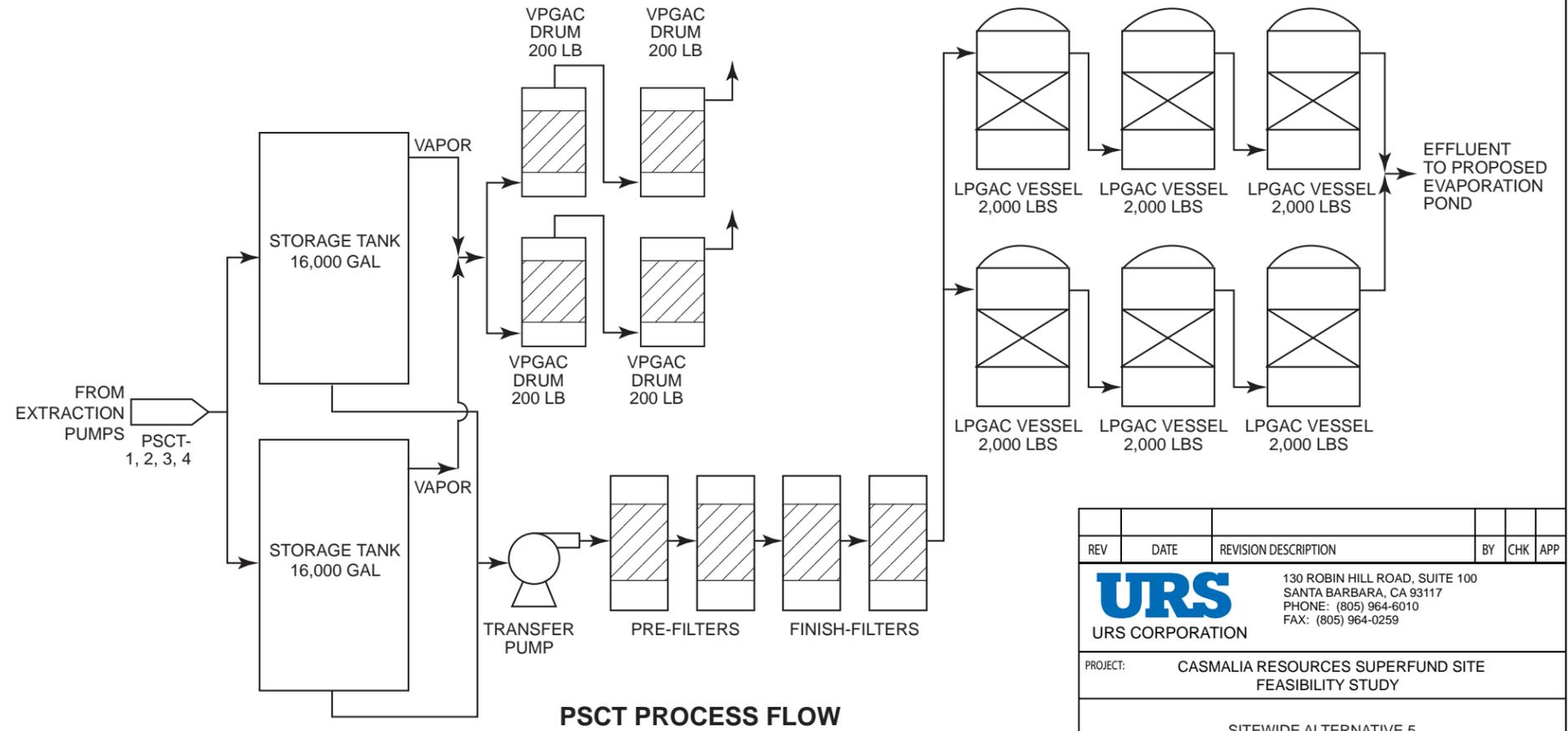
PCT-A, PCT-B, AND PCT-C PROCESS FLOW



GALLERY WELL PROCESS FLOW

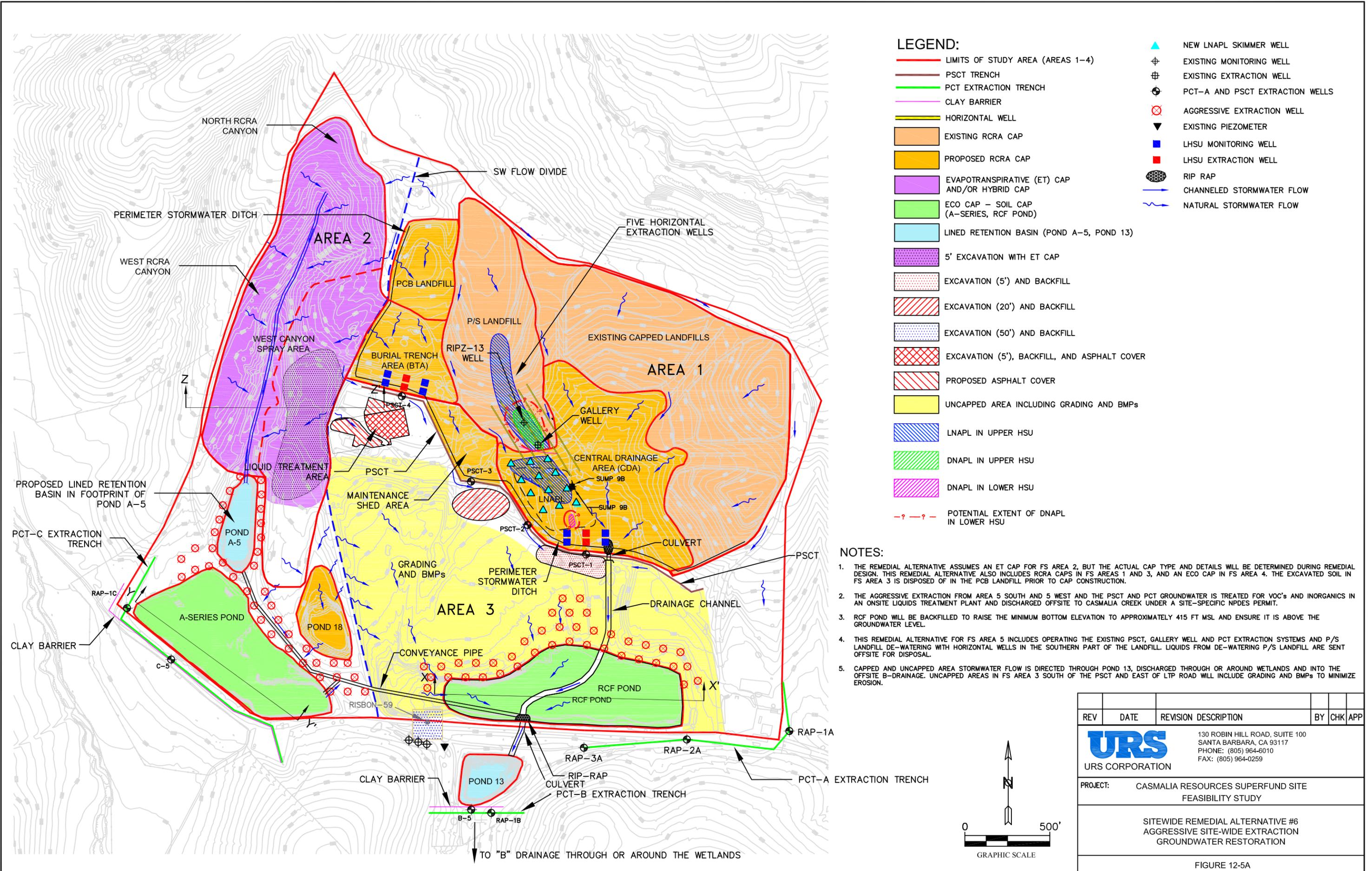


P/S LANDFILL DE-WATERING LIQUIDS PROCESS FLOW



PSCT PROCESS FLOW

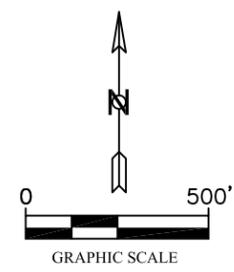
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY					
SITEWIDE ALTERNATIVE 5 PROCESS FLOW DIAGRAM					
FIGURE 12-4B					

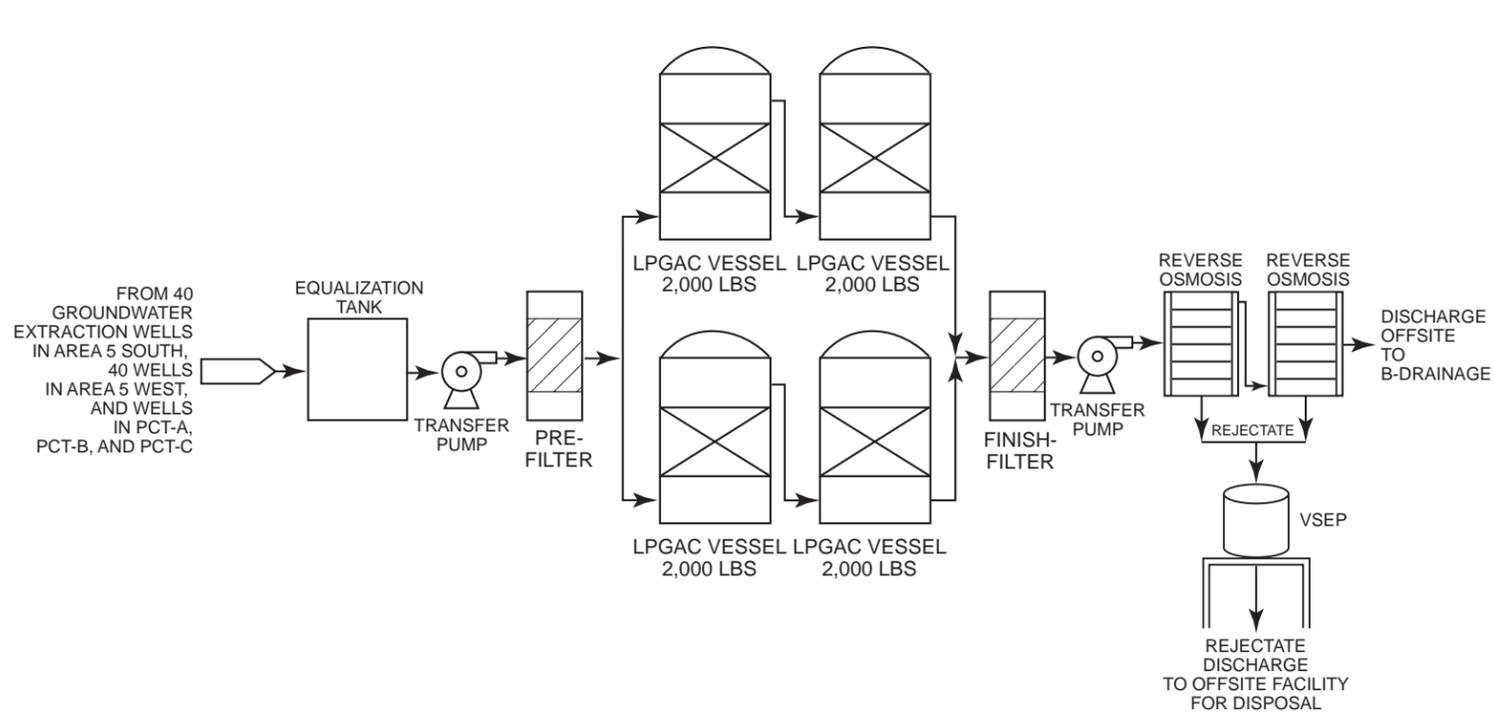


- LEGEND:**
- LIMITS OF STUDY AREA (AREAS 1-4)
 - PSCT TRENCH
 - PCT EXTRACTION TRENCH
 - CLAY BARRIER
 - HORIZONTAL WELL
 - EXISTING RCRA CAP
 - PROPOSED RCRA CAP
 - EVAPOTRANSPIRATIVE (ET) CAP AND/OR HYBRID CAP
 - ECO CAP - SOIL CAP (A-SERIES, RCF POND)
 - LINED RETENTION BASIN (POND A-5, POND 13)
 - 5' EXCAVATION WITH ET CAP
 - EXCAVATION (5') AND BACKFILL
 - EXCAVATION (20') AND BACKFILL
 - EXCAVATION (50') AND BACKFILL
 - EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
 - PROPOSED ASPHALT COVER
 - UNCAPPED AREA INCLUDING GRADING AND BMPs
 - LNAPL IN UPPER HSU
 - DNAPL IN UPPER HSU
 - DNAPL IN LOWER HSU
 - ? - ? - POTENTIAL EXTENT OF DNAPL IN LOWER HSU
 - ▲ NEW LNAPL SKIMMER WELL
 - ⊕ EXISTING MONITORING WELL
 - ⊕ EXISTING EXTRACTION WELL
 - ⊕ PCT-A AND PSCT EXTRACTION WELLS
 - ⊕ AGGRESSIVE EXTRACTION WELL
 - ▼ EXISTING PIEZOMETER
 - LHSU MONITORING WELL
 - LHSU EXTRACTION WELL
 - RIP RAP
 - CHANNЕLED STORMWATER FLOW
 - NATURAL STORMWATER FLOW

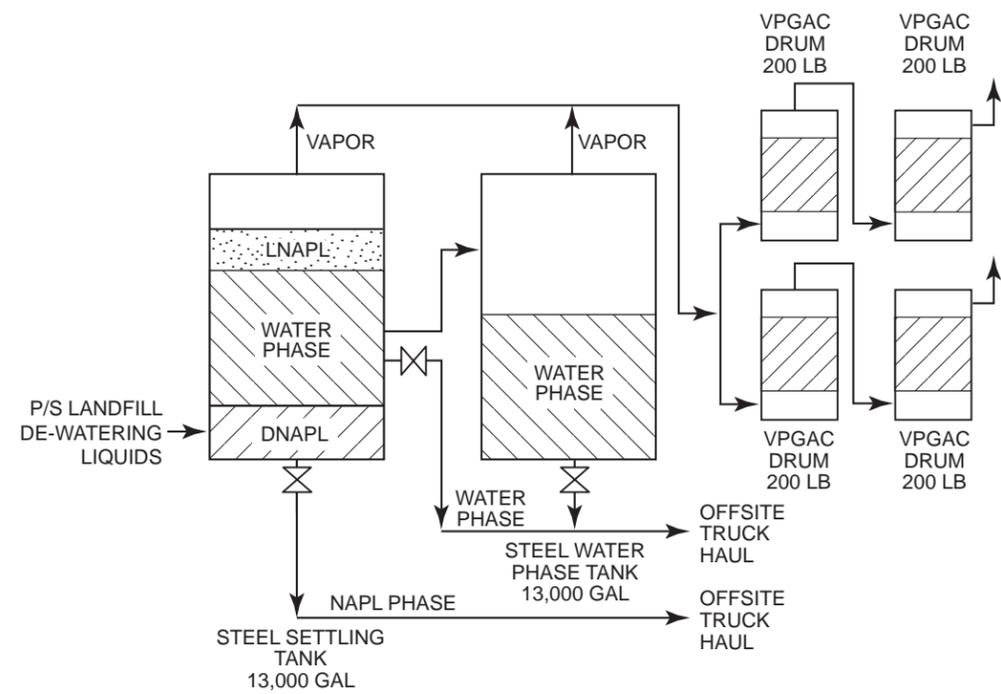
- NOTES:**
- THE REMEDIAL ALTERNATIVE ASSUMES AN ET CAP FOR FS AREA 2, BUT THE ACTUAL CAP TYPE AND DETAILS WILL BE DETERMINED DURING REMEDIAL DESIGN. THIS REMEDIAL ALTERNATIVE ALSO INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AND AN ECO CAP IN FS AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
 - THE AGGRESSIVE EXTRACTION FROM AREA 5 SOUTH AND 5 WEST AND THE PSCT AND PCT GROUNDWATER IS TREATED FOR VOC's AND INORGANICS IN AN ONSITE LIQUIDS TREATMENT PLANT AND DISCHARGED OFFSITE TO CASMALIA CREEK UNDER A SITE-SPECIFIC NPDES PERMIT.
 - RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
 - THIS REMEDIAL ALTERNATIVE FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND P/S LANDFILL DE-WATERING WITH HORIZONTAL WELLS IN THE SOUTHERN PART OF THE LANDFILL. LIQUIDS FROM DE-WATERING P/S LANDFILL ARE SENT OFFSITE FOR DISPOSAL.
 - CAPPED AND UNCAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, DISCHARGED THROUGH OR AROUND WETLANDS AND INTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
 130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
SITESIDE REMEDIAL ALTERNATIVE #6 AGGRESSIVE SITE-WIDE EXTRACTION GROUNDWATER RESTORATION					
FIGURE 12-5A					

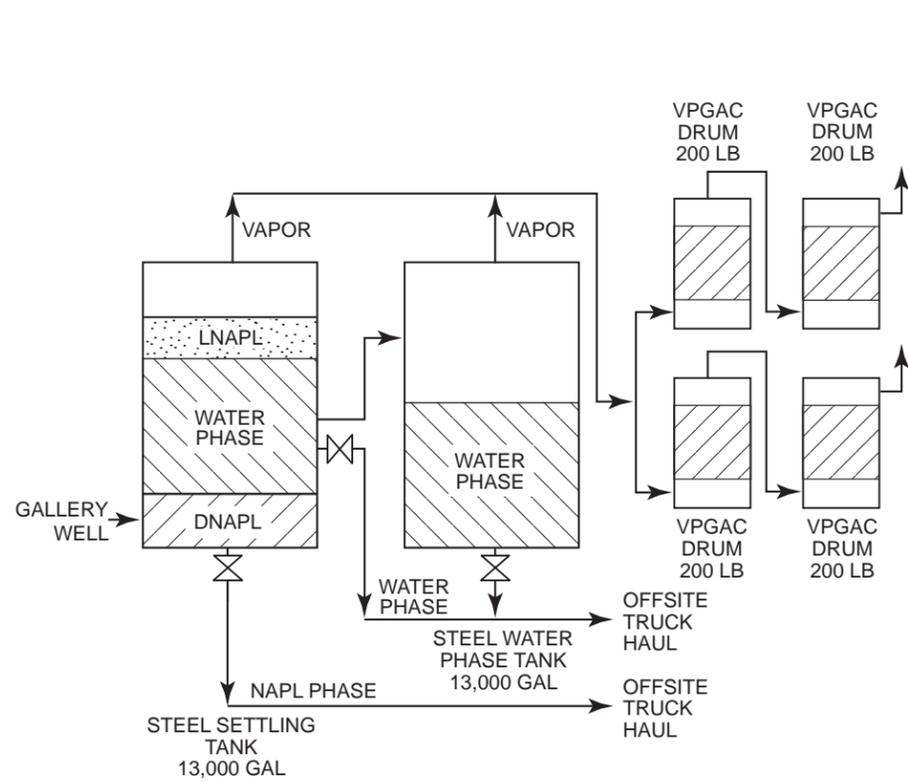




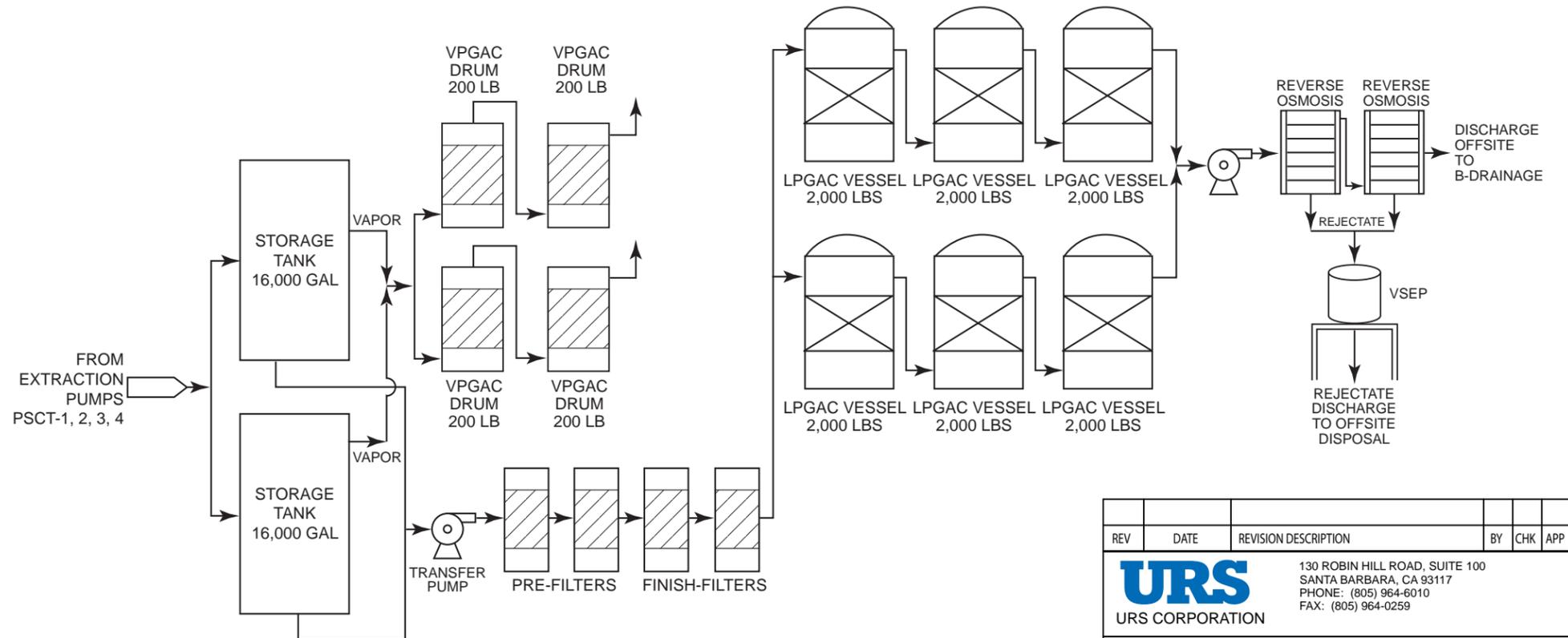
AGGRESSIVE EXTRACTION AND PCT PROCESS FLOW



P/S LANDFILL DE-WATERING LIQUIDS PROCESS FLOW



GALLERY WELL PROCESS FLOW



PSCT PROCESS FLOW

NOTE:
The treatment system for the PSCT and PCT flow were included as two separate systems in the FS cost estimate. Alternately, these two systems may be combined into one common LPGAC and RO system.

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<p>130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259</p>					
<p>PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY</p>					
<p>SITEWIDE ALTERNATIVE 6 PROCESS FLOW DIAGRAM</p>					
<p>FIGURE 12-5B</p>					

FIGURE 12-6A
COST ESTIMATE SUMMARY FOR SITEWIDE REMEDIAL ALTERNATIVES, MILLIONS (30-YEAR, 3%)
CASMALIA RESOURCES SUPERFUND SITE FINAL FEASIBILITY STUDY

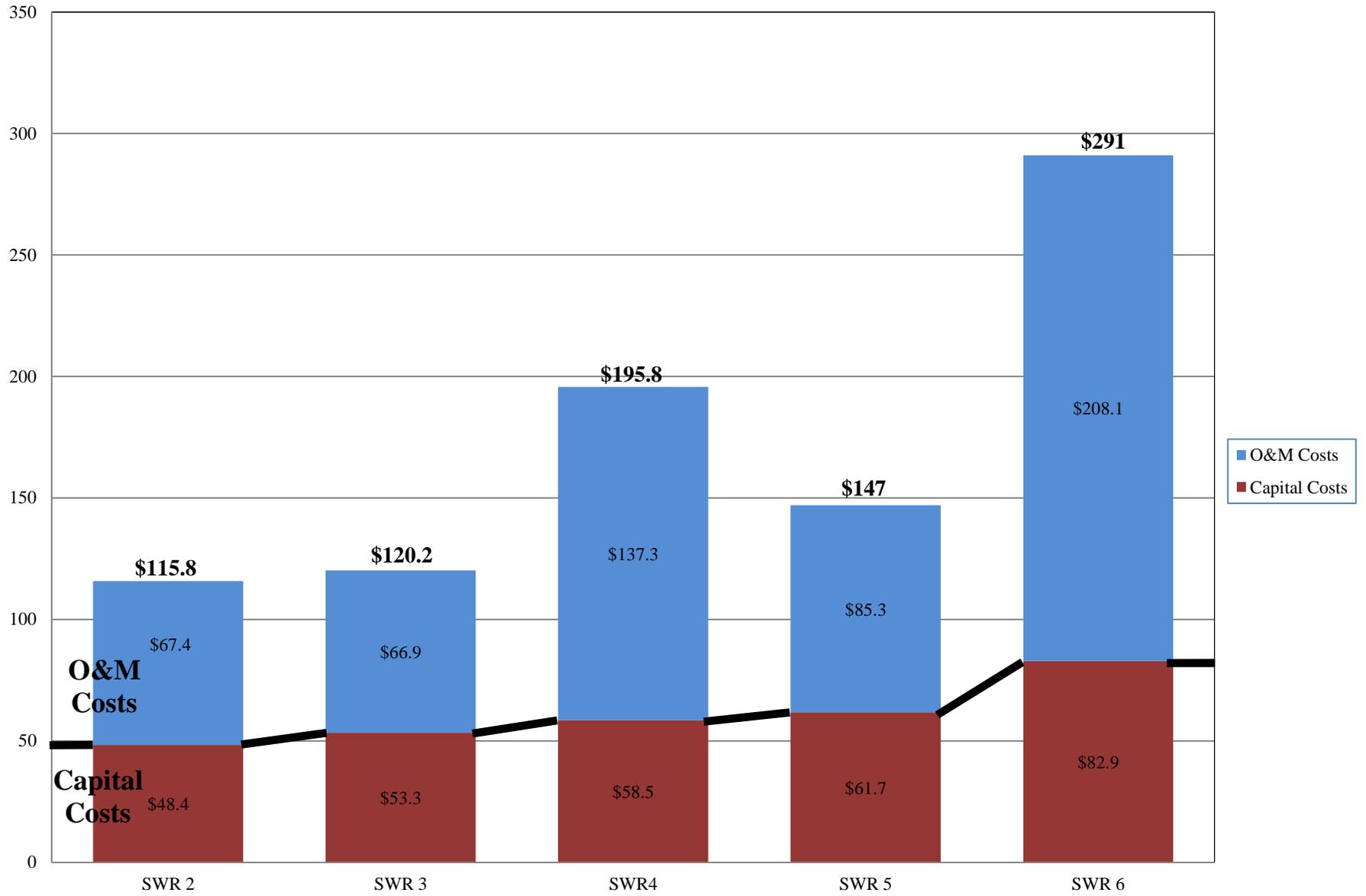
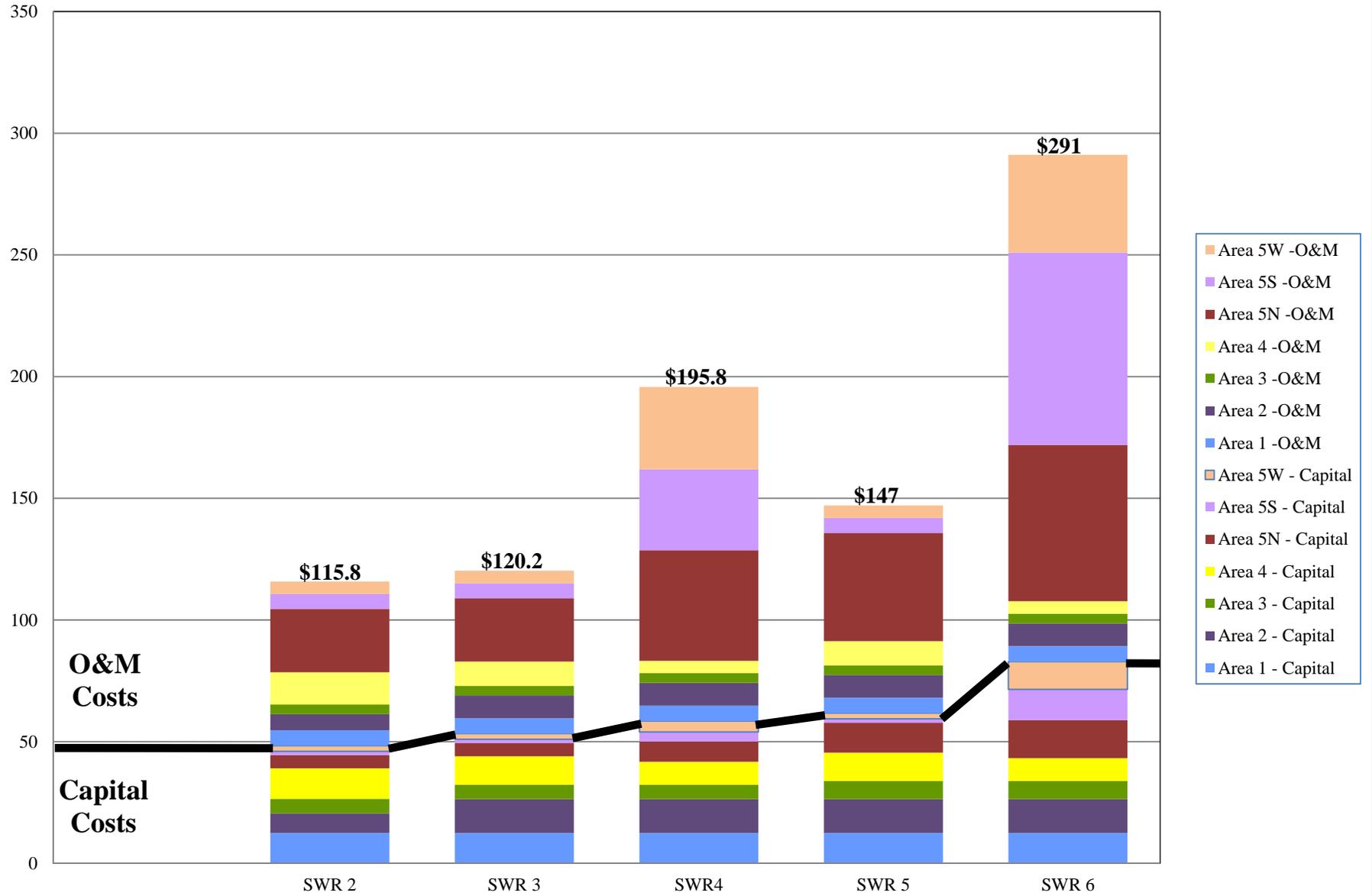
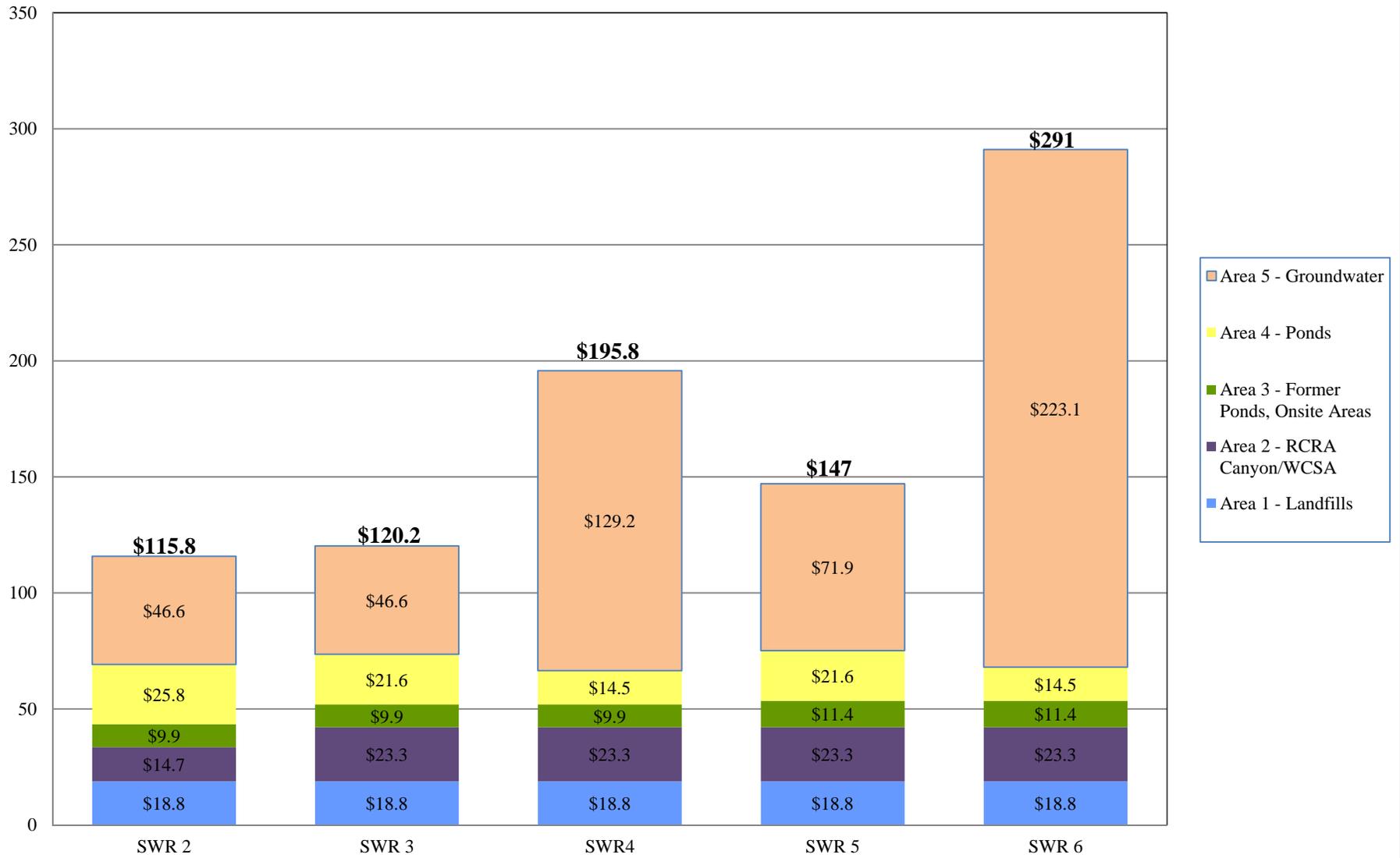
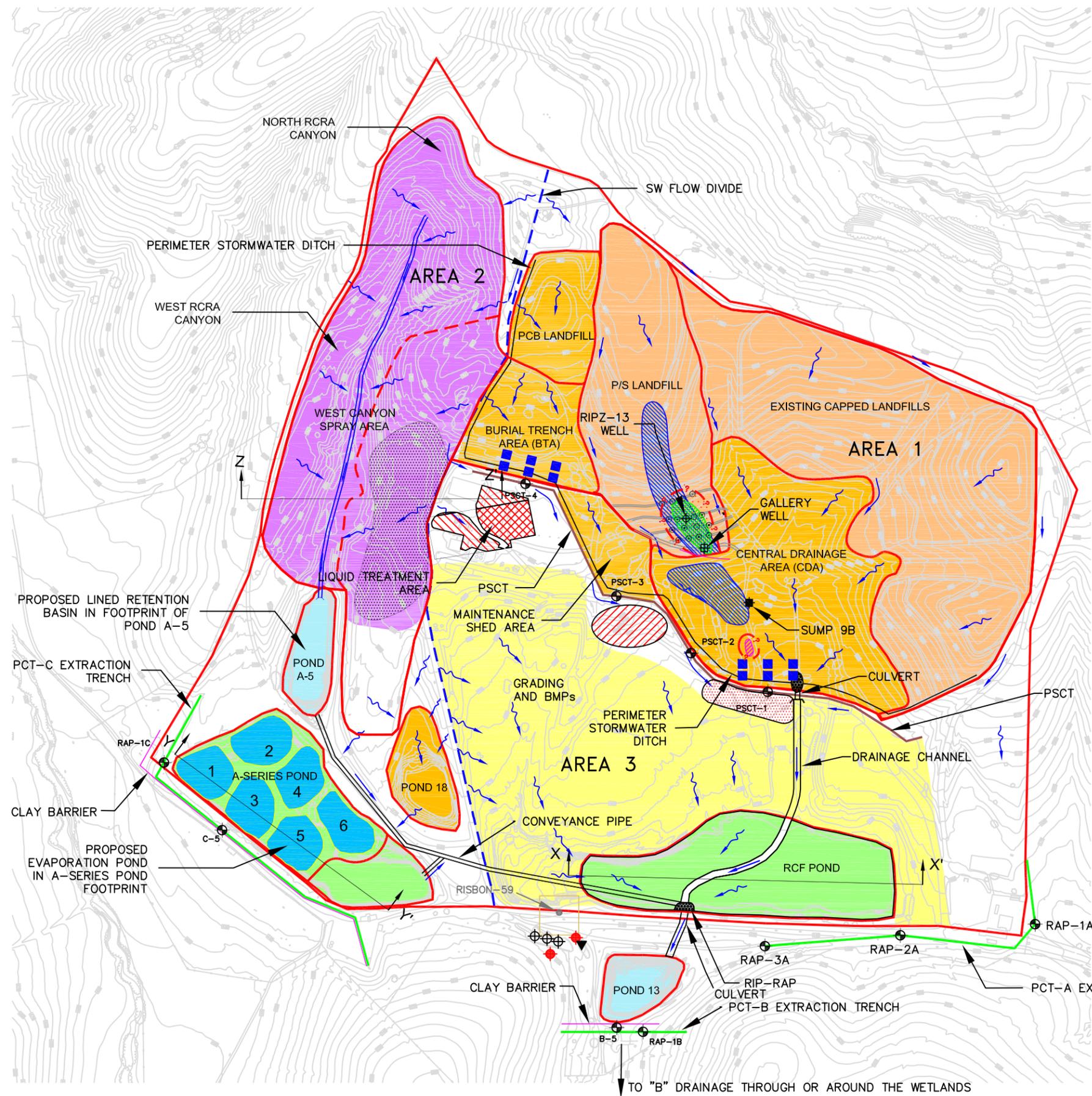


FIGURE 12-6B
COST ESTIMATE SUMMARY FOR SITEWIDE REMEDIAL ALTERNATIVES, MILLIONS (30-YEAR, 3%)
CASMALIA RESOURCES SUPERFUND SITE FINAL FEASIBILITY STUDY



**FIGURE 12-6C
 COST ESTIMATE SUMMARY FOR SITEWIDE REMEDIAL ALTERNATIVES BY AREA,
 MILLIONS (30-YEAR, 3%)
 CASMALIA RESOURCES SUPERFUND SITE FINAL FEASIBILITY STUDY**





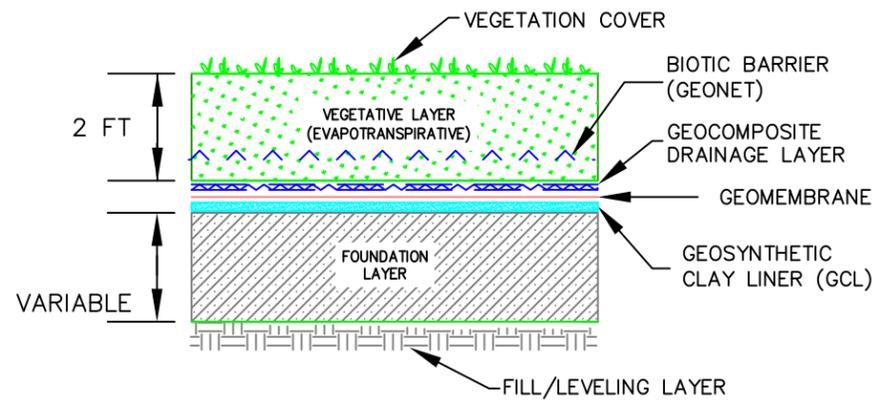
LEGEND:

- LIMITS OF STUDY AREA (AREAS 1-4)
- PSCT TRENCH
- PCT EXTRACTION TRENCH
- CLAY BARRIER
- EXISTING RCRA CAP
- PROPOSED RCRA CAP
- EVAPOTRANSPIRATIVE (ET) CAP AND/OR HYBRID CAP
- ECO CAP - SOIL CAP (RCF POND)
- LINED EVAPORATION POND (A-SERIES POND)
- LINED RETENTION BASIN (POND A-5, POND 13)
- 5' EXCAVATION WITH ET CAP
- EXCAVATION (5') AND BACKFILL
- EXCAVATION (20') AND BACKFILL
- EXCAVATION (5'), BACKFILL, AND ASPHALT COVER
- PROPOSED ASPHALT COVER
- UNCAPPED AREA INCLUDING GRADING AND BMPs
- LNAPL IN UPPER HSU
- DNAPL IN UPPER HSU
- DNAPL IN LOWER HSU
- - - POTENTIAL EXTENT OF DNAPL IN LOWER HSU
- ⊕ EXISTING MONITORING WELL
- ⊕ EXISTING EXTRACTION WELL
- ⊕ PCT AND PSCT EXTRACTION WELLS
- ⊕ NAPL-ONLY EXTRACTION WELL
- ▼ EXISTING PIEZOMETER
- ⊕ PROPOSED UPPER HSU MONITORING WELL
- ⊕ LHSU MONITORING WELL
- ⊕ RIP RAP
- CHANNЕLED STORMWATER FLOW
- NATURAL STORMWATER FLOW

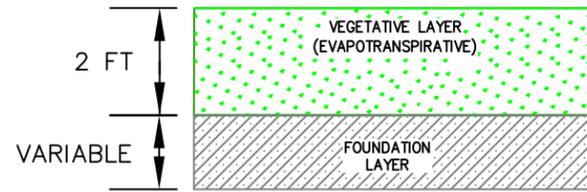
NOTES:

1. THE TOP RANKED REMEDY ASSUMES AN ET CAP FOR FS AREA 2, BUT THE ACTUAL CAP TYPE AND DETAILS WILL BE DETERMINED DURING REMEDIAL DESIGN. THIS REMEDIAL ALTERNATIVE ALSO INCLUDES RCRA CAPS IN FS AREAS 1 AND 3, AND AN ECO CAP AND LINED PONDS IN FS AREA 4. THE EXCAVATED SOIL IN FS AREA 3 IS DISPOSED OF IN THE PCB LANDFILL PRIOR TO CAP CONSTRUCTION.
2. A NEW 6-ACRE EVAPORATION POND IS PROPOSED AS SIX 1-ACRE PONDS IN THE FOOTPRINT OF THE A-SERIES POND.
3. THE TREATED PSCT AND EXTRACTED PCT GROUNDWATER IS SENT TO THE EVAPORATION POND IN THE FOOTPRINT OF A-SERIES POND.
4. RCF POND WILL BE BACKFILLED TO RAISE THE MINIMUM BOTTOM ELEVATION TO APPROXIMATELY 415 FT MSL AND ENSURE IT IS ABOVE THE GROUNDWATER LEVEL.
5. THIS TOP RANKED REMEDY FOR FS AREA 5 INCLUDES OPERATING THE EXISTING PSCT, GALLERY WELL AND PCT EXTRACTION SYSTEMS AND DNAPL/LNAPL-ONLY EXTRACTION FROM 16 WELLS IN THE SOUTHERN PART OF THE P/S LANDFILL.
6. CAPPED AREA STORMWATER FLOW IS DIRECTED THROUGH POND 13, DISCHARGED THROUGH OR AROUND THE WETLANDS AND ONTO THE OFFSITE B-DRAINAGE. UNCAPPED AREAS IN FS AREA 3 SOUTH OF THE PSCT AND EAST OF LTP ROAD WILL INCLUDE GRADING AND BMPs TO MINIMIZE EROSION.

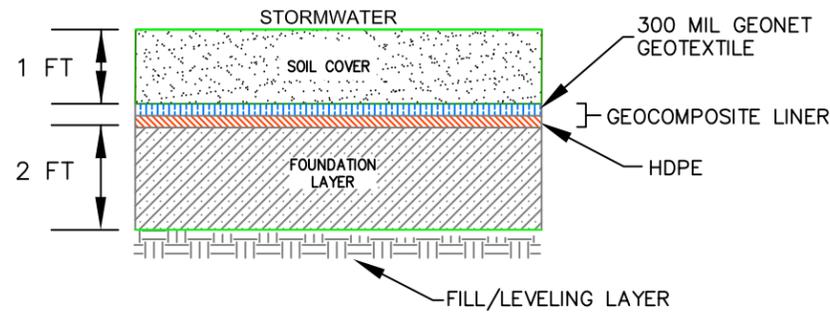
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
TOP RANKED SITEWIDE REMEDY MAP, SWR #3					
FIGURE 12-7A					



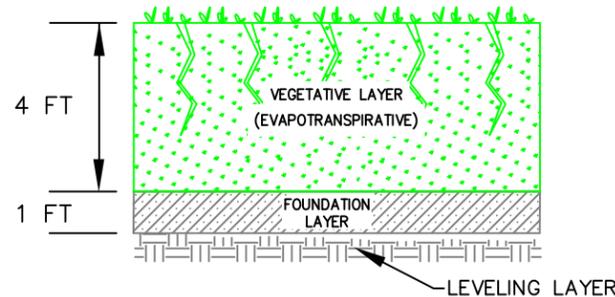
DETAIL A - TYPICAL RCRA CAP SECTION
NOT TO SCALE



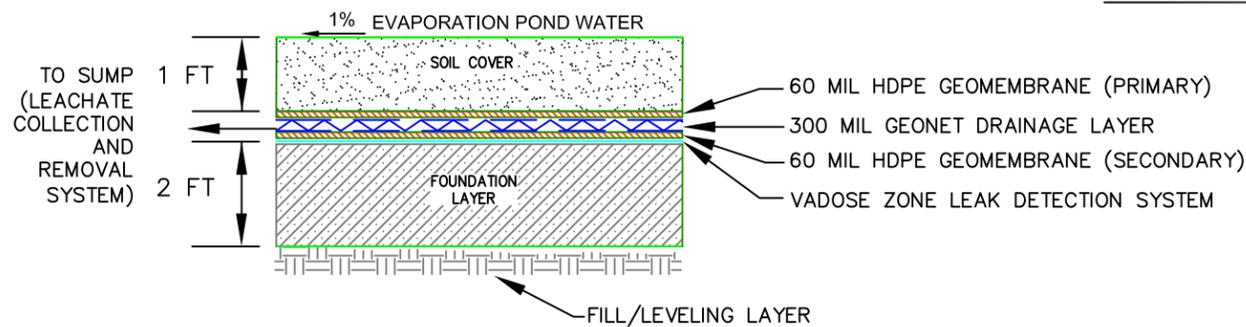
DETAIL D - TYPICAL ECO-CAP - SOIL CAP
NOT TO SCALE



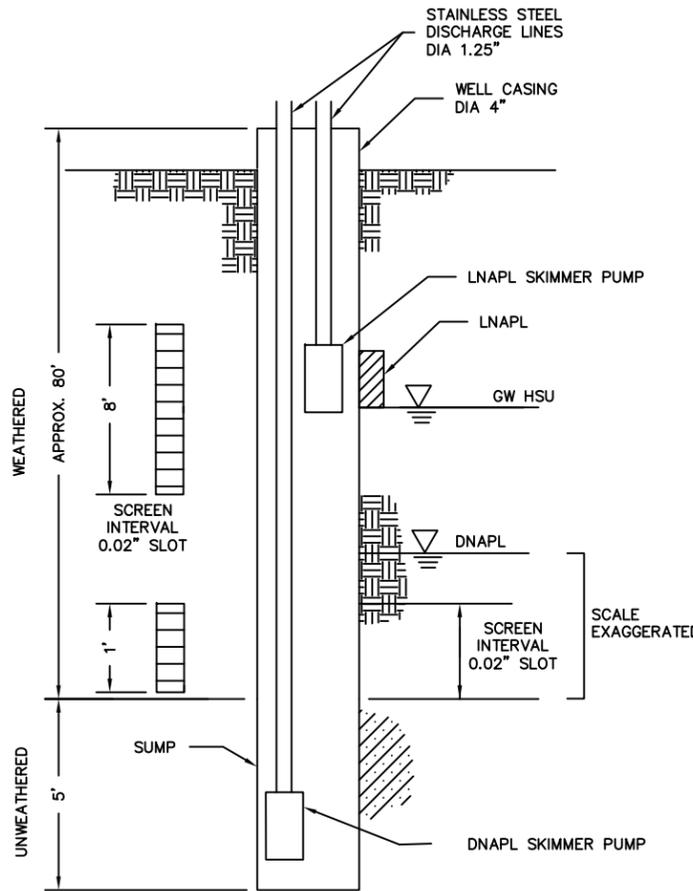
DETAIL B - LINED CAP FOR RETENTION BASIN
NOT TO SCALE



DETAIL C - TYPICAL EVAPOTRANSPIRATIVE (ET) CAP SECTION
NOT TO SCALE



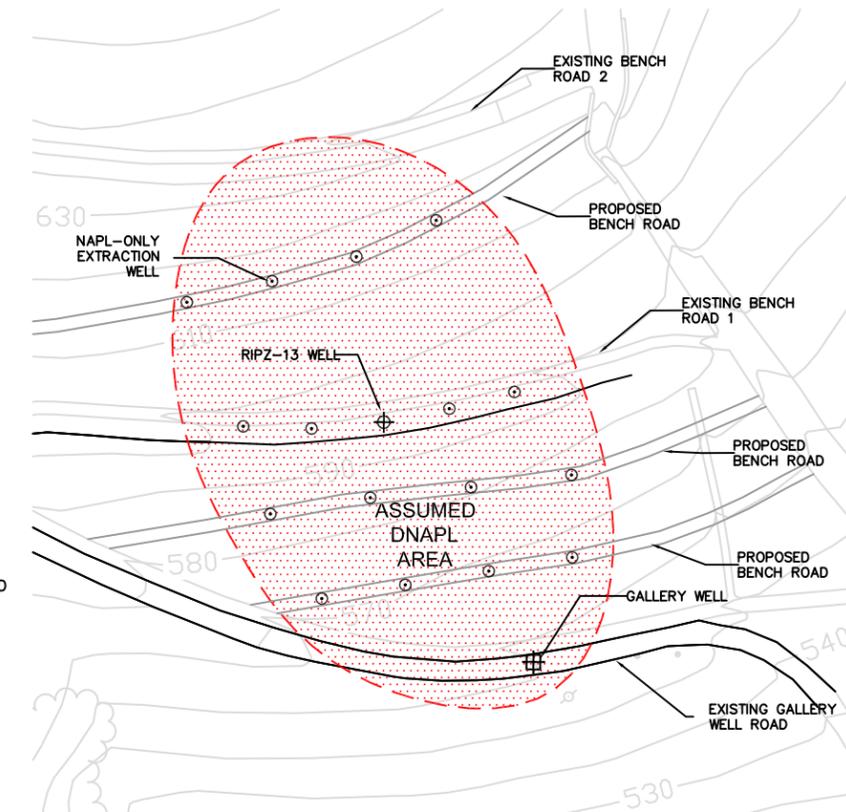
DETAIL E - TYPICAL RCRA EVAPORATION POND SECTION
NOT TO SCALE



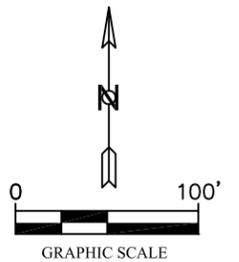
NAPL-ONLY EXTRACTION WELL IN UPPER HSU
NOT TO SCALE

LEGEND:

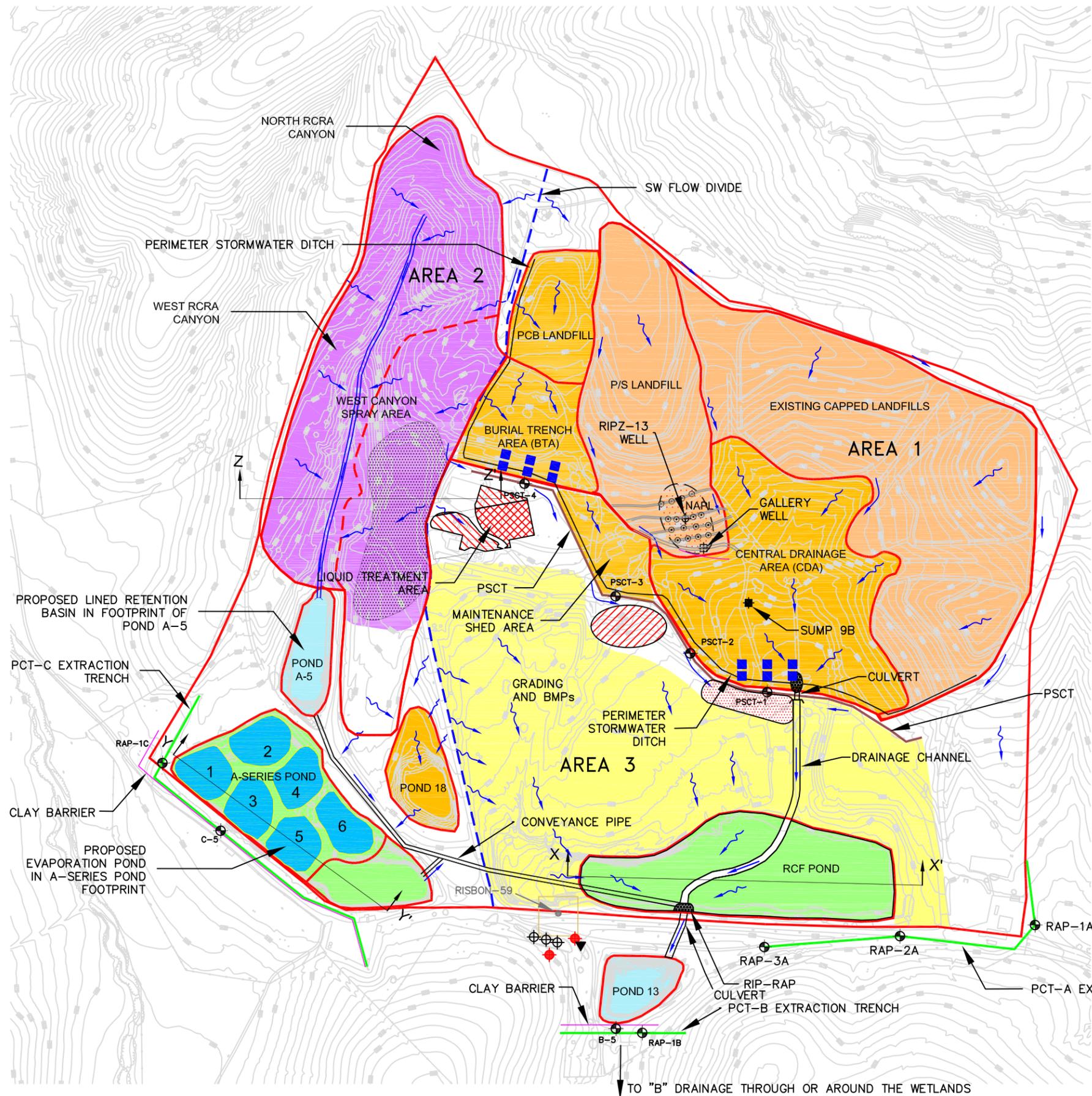
- NAPL EXTRACTION AREA
- EXISTING EXTRACTION WELL
- NAPL-ONLY EXTRACTION WELL (16 WELLS)
- PROPOSED BENCH ROAD



SOUTHERN PORTION OF P/S LANDFILL
NAPL ONLY EXTRACTION IN UPPER HSU



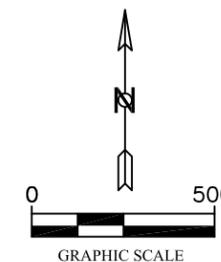
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
URS CORPORATION 130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259					
PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY					
TOP RANKED SITEWIDE REMEDY MAP CAP SECTION DETAILS SWR #3					
FIGURE 12-7B					

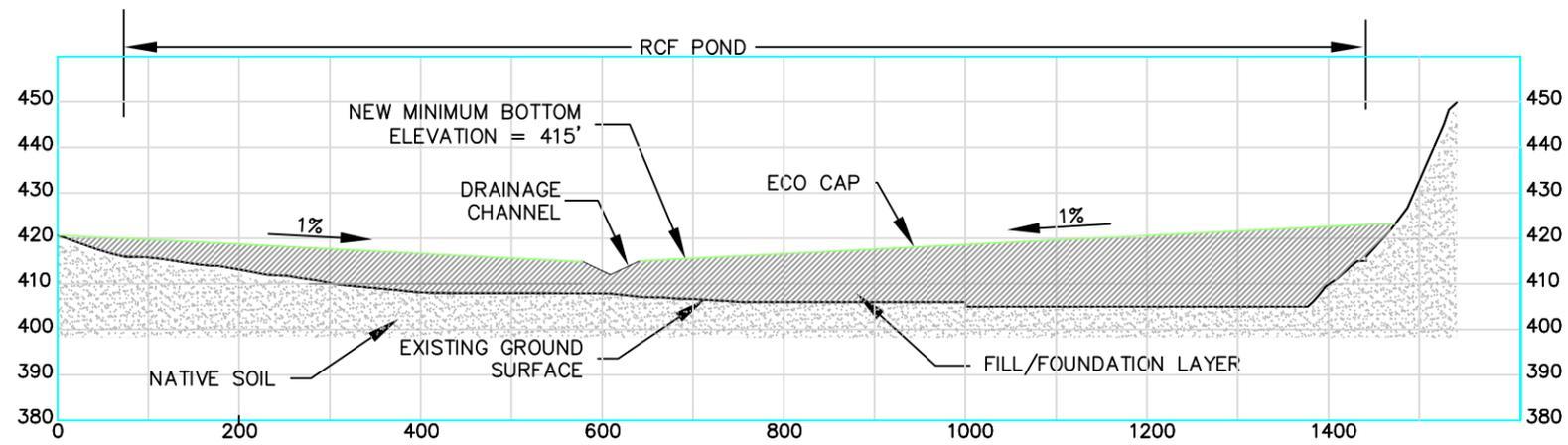


FS Area	Description	Stormwater Plan	
1	PCB Landfill, BTA, CDA and Capped Landfills	Stormwater runoff from the capped portions of the site North of the PSCT but east of the stormwater divide which as shown on the figure is the road up to the LTP (which include the PCB Landfill, the Burial Trench Area, the Maintenance Shed Area, the P/S Landfill, and the EE/CA Area) will sheet flow to a culvert east of PSCT1 and flow through a concrete drainage channel to the southern end of the site. As currently proposed, the stormwater will gravity flow under the existing RCF Road through a culvert into a retention basin constructed in the footprint of Pond 13. From this retention basin the stormwater will flow offsite to the B Drainage through or around the wetlands as permitted by the Site's General Permit.	
2	RCRA Canyon/WCSA	Stormwater runoff from portions of the RCRA Canyon/WCSA will drain to a combined concrete drainage channel at the bottom of the canyon to the proposed retention basin in the footprint of Pond A-5. The stormwater will be collected and held in this retention basin during rain events. As the runoff from the east side of the site subsides, the collected stormwater runoff will be released to gravity flow through a new pipeline under the road to the LTP to the lined retention basin we will construct in the footprint of Pond 13 and then discharged offsite through or around the wetlands to the B-Drainage. The GW Flow Model projects that adding an evapotranspirative cap over the RCRA Canyon/WCSA will lower the groundwater level in the canyon significantly, so no seeps are expected to occur that could impact the stormwater's concentration of inorganics.	
3	Former Ponds and Pads, (South of PSCT), Remaining Onsite Areas, includes MSA	Capped Areas	Stormwater runoff from the capped portions of the site in FS Area 3 are directed by perimeter drains towards a concrete drainage channel south of PSCT-1 commingling with stormwater from FS Area 1. The stormwater is proposed to gravity flow under the existing RCF Road through a culvert into a lined retention basin constructed in the footprint of Pond 13. From this retention basin the stormwater will flow offsite to the B Drainage through or around the wetlands as permitted by the Site's General Permit.
		Uncapped Areas Grading and BMPs	Stormwater runoff from the uncapped portions of the site south of the PSCT but east of the stormwater divide will sheet flow to the same culvert that runs under the RCF Road and will also flow into the lined retention basin constructed in the footprint of Pond 13. The stormwater will flow offsite to the B Drainage through or around the wetlands as permitted by the Site's General Permit. Please note that the uncapped portions of the site south of the PSCT are being graded and stormwater BMPs included to ensure that the stormwater satisfies the requirements of the General Permit.
4	Stormwater Ponds and Treated Liquid Impoundments	A-Series Pond	This pond is proposed to be broken out into six 1-acre evaporation ponds. Before construction, the water in the pond will be managed as discussed in the FS Report. The portion of the pond to receive an eco-cap will drain to Pond 13 through the RCF Pond.
		RCF Pond, Pond A-5, Pond 13	The clean stormwater from the capped areas onsite are directed through drainage channels through the RCF Pond, Pond A-5 to Pond 13 and to the wetlands before going offsite to the B-drainage under the General NPDES permit. The stormwater that falls on the ecocap in the RCF Pond will sheet flow to the culvert under RCF Road and commingle with other capped stormwater and will be discharged to the B-drainage through or around the wetlands. Ponds A-5 and 13 are raised to ensure no groundwater intrusion occurs and are lined to serve as retention basins for stormwater.

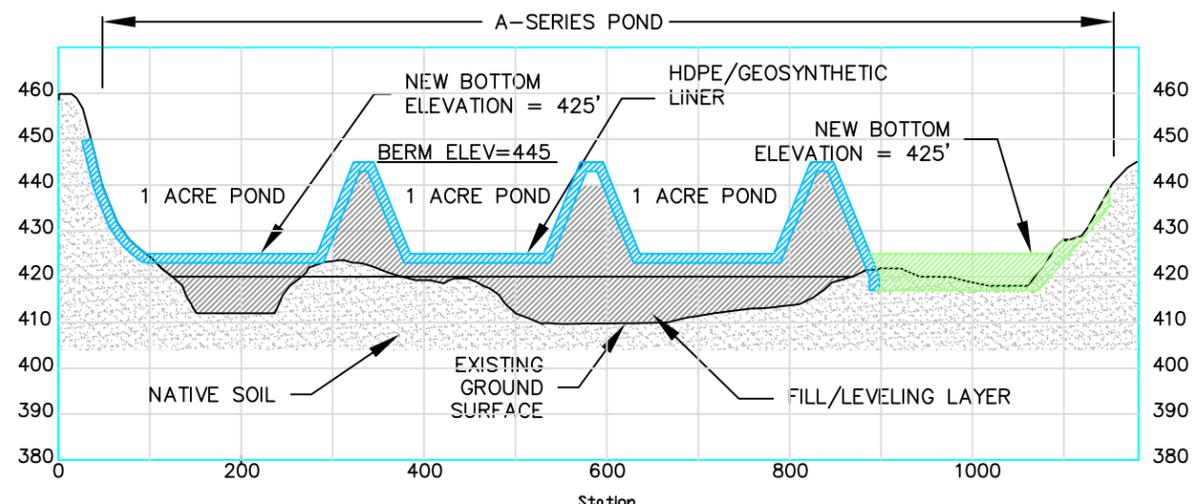
NOTE: SEE FIGURE 12-7A FOR COMPLETE LEGEND

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
		130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259			
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
		STORMWATER PLAN SWR #3			
		FIGURE 12-7C			

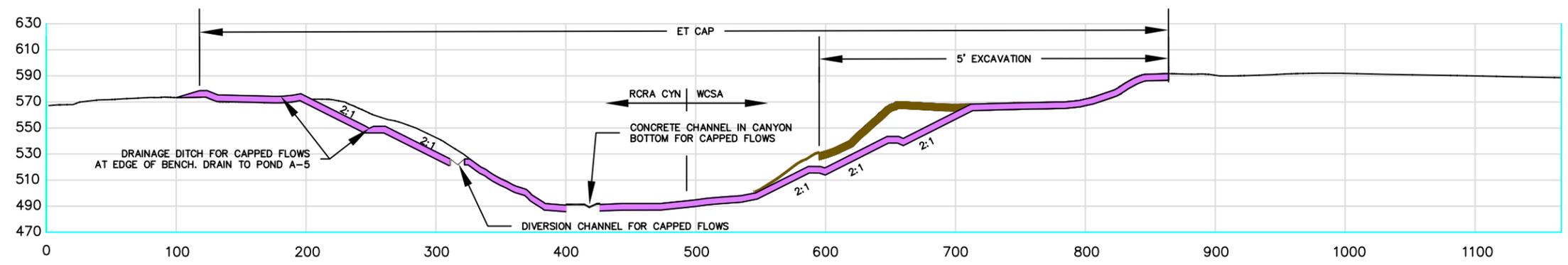




SECTION X-X'
1"=200' HORIZ; 1"=40' VERT

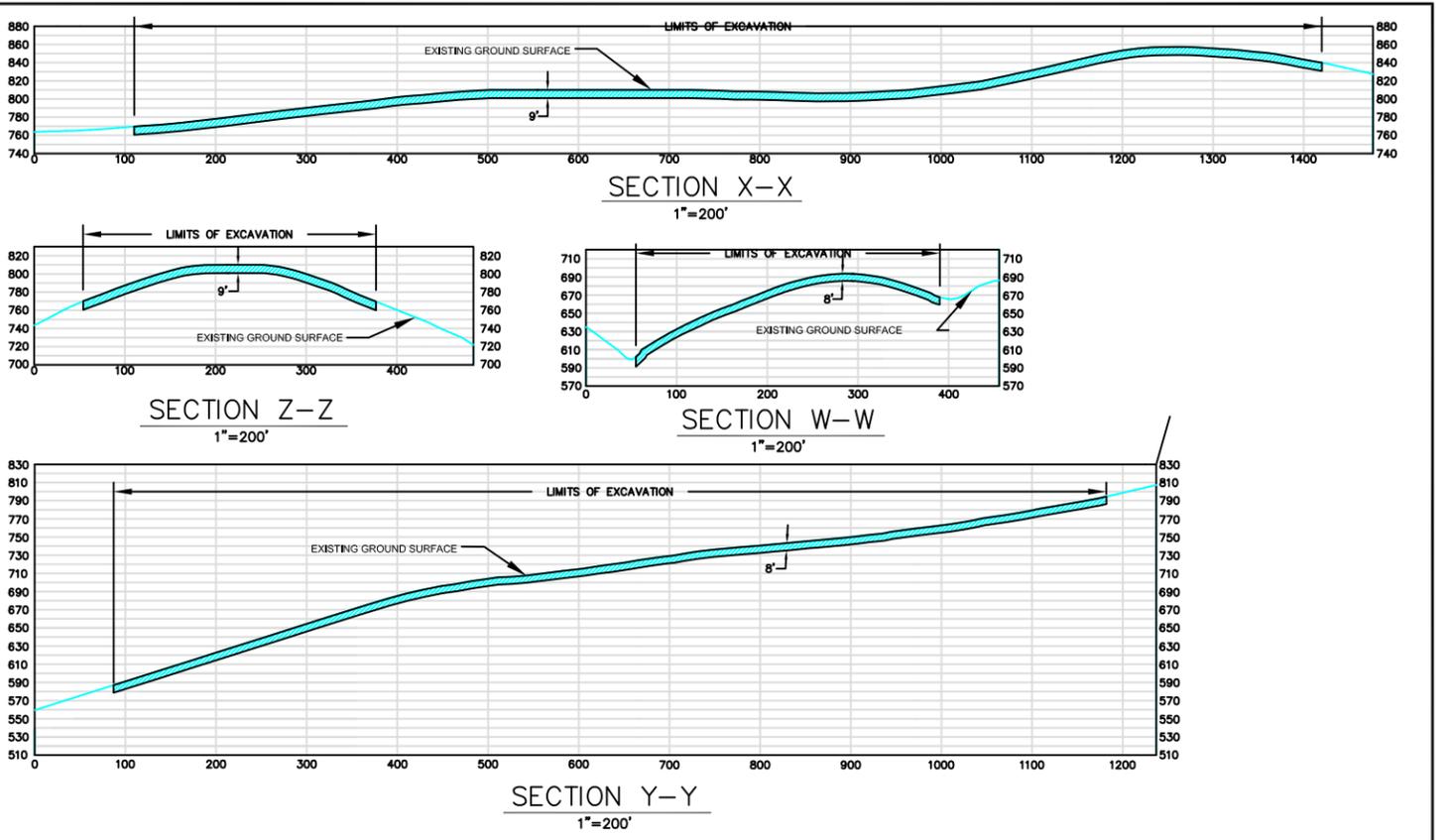
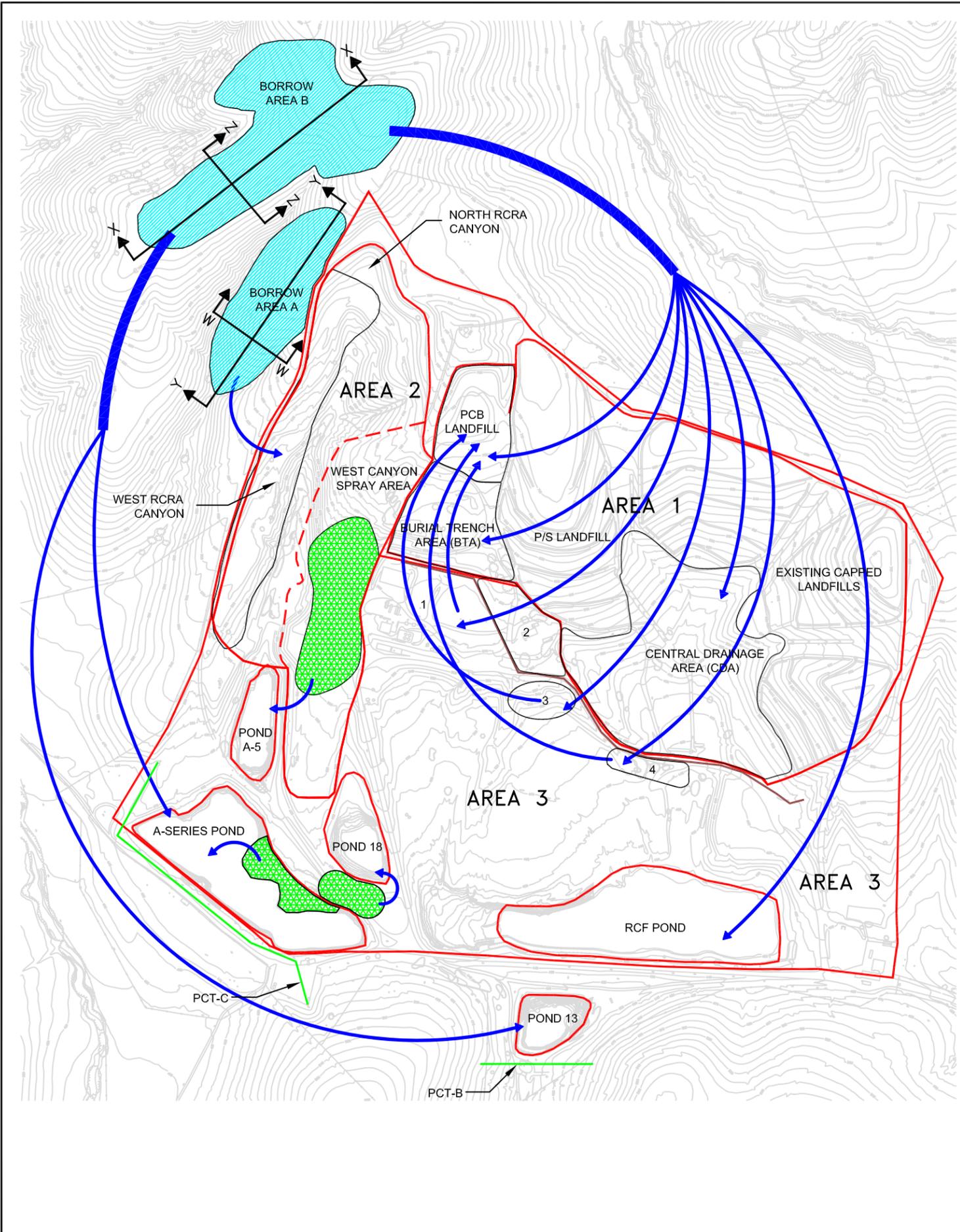


SECTION Y-Y'
1"=200' HORIZ; 1"=40' VERT



SECTION Z-Z'
1"=100'

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
 130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259 URS CORPORATION					
PROJECT: CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY					
RCF POND, A-SERIES POND, RCRA CYN CROSS SECTIONS SWR #3					
FIGURE 12-7D					

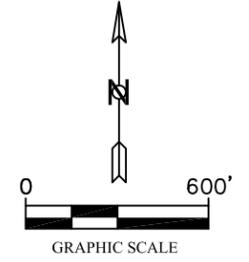


Soil Borrow Areas and Volumes				
No.	FS Area #	Location	Volume CY	Borrow Source
1	FS Area 1	PCB Landfill - Cap	32,000	Offsite Area B for cap
		BTA - Cap	38,000	Offsite Area B for cap
		CDA + Cap	134,000	Offsite Area B for cap
2	FS Area 2	RCRA Canyon and WCSA - Grading	(200,000)	Note 1
		WCSA - Excavation	(44,700)	Onsite Borrow - Pond A-5
		ET Cap (4' Veg Layer, 1' Foundation)	295,000	Offsite Area A
3	FS Area 3	Location 1 - LTA - Excavation	8,800	Offsite Area B for backfill - Waste to PCB Landfill
		Location 2 - MSA - Cap	18,400	Offsite Area B
		Location 3 - Ponds A/B - Excavation	20,600	Offsite Area B for backfill - Waste to PCB Landfill
		Location 4 - Excavation	7,800	Offsite Area B for cap
4	FS Area 4	A-Series Pond - Fill Bottom	(48,000)	NE shoreline of A-Series Pond - Onsite Borrow
		Additional Fill	37,000	Offsite Area B
		A-Series Pond - 6 ponds, berm	45,800	Offsite Area B
		A-Series - Portion of Eco-Cap	18,000	Offsite Area B
		RCF Pond - Fill Bottom	95,000	Offsite Area B
		RCF Pond - Eco-cap	40,000	Offsite Area B
		Pond A-5 - Fill Bottom	(49,000)	WCSA Excavation - Onsite Borrow
		Pond 18 - Berm Excavation	(18,000)	Adjacent berm excavation - Onsite Borrow
		Pond 18 - Vegetative Cover	10,000	Offsite Area B
		Pond 13 - Fill Bottom, Foundation, Soil Cover	16,500	Offsite Area B
5	FS Area 5S	PCT-B	500	Offsite Area B
	SW	PCT-C	800	Offsite Area B
		Offsite Borrow Areas A and B	818,200	
		Onsite Borrow Areas	(159,700)	

- NOTES:
1. ADDITIONAL SOIL VOLUME UP TO 200,000 CY MAY BE AVAILABLE FROM RCRA CANYON CUT/FILL GRADING FOR USE AS ONSITE BORROW.
 2. BORROW SOIL REQUIREMENT AND ASSOCIATED CUTS NEEDED FROM THESE BORROW AREAS WOULD BE SMALLER IF OTHER OFFSITE CLAY IS REQUIRED TO AMEND THE SOIL TO MEET CAP SPECIFICATIONS. LIMIT OF SOIL EXPORTED TO THE PCB LANDFILL IS 140,000 CUBIC YARDS.

LEGEND:

- LIMITS OF STUDY AREA (AREAS 1-5)
- PSCT TRENCH
- PCT EXTRACTION TRENCH
- OFFSITE BORROW AREA A (7.0 ACRES—APPROXIMATELY 10,000 CUBIC YARDS OF SOIL PER 1 FT EXCAVATION), BORROW AREA B (15.2 ACRES—APPROXIMATELY 25,000 CUBIC YARDS OF SOIL PER 1 FT EXCAVATION)
- ONSITE BORROW AREAS



REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> 130 ROBIN HILL ROAD, SUITE 100 SANTA BARBARA, CA 93117 PHONE: (805) 964-6010 FAX: (805) 964-0259 </div>					
PROJECT:		CASMALIA RESOURCES SUPERFUND SITE FEASIBILITY STUDY			
SITESIDE EARTHWORK OFFSITE AND ONSITE BORROW AREAS					
FIGURE 12-8					

NOTES:

1. 2018: The Area 2 remedy includes construction of a cap (ET cap or hybrid cap – cap details to be determined during design) for the entire RCRA Canyon and WCSA. The other activities included with the Area 2 remedy include backfilling Pond A-5 with WCSA excavated soil; transferring Pond A-5 liquids to RCF Pond; construction of the new lined retention basin in footprint of Pond A-5; construction of storm water pipeline to handle runoff from the RCRA Canyon/WCSA.
2. 2019: The Area 1 remedy includes construction of RCRA prescriptive caps on the PCB Landfill, Burial Trench Area, and Central Drainage Area. Also conducted at the same time would be the Area 3 remedy which includes the construction of the RCRA prescriptive caps for the Maintenance Shed Area and two locations in the Former Ponds and Pads Area south of the PSCT. In addition, the drainage channel connecting Area 1 to the RCF Pond would be constructed this year to enable stormwater runoff from Area 1 before winter rains.
3. 2020: The Area 4 remedy includes completing pond closures for the A-Series Pond, Pond 18, and Pond 13. The A-Series Pond would be emptied to RCF Pond and a new evaporation pond constructed in the footprint of the A-Series Pond. Also included would be construction of ecological-cap and RCF Pond East berm.
4. 2021: The Area 4 remedy would continue to empty the RCF Pond and construct the ecological-cap and the bermed area for the East RCF Pond. Also, included in this year is the grading/BMPs component of Area 3 south of the PSCT. The construction of the RCF Pond may need to be pushed back to 2020 if the RCF Pond cannot be emptied by early summer 2019.
5. 2022: The Area 5 remedy would include refurbishing the PCT-B and PCT-C trenches, upgrading the GWTS used for PSCT groundwater, and installing DNAPL-only extraction wells and treatment system.