PORSF 11.3.234.1
8/19/2008

CONOCOPHILLIPS COMPANY ("CONOCOPHILLIPS"),
ON BEHALF OF PHILLIPS PETROLEUM COMPANY,
TOSCO CORPORATION AND ASSETS OF 76 PRODUCTS COMPANY

RESPONSES TO JANUARY 18, 2008
EPA FIRST REQUEST FOR INFORMATION
PORTLAND HARBOR SUPERFUND SITE
PORTLAND, OREGON

GROUNDWATER WELLS, DRILLING LOGS MAPS AND DRAWINGS OF PROPERTY

RESPONSE TO QUESTION 13

USEPA SF
1363552
COPPOR00000180

DELTA	Project No: ORZ0922	Client: ConocoPhillips		Boring/Well No: U-22A
	Logged By: C. Sheridan (Delta)	Location: 5528 NW Doane Ave. Portland, OR		Page 1 of 1
	Driller: Boart Longyear	Date Drilled: 12/6/2007		Location Map
	Drilling Method: Sonic	Hole Diameter: 6"		See Figure 2
	Sampling Method: Sonic tube	Hole Depth: 20'		
	Casing Type: Sch. 40 PVC	Well Diameter: 2"		
	Slot Size: .010-inch	Well Depth: 19'		
	Gravel Pack: 10x20	Casing Stickup: Stickup		
	Elevation	Northing	Easting	
	Surface: 14.2', TOC: 17.3'	4610.9	223.9	

Well Completion: Backfill / Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Concrete					1				
Bent.					2				(Air-knife to 6' below ground surface)
	11:00 12/6/07				3				
					4				
					5				
		Wet	-		6				
		MST	-		7				No recovery (6-9.5 ft.)
					8				
					9				
Sand			1.2		10			SP	SAND, brown, poorly graded medium grained, wet, sheen, hydrocarbon odor
			0		11			CL	Silty CLAY, gray-green, soft, high plasticity 60% clay, 40% silt
					12				
					13				
			0		14			ML	Clayey SILT, gray-green, soft, medium plasticity, medium density. 70% silt, 30% clay
					15				
					16				
					17				
					18				same as above
					19				
					20				Bottom of Boring at 20' bgs
					21				
					22				

DELTA	Project No: ORZ0922	Client: ConocoPhillips		Boring/Well No: U-22B
	Logged By: C. Sheridan (Delta)	Location: 5528 NW Doane Ave. Portland, OR		Page 1 of 2
	Driller: Boart Longyear	Date Drilled: 12/5/2007		Location Map
	Drilling Method: Sonic	Hole Diameter: 6"		See Figure 2
	Sampling Method: Sonic tube	Hole Depth: 30'		
	Casing Type: Sch. 40 PVC	Well Diameter: 2"		
	Slot Size: .010-inch	Well Depth: 29'		
	Gravel Pack: 10x20	Casing Stickup: Stickup		
	Elevation	Northing	Easting	
	Surface:14.0', TOC: 16.91'	4605.1	228.1	

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Concrete					1				
					2				(Air-knife to 6' below ground surface)
					3				
					4				
					5				
		MST	14		6			SP	SAND, brown, poorly graded, medium grained, moist, hc odor.
					7			CL	Silty CLAY, gray-green, moist, medium-high plasticity, hydrocarbon odor. 60% clay, 40% silt
			8		8				Soil sample at 6.5 ft. bgs
Bentonite					9				
					10				
	9:10 12/6/07				11				
					12				
					13				
		MST	0		14			ML	Clayey SILT, gray-green, moist, soft, medium plasticity, slight hydrocarbon odor. 80% silt, 20% clay
					15				
					16				
					17				
					18				
					19				same as above
			0		20				
					21				
					22				

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR
Driller:	Boart Longyear	Date Drilled:	12/5/2007
Drilling Method:	Sonic	Hole Diameter:	6"
Sampling Method:	Sonic tube	Hole Depth:	30'
Casing Type:	Sch. 40 PVC	Well Diameter:	2"
Slot Size:	.010-inch	Well Depth:	29'
Gravel Pack:	10x20	Casing Stickup:	Stickup

Boring/Well No: U-22B

Location Map

See Figure 2

Elevation	Northing	Easting
Surface:14.0', TOC: 16.91'	4605.1	228.1

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand					23				
					24				
		MST	0		25				medium stiff
					26				
					27				same as above
					28				
					29				
					30				Bottom of Boring at 30' bgs
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips	Boring/Well No: U-24A
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR	Page 1 of 1
Driller:	Boart Longyear	Date Drilled:	12/5/2007	Location Map
Drilling Method:	Sonic	Hole Diameter:	10"	See Figure 2
Sampling Method:	Sonic tube	Hole Depth:	20'	
Casing Type:	Sch. 40 PVC	Well Diameter:	2"	
Slot Size:	.010-inch	Well Depth:	20'	
Gravel Pack:	10x20	Casing Stickup:	Stickup	

Elevation	Northing	Easting
Surface:17.0', TOC: 19.94'	4561.3	238.2

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Concrete					1			
Bentonite					2			(Air-knife to 6' below ground surface)
					3			
					4			
	▼ 10:50 12/5/07				5			
		MST	2		6		ML	Clayey SILT, gray-green, moist, soft, moderate plasticity
					7			70% silt, 30% clay
					8			Soil sample at 8 ft. bgs, reddish brown mottling to 10' bgs
Sand					9			
		MST	0		10			same as above
					11			
					12			
					13			
					14			
		MST	2		15			same as above
					16			
					17			
					18			
		Wet	3		19		SW	SAND, well-graded with **gravel** (rounded, well-graded),
					20			'slight hydrocarbon odor (19'-19.4'). 60% sand, 40% gravel
								Bottom of Boring at 20' bgs
					21			
					22			

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips	Boring/Well No: U-24B
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR	Page 1 of 2
Driller:	Boart Longyear	Date Drilled:	12/5/2007	Location Map
Drilling Method:	Sonic	Hole Diameter:	6"	See Figure 2
Sampling Method:	Sonic tube	Hole Depth:	30'	
Casing Type:	Sch. 40 PVC	Well Diameter:	2"	
Slot Size:	.010-inch	Well Depth:	30'	
Gravel Pack:	10x20	Casing Stickup:	Stickup	

Elevation	Northing	Easting
Surface: 17.1', TOC: 20.65'	4555.9	242.6

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Concrete						1				
						2				(Air-knife to 6' below ground surface)
						3				
						4				
						5				
			Wet	0		6			SP	SAND, brown, poorly graded, medium grained, no odor 85% medium sand, 15% fine sand, wet
						7				
						8				
						9				
Bentonite						10				
						11				
						12				
		▼				13				
		9:10 12/6/07	Wet	4		14			ML	Clayey SILT, gray-green, medium stiffness, moderate plasticity, wet, no odor. 70% silt, 30% clay
						15				
						16				
						17				gray mottling
						18				
						19				
						20				
						21				
						22				

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR
Driller:	Boart Longyear	Date Drilled:	12/5/2007
Drilling Method:	Sonic	Hole Diameter:	6"
Sampling Method:	Sonic tube	Hole Depth:	30'
Casing Type:	Sch. 40 PVC	Well Diameter:	2"
Slot Size:	.010-inch	Well Depth:	30'
Gravel Pack:	10x20	Casing Stickup:	Stickup

Boring/Well No: U-24B
Page 2 of 2

Location Map

See Figure 2

Elevation	Northing	Easting
Surface:17.1', TOC: 20.65'	4555.9	242.6

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand					23				
					24				
					25				
		Wet	0						increase silt, increase stiffness
	▼				26				80% silt, 20% clay
	10:50 12/5/07				27				
									increase silt, stiff, low plasticity
					28				90% silt, 10% clay
					29				
					30				Bottom of Boring at 30' bgs
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR
Driller:	Boart Longyear	Date Drilled:	12/6/2007
Drilling Method:	Sonic	Hole Diameter:	6"
Sampling Method:	Sonic tube	Hole Depth:	20'
Casing Type:	Sch. 40 PVC	Well Diameter:	2"
Slot Size:	.010-inch	Well Depth:	20'
Gravel Pack:	10x20	Casing Stickup:	Flush

Boring/Well No: U-25

Page 1 of 1

Location Map

See Figure 2

Elevation	Northing	Easting
Surface: 21.3', TOC: 20.99'	4525.5	232.0

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bent.					1			
					2			(Air-knife to 6' below ground surface)
					3			
					4			
					5			
		MST			6		SP	SAND, brown, poorly graded, medium grained, moist, no odor, 85% medium sand, 15% fine sand
					7			
		MST	16		8		ML	Clayey SILT, gray-green, soft, moist, high plasticity, hydrocarbon odor. 65% silt, 35% clay
Sand					9			Soil sample collected at 7.5 ft. bgs
					10			light mottling
		MST	1.0		11			
					12			
					13			
					14			medium stiffness
		MST	1.2		15			
					16			
					17			
					18			
		MST	0.5		19			
					20			Bottom of Boring at 20' bgs
					21			
					22			

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips		Boring/Well No: U-26
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR		Page 1 of 1
Driller:	Boart Longyear	Date Drilled:	12/10/2007	Location Map	
Drilling Method:	Sonic	Hole Diameter:	6"	See Figure 2	
Sampling Method:	Sonic tube	Hole Depth:	190'		
Casing Type:	Sch. 40 PVC	Well Diameter:	2"		
Slot Size:	.010-inch	Well Depth:	19'		
Gravel Pack:	10x20	Casing Stickup:	Stickup		

Elevation	Northing	Easting
Surface: 16.3', TOC: 19.51'	4525.5	232.0

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite						1				
						2				(Air-knife to 6' below ground surface)
						3				
		12/10/07				4				
						5				
			MST Wet	1.5		6			SP	SAND, brown, poorly graded, medium grained, moist, no odor, 85% medium sand, 15% fine sand
						7			ML	Clayey SILT, brown with reddish brown mottling, very soft, wet, high plasticity, no odor. 75% silt, 25% clay
						8				
						9				Soil sample collected at 7.5 ft. bgs
Sand						10				Reddish brown mottling to 11 ft. bgs
			MST	0.0		11				Color change to gray-green, soft, medium-high plasticity
						12				
						13				
						14				
			MST	1.2		15				
						16				same as above, medium stiff
						17				
						18				
						19				Bottom of Boring at 19' bgs
						20				
						21				
						22				

DELTA	Project No:	ORZ0922	Client:	ConocoPhillips	Boring/Well No: U-27
	Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR	Page 1 of 1
	Driller:	Boart Longyear	Date Drilled:	12/7/2007	Location Map
	Drilling Method:	Sonic	Hole Diameter:	6"	See Figure 2
	Sampling Method:	Sonic tube	Hole Depth:	19'	
	Casing Type:	Sch. 40 PVC	Well Diameter:	2"	
	Slot Size:	.010-inch	Well Depth:	19'	
	Gravel Pack:	10x20	Casing Stickup:	Stickup	

Elevation	Northing	Easting
Surface: 23.5', TOC: 26.44'	4432.4	281.4

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			
					2			(Air-knife to 6' below ground surface)
					3			
					4			
					5			
		MST	0.5		6		SP	SAND, brown, poorly graded, medium grained, moist, no odor
		MST	0		7		ML	Clayey SILT, gray-green, soft, moist, medium-high plasticity 60% silt, 40% clay
Sand	10:50 12/10/07				8			
					9			Soil sample collected at 8 ft. bgs
		MST	0		10			
					11			Medium stiffness
					12			
					13			
					14			
		MST	0		15			
					16			Some mottling
					17			
					18			
					19			Bottom of Boring at 19' bgs
					20			
					21			
					22			

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR
Driller:	Boart Longyear	Date Drilled:	12/10/2007
Drilling Method:	HSA	Hole Diameter:	6"
Sampling Method:	Split Spoon	Hole Depth:	25'
Casing Type:	Sch. 40 PVC	Well Diameter:	2"
Slot Size:	.010-inch	Well Depth:	25'
Gravel Pack:	10x20	Casing Stickup:	Stickup

Boring/Well No: U-28

Location Map

See Figure 2

Elevation	Northing	Easting
Surface: 17.2', TOC: 20.06'	4423.9	346.1

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite						1				
						2				(Air-knife to 6' below ground surface)
						3				
						4				
						5				
			MST	0		6			SP	SAND, brown, poorly graded, medium grained, moist, no odor
						7				
			MST	-		8			ML	Clayey SILT, brown with red mottling (trace gray), medium-high plasticity, no odor
						9				
						10				Soil sample collected at 8 ft. bgs
						11				
						12				
			MST	-		13				Color change to gray-green
						14				
				-		15				
						16				
						17				grades more stiff, less moisture
						18				
						19				
						20				
Sand						21				
						22				

DELTA

Project No:	ORZ0922	Client:	ConocoPhillips
Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR
Driller:	Boart Longyear	Date Drilled:	12/10/2007
Drilling Method:	Sonic	Hole Diameter:	6"
Sampling Method:	Sonic tube	Hole Depth:	25'
Casing Type:	Sch. 40 PVC	Well Diameter:	2"
Slot Size:	.010-inch	Well Depth:	25'
Gravel Pack:	10x20	Casing Stickup:	Stickup

Boring/Well No: U-28
Page 2 of 2

Location Map
See Figure 2

Elevation	Northing	Easting
Surface: 17.2', TOC: 20.06'	4423.9	346.1

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand					23			
					24			
					25			Bottom of Boring at 25' bgs
					26			
					27			
					28			
					29			
					30			
					31			
					32			
					33			
					34			
					35			
					36			
					37			
					38			
					39			
					40			
					41			
					42			
					43			
					44			

DELTA	Project No:	ORZ0922	Client:	ConocoPhillips	Boring/Well No: U-29B
	Logged By:	C. Sheridan (Delta)	Location:	5528 NW Doane Ave. Portland, OR	Page 1 of 3
	Driller:	Boart Longyear	Date Drilled:	12/17/2007	Location Map
	Drilling Method:	Sonic	Hole Diameter:	6"	See Figure 2
	Sampling Method:	Sonic tube	Hole Depth:	50'	
	Casing Type:	Sch. 40 PVC	Well Diameter:	2"	
	Slot Size:	.010-inch	Well Depth:	50'	**DRAFT**
	Gravel Pack:	10x20	Casing Stickup:	Flush	
	Elevation		Northing		Easting

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Concrete										
						1				
						2				(Air-knife to 6' below ground surface)
						3				
						4				
						5				
			MST	0		6			SP	SAND, brown, poorly graded, medium grained, loose, moist, no odor
						7				
						8				
						9				
Bentonite			MST	0		10				
						11				
						12				
						13				
						14				
						15				
						16				
						17				
			MST	16.5		18				color change to gray-green (stained?), hydrocarbon odor
						19				
						20				
						21			ML	Clayey SILT, gray-green, moist, moderate plasticity, no odor
						22				

DELTA	Project No: ORZ0922	Client: ConocoPhillips		Boring/Well No: U-29B
	Logged By: C. Sheridan (Delta)	Location: 5528 NW Doane Ave. Portland, OR		Page 2 of 3
	Driller: Boart Longyear	Date Drilled: 12/17/2007		Location Map
	Drilling Method: Sonic	Hole Diameter: 6"		See Figure 2
	Sampling Method: Sonic tube	Hole Depth: 50'		
	Casing Type: Sch. 40 PVC	Well Diameter: 2"		
	Slot Size: .010-inch	Well Depth: 50'		DRAFT
	Gravel Pack: 10x20	Casing Stickup: Flush		
	Elevation	Northing	Easting	

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite						23				
						24				woody debris
						25				
						26				
						27				
						28				
						29				
						30				Temporary 8-inch casing installed from 0 ft. to 30 ft. bgs
						31				
						32				
						33				
						34				
			MST			35			SP	SAND, gray-green, poorly graded fine grained, soft, moist,
						36			ML	low to medium plasticity, no odor (35-35.5'). Clayey SILT, gray-green, moist, soft, moderate plasticity
						37				
						38				
						39				
Sand						40				
						41				
						42				Woody debris from 42 ft. to 45.5 ft. bgs
						43				
						44				

DELTA	Project No: ORZ0922	Client: ConocoPhillips		Boring/Well No: U-29B
	Logged By: C. Sheridan (Delta)	Location: 5528 NW Doane Ave. Portland, OR		Page 3 of 3
	Driller: Boart Longyear	Date Drilled: 12/17/2007		Location Map
	Drilling Method: Sonic	Hole Diameter: 6"		See Figure 2
	Sampling Method: Sonic Tube	Hole Depth: 50'		
	Casing Type: Sch. 40 PVC	Well Diameter: 2"		
	Slot Size: .010-inch	Well Depth: 50'		DRAFT
	Gravel Pack: 10x20	Casing Stickup: Flush		
	Elevation	Northing	Easting	

Well Completion: Backfill / Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand					45				
					46				
					47				
		MST	0		48			ML	Clayey SILT with fine sand, gray-green, moist, medium plasticity, no odor.
					49				
					50				Bottom of Boring at 50 feet bgs
					51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
					60				
					61				
					62				
					63				
					64				
					65				
					66				

PROJECT: **Portland Terminal** LOCATION: **5528 NW Doane Ave** PROJECT NUMBER: **15CP.00922.41**	WELL / PROBEHOLE / BOREHOLE NO: **U-29A** PAGE 1 OF 1 SECOR
DRILLING: STARTED **12/13/07** COMPLETED: **12/13/07** INSTALLATION: STARTED **12/13/07** COMPLETED: **12/13/07** DRILLING COMPANY: **Boart Longyear** DRILLING EQUIPMENT: **Sonic Spider** DRILLING METHOD: **Sonic** SAMPLING EQUIPMENT: **8" Core**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **20.0** STATIC DTW (ft): **NE** WELL DEPTH (ft): **20.0** WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8** LOGGED BY: **J Green** CHECKED BY: **JEckart**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		SP	SAND ; SP; dark brown; medium-grained; moist; no odor; Fill							
			Cleared borehole using a vacuum truck - ground surface to 6' bgs							
5									5	2" PVC Hydrated bentonite chips
10									10	
		SW	SAND ; SW; dark brown; fine to medium-grained; moist; hydrocarbon staining; Fill Approximately 40% fine-grained, 60% medium-grained.							
15									15	Clean sand 0.010 slotted PVC screen
			Gray; strong hydrocarbon odor; hydrocarbon staining; 70% fine-grained, 30% medium-grained							
20			Hole terminated at 20 feet.						20	

GEO FORM 304 U29.GPJ SECOR INTL.GDT 2/25/08

PROJECT: **Portland Terminal** LOCATION: **5528 NW Doane Ave** PROJECT NUMBER: **15CP.00922.41**	WELL / PROBEHOLE / BOREHOLE NO: **U-29C** PAGE 1 OF 4 SECOR
DRILLING: STARTED **12/13/07** COMPLETED: **12/14/07** INSTALLATION: STARTED **12/13/07** COMPLETED: **12/14/07** DRILLING COMPANY: **Boart Longyear** DRILLING EQUIPMENT: **Sonic Spider** DRILLING METHOD: **Sonic** SAMPLING EQUIPMENT: **8" Core to 40' and 7" Core to 86'**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **24 12/13/07** BOREHOLE DEPTH (ft): **86.0** STATIC DTW (ft): **NE** WELL DEPTH (ft): **86.0** WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8** LOGGED BY: **J Green** CHECKED BY: **JEckart**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		SP	SAND ; SP; dark brown; medium-grained; moist; no odor; poorly graded; Fill							
			Cleared borehole using a vacuum truck - ground surface to 6' bgs		850 U-29C@ 5-5'			0.5	5	Hydrated bentonite chips
5										
10					855 U-29C@ 10-10'			0.5	10	
		SW	SAND ; SW; dark brown; fine to medium-grained; moist; no odor; hydrocarbon staining; well graded; Fill Approximately 40% fine-grained, 60% medium-grained.							
15					900 U29C-S-15 Gx, RBDM VOCs, PAHs, TOC			0.5	15	
			Gray; strong petroleum odor; hydrocarbon staining; Approximately 70% fine-grained, 30% medium-grained.							
20					905 U28C-S-20 Gx, RBDM VOCs, PAHs, TOC			228	20	

GEO FORM 304 U29.GPJ SECOR INTL GDT 2/25/08

PROJECT: **Portland Terminal** LOCATION: **5528 NW Doane Ave** PROJECT NUMBER: **15CP.00922.41**	WELL / PROBEHOLE / BOREHOLE NO: **U-29C** PAGE 2 OF 4 SECOR
DRILLING: STARTED **12/13/07** COMPLETED: **12/14/07** INSTALLATION: STARTED **12/13/07** COMPLETED: **12/14/07** DRILLING COMPANY: **Boart Longyear** DRILLING EQUIPMENT: **Sonic Spider** DRILLING METHOD: **Sonic** SAMPLING EQUIPMENT: **8" Core to 40' and 7" Core to 86'**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **24 12/13/07** BOREHOLE DEPTH (ft): **86.0** STATIC DTW (ft): **NE** WELL DEPTH (ft): **86.0** WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8** LOGGED BY: **J Green** CHECKED BY: **JEckart**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		CH	**CLAY WITH SILT** ; CH; gray; high plasticity; wet; no odor		910 U29C-S-25 Gx, RBDM VOCs, PAHs, TOC			0.5		
30					915 U-29C@ 30-30'			0.1	30	
35		ML	**SILT WITH FINE SAND** ; ML; gray; non plastic; moist; no odor; Approximately 30% fine-grained sand, wood debris		1000 U-29C@ 35-35'			0.1	35	2" PVC pipe Bentonite grout (8%)
			Approximately 40% fine-grained sand							
40					1005 U-29C@ 40-40'			0.1	40	
45					1010 U-29C@ 45-45'			0.1	45	
					1015					

GEO FORM 304 U29.GPJ SECOR INTL.GDT 2/25/08

PROJECT: **Portland Terminal** LOCATION: **5528 NW Doane Ave** PROJECT NUMBER: **15CP.00922.41**	WELL / PROBEHOLE / BOREHOLE NO: **U-29C** PAGE 3 OF 4 SECOR
DRILLING: STARTED **12/13/07** COMPLETED: **12/14/07** INSTALLATION: STARTED **12/13/07** COMPLETED: **12/14/07** DRILLING COMPANY: **Boart Longyear** DRILLING EQUIPMENT: **Sonic Spider** DRILLING METHOD: **Sonic** SAMPLING EQUIPMENT: **8" Core to 40' and 7" Core to 86'**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **24 12/13/07** BOREHOLE DEPTH (ft): **86.0** STATIC DTW (ft): **NE** WELL DEPTH (ft): **86.0** WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8** LOGGED BY: **J Green** CHECKED BY: **JEckart**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		ML			U-29C@ 50-50'			0.1		
55					1045 U-29C@ 55-55'			0.1	55	
60					1050 U-29C@ 60-60'			0.1	60	
65					1100 U-29C@ 65-65'			0.1	65	
70					1105 U29C-S-70 Gx, RBDM VOCs, PAHs, TOC			0.1	70	Hydrated bentonite chips
		GM	**GRAVEL** ; GM; gray; moist; no odor; Silty gravel with sand, Approximately 20% silt,							

GEO FORM 304 U29.GPJ SECOR.INTL.GDT 2/25/08

PROJECT: **Portland Terminal** LOCATION: **5528 NW Doane Ave** PROJECT NUMBER: **15CP.00922.41**	WELL / PROBEHOLE / BOREHOLE NO: **U-29C** PAGE 4 OF 4 SECOR
DRILLING: STARTED **12/13/07** COMPLETED: **12/14/07** INSTALLATION: STARTED **12/13/07** COMPLETED: **12/14/07** DRILLING COMPANY: **Boart Longyear** DRILLING EQUIPMENT: **Sonic Spider** DRILLING METHOD: **Sonic** SAMPLING EQUIPMENT: **8" Core to 40' and 7" Core to 86'**	NORTHING (ft): LATITUDE: GROUND ELEV (ft): INITIAL DTW (ft): **24 12/13/07** STATIC DTW (ft): **NE** WELL CASING DIAMETER (in): **2** LOGGED BY: **J Green**
EASTING (ft): LONGITUDE: TOC ELEV (ft): BOREHOLE DEPTH (ft): **86.0** WELL DEPTH (ft): **86.0** BOREHOLE DIAMETER (in): **8** CHECKED BY: **JEckart**	

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		GM	25% sand		1130 U29C-S-75 Gx, RBDM VOCs, PAHs, TOC			0.1		0.010 slotted PVC clean sand
			Green; Weathered basalt							
80					1135 U-29C@ 80-80'			0.1	80	
			Brownish black; Competent basalt bedrock							bentonite seal
85									85	
			Hole terminated at 86 feet.							
90									90	
95									95	

GED FORM 304 U29.GPJ SECOR INTL.GDT 2/25/08

Delta

Environmental Consultants Inc.

Project No:	PTWB-02B	Client:	ConocoPhillips
Logged By:	KAK	Location:	Portland, Oregon
Driller:	CDI	Date Drilled:	4/1/2004
Drilling Method:	HSA	Hole Diameter:	8.75-inches
Sampling Method:	SPT	Hole Depth:	20-feet
Casing Type:	PVC	Well Diameter:	2-inch
Slot Size:	0.010-inch	Well Depth:	20-feet
Gravel Pack:	10-20	Casing Stickup:	flush

Boring/Well No: U-13
Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting

Well Completion (Backfill / Casing)	Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
								GP	GRAVEL surface
					1			SP	Poorly graded SAND with silt; brown, 90% fine sand, 10% silt
					2				(cemented from 1 to 1.5 feet)
Bentonite			15.3		3				(grading gray in color)
					4			SP	Poorly graded SAND; grey,medium-fine, subangular 90% medium sand, 10% fine sand
			0.1	5 11 11	5				
					6				(grades darker gray)
					7				
					8			SM	Silty SAND; brown, 80% fine sand, 20% silt, trace clay
					9				
10 - 20 Sand				11 15 17	10			SP	Poorly graded SAND; black, fine-medium, 100% sand
					11				
					12				
					13				
	▽				14				
				7 15 45	15			SM	Silty SAND; gray-brown, 80% fine sand, 20% silt
					16				
					17				
					18				
					19				
				7 9 6	20			ML	SILT; brown-gray in color
					21				
					22				Bottom of boring at 21.5-feet below grade

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922-KI-6	Client:	ConocoPhillips	Boring/Well No: U-14
Logged By:	CRF/KCM	Location:	Willbridge Term. - 5528 NW Doane	Page 1 of 1
Driller:	Cascade	Date Drilled:	8/1/2006	
Drilling Method:	HSA	Hole Diameter:	12"	
Sampling Method:	SPT	Hole Depth:	21.5'	
Casing Type:	Sch. 40 PVC	Well Diameter:	4"	
Slot Size:	0.010"	Well Depth:	20'	
Gravel Pack:	10X20	Casing Stickup:	Flush	
Elevation		Northing		Easting

Location Map

See Figure 2

Well Completion: Backfill, Casing, Bentonite, Sand

Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
							GP	Gravel (1" minus)
				1				
				2				
				3				
				4				
				5				(Vac-Clear to 5 feet bgs)
	MST	0.1	2				SP	Poorly graded SAND, brown, with gray silt streaks
			3	6				from 5-5.5 ft.
			3					95% fine sand, 5% silt
				7				
				8				
				9				
				10				
	MST	20.1	3					
			3	11				
			3				ML	SILT, gray, firm, low plasticity
				12				100% silt
				13				
				14				
▽ 11:15	Wet	41.1	4	15				SILT with sand, low plasticity
			6	16				80% silt, 20% fine sand
			12					
				17				
				18				
				19				
				20				
	SAT	2.9	2				ML	as above
			2					grades more fine sand (30%)
			4	21			SM	Silty SAND, brown, 60% fine sand, 40% silt
				22				Bottom of Boring at 20 feet bgs
								Sampling Terminated at 21.5 feet bgs

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922-KI-6	Client:	ConocoPhillips		Boring/Well No: U-15
Logged By:	NWH	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	7/31/2006	Location Map	
Drilling Method:	HSA	Hole Diameter:	12"		
Sampling Method:	SPT	Hole Depth:	21.5'		
Casing Type:	Sch. 40 PVC	Well Diameter:	4"	See Figure 2	
Slot Size:	0.010"	Well Depth:	20'		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite								GP	Sandy Gravel (1" minus)
					1				
					2				
		MST			3				
					4				
									(Vac-Clear to 5 feet bgs)
				2	5			SM	Silty SAND; brown, medium- to fine-grained sand, 10% silt
				2					
		MST	292	2	6				As above, grades gray
					7				
					8				
Sand					9				
				2	10				
		MST		3					
			370	6	11			SM	As above, grades less silt
					12				
					13				
					14				
	▽				15			SP	SAND; gray, medium-grained, trace organics
		WET		3					
			240	3	16				80% silt, 20% fine sand
				4					
					17				
					18				
					19				
					20				
				1					
		SAT	115	2	21				
				2				ML	SILT with sand; gray, 80% silt, 20% very fine sand
					22				Bottom of boring at 20 feet bgs
									Sampling terminated at 21.5 feet bgs

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922-KI-6	Client:	ConocoPhillips		Boring/Well No: U-16
Logged By:	NWH	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	7/31/2006	Location Map	
Drilling Method:	HSA	Hole Diameter:	12"		
Sampling Method:	SPT	Hole Depth:	21.5'	See Figure 2	
Casing Type:	Sch. 40 PVC	Well Diameter:	4"		
Slot Size:	0.010"	Well Depth:	18'		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite								GP	Gravel (1" minus)
					1				
					2				
		MST			3				
					4				
					5				(Vac-Clear to 5 feet bgs)
Sand				1				SM	Silty SAND; brown,
				1					80% medium to fine grained sand, 20% silt
		MST	67	2	6			SP	Poorly graded SAND, brown
					7				95% medium to fine grained sand, 5% silt
					8				
					9				
				2	10				
				3	11			SP	Poorly graded SAND, gray
		MST	85	4					95% medium sand, 5% silt
					12				
					13				
					14				
	▽				15				
		WET	670	6				SP	
				9	16			ML	SILT, gray, low plasticity
			240	18					90% silt, 10% very fine sand
					17				
					18				
					19				
Bentonite					20				
		WET	11	3				ML	SILT with sand; gray, 80% silt, 20% very fine sand
				9	21				
				12					grades brown at 21'
					22				Bottom of boring at 20 feet bgs
									Sampling terminated at 21.5 feet bgs

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922-KI-6	Client:	ConocoPhillips
Logged By:	NWH	Location:	Willbridge Term. - 5528 NW Doane
Driller:	Cascade	Date Drilled:	7/31/2006
Drilling Method:	HSA	Hole Diameter:	12"
Sampling Method:	SPT	Hole Depth:	21.5'
Casing Type:	Sch. 40 PVC	Well Diameter:	4"
Slot Size:	0.010"	Well Depth:	20'
Gravel Pack:	10X20	Casing Stickup:	Flush

Boring/Well No: U-17

Page 1 of 1

Location Map

See Figure 2

Elevation	Northing	Easting

Well Completion: Backfill, Casing, Bentonite, Sand

Depth (feet)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
							GP	Gravelly SAND (approximately 6" thick)
1							SM	
2		MST					SP-SM	Poorly graded SAND with silt, brown 90% medium to fine grained sand, 10% silt
3								
4								
5				2			SP	(Vac-Clear to 5 feet bgs) Poorly graded SAND, brown
6		MST	4	3 6				95% medium to fine grained sand, 5% silt
7								
8								
9								
10				3				
11		MST	18	4 4				grades no silt
12								
13								
14								
15	▽			3				
16		WET	44	4 7				
17								
18								
19								
20				4			ML	SILT with sand; gray, 85% silt, 15% fine sand
21		WET	13	8 12				
22								Bottom of boring at 20 feet bgs Sampling terminated at 21.5 feet bgs

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922U1-9	Client:	ConocoPhillips		Boring/Well No: U-18
Logged By:	JMN	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	2/16/2007		Location Map
Drilling Method:	HSA	Hole Diameter:	12"		See Figure 2
Sampling Method:	S.S.	Hole Depth:	21.5'		
Casing Type:	Sch. 40 PVC	Well Diameter:	4"		
Slot Size:	0.020"	Well Depth:	20'		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite				Conductance Pipe	1, 2, 3, 4, 5, 6				
Sand		MST			7, 8, 9				
	▽	WET	52.1	1, 2, 2	10, 11, 12, 13, 14			SP	poorly graded SAND w/Silt, grey, medium grained, sheen
		WET	13.5	2, 4, 4	15, 16, 17, 18, 19				As above
		WET	10.1	1, 1, 1	20, 21			ML	Silt, brown, trace fine sand, soft
					22				Bottom of Boring 21.5' bgs

Delta

Environmental Consultants Incorporated

Project No:	ORZ0922u1-9	Client:	ConocoPhillips		Boring/Well No: U-19
Logged By:	JMN	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	2/16/2007	Location Map	
Drilling Method:	HSA	Hole Diameter:	12"		
Sampling Method:	S.S.	Hole Depth:	20		
Casing Type:	Sch. 40 PVC	Well Diameter:	4"	See Figure 2	
Slot Size:	0.020"	Well Depth:	19.5		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite									Asphalt
					1			SP	poorly graded SAND, brown, medium grained, trace silt
				Airknife	2				
					3				
					4				
					5				(Vac-Clear to 5 feet bgs)
				2					SAND, grey, medium grained, trace silt
		MST	0.1	2	6				
				2					
					7				
					8				
Sand					9				
				2	10				As above
	▽	WET	0.1	2	11				
				2					
					12				
					13				
					14				
					15				
				3					As above
		WET	601	4	16			ML	SILT, grey, soft, sticky, trace fine sand
				7					
					17				
					18				As above
		WET	0.1		19				
					20				Bottom of Boring, 19.5
					21				
					22				

Delta

Environmental Consultants Incorporated

Project No:	ORZ09-22U2-1	Client:	ConocoPhillips		Boring/Well No: U-20
Logged By:	JMN/BNL	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	3/13/2007		Location Map
Drilling Method:	HSA	Hole Diameter:	12"		See Figure 2
Sampling Method:	S.S.	Hole Depth:	25'		
Casing Type:	Sch. 40 PVC	Well Diameter:	4"		
Slot Size:	0.020"	Well Depth:	24'		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite								SP	poorly graded SAND, brown, medium grained, trace silt
				Airkinfe	1				
					2				
					3				
					4				
					5				
					6				
					7				
					8				
Sand					9				
		MST	0.6	1 1 2	10				As above
					11				
					12				
	▽				13				
					14				
		WET	460	1 2 3	15				As above, sheen
					16				
					17				
					18				
					19				
		WET	126	3 3 4	20			ML	SILT, grey, trace fine sand, soft
					21				
					22				

Delta

Environmental Consultants Incorporated

Project No:	OR209-22U2-1	Client:	ConocoPhillips		Boring/Well No: U-20
Logged By:	JCM/BNL	Location:	Willbridge Term. - 5528 NW Doane		Page 1 of 1
Driller:	Cascade	Date Drilled:	3/13/2007	Location Map	
Drilling Method:	HSA	Hole Diameter:	12"		
Sampling Method:	S.S.	Hole Depth:	26.5'		
Casing Type:	Sch. 40 PVC	Well Diameter:	4"	See Figure 2	
Slot Size:	0.020"	Well Depth:	24'		
Gravel Pack:	10X20	Casing Stickup:	Flush		
Elevation		Northing		Easting	

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand						23				
						24				
					1	25			ML	SILT, brown, trace fine sand, soft
			wet	4.4	1	26				
					2					
						27				Bottom of boring at 26.5 feet bgs
						28				
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

Delta

Environmental Consultants Incorporated

Project No:	ORZ09-22U2-1	Client:	ConocoPhillips
Logged By:	JCM/BNL	Location:	Willbridge Term. - 5528 NW Doane
Driller:	Cascade	Date Drilled:	3/13/2007
Drilling Method:	HSA	Hole Diameter:	12"
Sampling Method:	S.S.	Hole Depth:	21.5'
Casing Type:	Sch. 40 PVC	Well Diameter:	4"
Slot Size:	0.020"	Well Depth:	20'
Gravel Pack:	10X20	Casing Stickup:	Flush

Boring/Well No: U-21

Page 1 of 1

Location Map

See Figure 2

Elevation	Northing	Easting

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite									Asphalt
					1			SP	poorly graded SAND, brown, medium grained, trace silt
					2				
					3				
				Airkinfe	4				
					5				
					6				
					7				
					8				
					9				
		MST	0.4	3 6 9	10				As above
					11				
					12				
	▽				13				
					14				
		WET	4.8	2 2 4	15				As above, more silt
					16				
					17				
					18				
					19				
		WET	5.3	2 2 2	20			ML	SILT, grey, trace fine sand, soft
					21				
					22				Bottom of boring at 20 feet bgs

KHM

Environmental Management Incorporated

Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	11/6/2000
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	24 Feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	23 Feet
Gravel Pack:	10X20	Casing Stickup:	2.5 Feet

Boring/Well No: RW-1

Page 1 of 2

Location Map: See Figure 2

Elevation	Northing	Easting

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite; Blank					1			SP-SM	
					2				
		Moist			3				
					4				
				1	5				Brown poorly graded sand with silt, 70% sand,
		Moist		1 1	6				10% silt, 10% rounded to angular gravel
					7				
					8				
					9				
Sand				1	10				
		Moist		2 3	11				
					12			GP	Gray crushed gravel, 3/8-inch minus
	▽				13				Larger gravel present
		Wet			14				
				4	15				Gray crushed gravel, more sand-sized particles
				4 0	16				
					17			ML	
				0	18				Gray silt, 90% silt, 10% gravel up to 2-inch
				1 0					diameter
		Wet			19				
				0	20				
				0 0	21				
Bentonite; Blank					22			ML	

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Project No:	B17-05D	Client:	Tosco/Chevron	Boring/Well No:	RW-1
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot	Page 2 of 2	
Driller:	Cascade Drilling	Date Drilled:	11/6/2000	Location Map	See Figure 2
Drilling Method:	HSA	Hole Diameter:	14 Inches		
Sampling Method:	Dames&Moore	Hole Depth:	24 Feet		
Casing Type:	PVC	Well Diameter:	6-Inches		
Slot Size:	0.010"	Well Depth:	23 Feet		
Gravel Pack:	10X20	Casing Stickup:	2.5 Feet		
Elevation		Northing		Easting	

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
				1	23			ML	Gray silt, low plasticity, trace fine sand and trace rounded gravel observed
				2					
				3	24				
					25				Bottom Of Boring at 24 feet
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

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Environmental Management Incorporated

Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	2/16/2001
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	25 Feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	25 Feet
Gravel Pack:	10X20	Casing Stickup:	2.5 Feet

Boring/Well No: RW-2

Page 1 of 2

Location Map: See Figure 2

Elevation	Northing	Easting

Depth (feet)	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Soil Type	LITHOLOGY / DESCRIPTION
1				SP-SM	
2					
3	Moist				Brown poorly graded sand with silt, 90% sand, 10% silt, occasional rounded to crushed gravel
4					
5			5		
6	Moist	21	5 15	SP	Grades gray at 5.5 feet; Gray poorly graded sand with gravel, 75% medium sand, 25% 2-inch crushed gravel
7					
8					
9	Moist				
10			2		
11			3 2		
12					
13		17	1 2	SP	Gray poorly graded sand, medium to fine, roofing sand present
14	Moist		1		
15	Wet		5	SM	Gray silty sand with gravel, 60% fine to medium sand, 20% silt, 20% crushed gravel up to 2-inches in diameter
16		48	6 9		
17				GM	Gray silty gravel, 3/8"-minus with occasional 2-inch crushed gravel, 15% silt (in lumps), 10% medium to fine sand.
18		13	5 6 7		
19	Wet				
20			0		
21			0 3		
22				ML	Dark gray silt, 5 to 10% fine sand

Well Completion: Backfill, Casing, Bentonite, Blank, Sand

Static Water Level: ▽

Sample: Recovery, Interval

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Environmental Management Incorporated

Project No:	B17-05D	Client:	Tosco/Chevron	Boring/Well No:	RW-2
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot	Page 2 of 2	
Driller:	Cascade Drilling	Date Drilled:	2/16/2001	Location Map	See Figure 2
Drilling Method:	HSA	Hole Diameter:	14 Inches		
Sampling Method:	Dames&Moore	Hole Depth:	25 feet		
Casing Type:	PVC	Well Diameter:	6-Inches		
Slot Size:	0.010"	Well Depth:	25 Feet		
Gravel Pack:	10X20	Casing Stickup:	2.5 Feet		
Elevation		Northing		Easting	

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite	Blank		Wet	8	2 2 1	23			ML	Dark gray silt, 5 to 10 % fine sand
						24				
						25				
						26				
						27				
						28				
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

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Project No:	B17-05D	Client:	Tosco/Chevron	Boring/Well No: RW-3
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot	Page 1 of 2
Driller:	Cascade Drilling	Date Drilled:	2/15/2001	Location Map: See Figure 2
Drilling Method:	HSA	Hole Diameter:	14 Inches	
Sampling Method:	Dames&Moore	Hole Depth:	27.5 Feet	
Casing Type:	PVC	Well Diameter:	6-Inches	
Slot Size:	0.010"	Well Depth:	27.5 Feet	
Gravel Pack:	10X20	Casing Stickup:	flush mount	
Elevation		Northing		Easting

Well Completion: Backfill, Bentonite, Casing, Blank, Sand

Depth (feet)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
1						SM	
2							Brown silty sand with, 85 % medium to fine sand 15% silt, trace gravel and cobbles observed
3		Moist					
4			0				Colored roofing sand present
5				7			
6		Moist		8 16			
7							
8						GP	Gravel
9							
10				6		SP-SM	Brown poorly graded sand with silt, 10% crushed and rounded gravel, 80% fine to medium sand, 10% silt
11		Moist	0	13 12			
12							
13						GP	Gravel
14		Moist					Brown poorly graded sand with silt, 10% crushed and rounded gravel, 80% fine to medium sand, 10% silt
15		Moist		2		SP-SM	
16			45	2 2			
17							
18		Moist		1 2 2		SM	Gray silty sand, 70% fine to medium sand, 30% silt (in lumps)
19	▽						
20		Wet					
21			60			GP	Crushed Rock, 3/4-inch crushed rock (80%) with 10% sand and 10% silt (in lumps)
22							

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Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	2/15/2001
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	27.5 feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	27.5 feet
Gravel Pack:	10X20	Casing Stickup:	flush mount

Boring/Well No: **RW-3**

Location Map

Elevation	Northing	Easting

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Sand				2	23			GP	
		Wet	63	4					Grades finer, largely 3/8-inch crushed rock
				1	24				
					25				
				1				ML	
Bentonite / Blank		Wet	58	1	26				Dark gray silt, 10% fine sand, 5% organics
				2					
					27				
					28				Bottom of Boring at 27.5 feet
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

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Environmental Management Incorporated

Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	2/15/2001
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	26.5 feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	25 feet
Gravel Pack:	10X20	Casing Stickup:	flush mount

Boring/Well No: RW-4

Page 1 of 2

Location Map: See Figure 2

Elevation	Northing	Easting

Depth (feet)	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
1						SM	
2							Brown silty sand , 80 % medium to fine sand 20% silt, trace gravel observed
3	Moist						
4							
5							
6	Moist	0					
7							
8							
9							
10			3			SP	Brown poorly graded sand, 95 % medium to fine sand
11	Moist	0	4 2				5% silt
12							
13							
14	Moist						Brown poorly graded sand with silt, 10% crushed and rounded
15	Moist		3			SM-SP	gravel, 80% fine to medium sand, 10% silt
16		77	5 5				Grades gray, no gravel
17							
18	Moist						
19						SP	
20	Wet		5				Gray poorly graded sand, 100% fine to medium
21		38	4 4				sand, trace silt observed
22						ML	Driller detects silt contact

Well Completion: Backfill, Casing, Bentonite, Blank, Sand

Static Water Level: ▽

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Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	2/15/2001
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	26.5 feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	25 feet
Gravel Pack:	10X20	Casing Stickup:	flush mount

Boring/Well No: RW-4

Location Map

Elevation	Northing	Easting

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite	Blank		Wet			23				Dark gray silt, 10% fine sand, 5% organics (grass/marsh plants)
						24				
					0	25			ML	
			Wet	14	1	26				
					1					
						27				
						28				Bottom of Boring at 26.5 feet
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

DEPTH, FT	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.97 CASING: 34.79	DEPTH, FT	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, % (0 – 50 – 100)
		Crushed rock	0.5			
5		SAND; loose, brown, fine to medium grained, (FILL)				
10						
			14.0	SHEEN		
15		SAND; medium dense, gray, fine to medium grained, oily (FILL), contains a chunk of silt				
20		Water at 17-17.5 ft while drilling				
25			26.0			
30		SILT; medium stiff, gray with brown mottling, some stratified fine grained sand layers (ALLUVIUM)				
35		BOTTOM 4/27/82				

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- WATER LEVEL
- POROUS TIP

ATTERBERG LIMITS

- LIQUID LIMIT
- MEDIAN WATER CONTENT

0 – 0.5 – 1.0

◆ TORVANE STRENGTH, TSF

■ UNDRAINED SHEAR STRENGTH, TSF

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BORING LOG B-1

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.97 CASING: 34.79	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) △ BLOWS PER FOOT ○ MOISTURE CONTENT, % (0 – 50 – 100)
		Crushed rock	0.5			
5, 10		SAND; loose, brown, fine to medium grained, (FILL)				
			14.0	SHEEN		
15, 20		SAND; medium dense, gray, fine to medium grained, oily (FILL), contains a chunk of silt Water at 17-17.5 ft while drilling				
25			26.0			
30		SILT; medium stiff, gray with brown mottling, some stratified fine grained sand layers (ALLUVIUM)				
35		BOTTOM 4/27/82				

0 – 0.5 – 1.0
◇ TORVANE STRENGTH, TSF
▣ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
✱ SAMPLE NOT RECOVERED
▽ WATER LEVEL
▣ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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BORING LOG B-1

DATE MAY 1982 JOB NO. 210-1 FIG. 4

COPPOR00000219

DEPTH, FT	GRAPHIC LOG	CLASSIFICATION OF MATERIAL	DEPTH, FT.	GROUNDWATER	SAMPLES
		SURFACE ELEVATION: 35.59 CASING: 35.35			
		Gravel surface	0.5		
5, 10		SAND; loose, brown, fine to medium grained (FILL)			
			14.0	SHEEN	
15, 20		SAND; loose, brown to gray, fine to medium grained, oily (FILL)			
			21.0		
25, 30, 35		SILT; very soft to medium stiff, gray with brown mottling, some organics (ALLUVIUM)			
			35.0		
		BOTTOM 4/27/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %

0 50 100

0 0.5 1.

◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
✱ SAMPLE NOT RECOVERED

▼ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT

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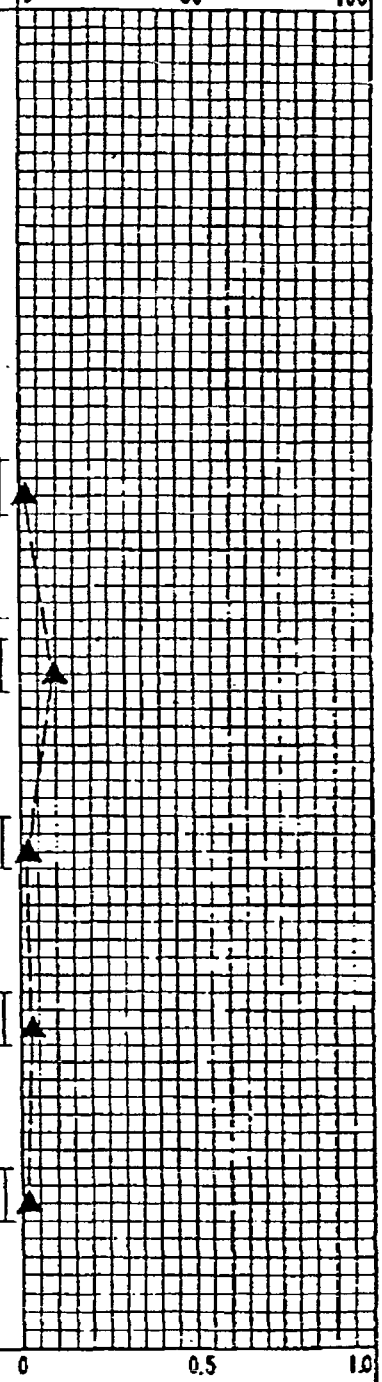
BORING LOG B-2

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.17 CASING: 34.91	DEPTH, FT.	GROUNDWATER	SAMPLES
		Gravel surface	0.5		
5, 10, 15		SAND; very loose, brown, fine to medium grained (FILL)			
			15.5	0.5 MW	
20		SAND; loose, brown to gray, fine to medium grained, oily (FILL)			
			21.0		
25, 30		SILT; soft, gray with brown mottling, organics (ALLUVIUM)			
			35.0		
35		BOTTOM 4/27/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
* SAMPLE NOT RECOVERED
ATTERBERG LIMITS
LIQUID LIMIT

▼ WATER LEVEL
■ POROUS TIP

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BORING LOG B-3

COPPOR00000221

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.17 CASING: 34.91	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, % (0 – 50 – 100)
		Gravel surface	0.5			
5, 10		SAND; very loose, brown, fine to medium grained (FILL)				
15			15.5	0.5 WK		
20		SAND; loose, brown to gray, fine to medium grained, oily (FILL)	21.0			
25, 30		SILT; soft, gray with brown mottling, organics (ALLUVIUM)	35.0			
35		BOTTOM 4/27/82				

0 – 0.5 – 1.0
◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
✱ SAMPLE NOT RECOVERED

▽ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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BORING LOG B-3

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.98 CASING: 34.79	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, % (0 – 50 – 100)
		Asphalt	1.0			
5		SAND; very loose to loose, brown, fine to medium grained (FILL)				
10			10.0			
15		SAND; very loose to loose, gray, fine to medium grained, oily (FILL) Water at 18 ft while drilling		SHEEN		
20						
25			25.5			
30		SILT; soft to medium stiff, gray (ALLUVIUM)				
35						

0 – 0.5 – 1.0
◆ TORVANE STRENGTH, TSF
▬ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
✱ SAMPLE NOT RECOVERED

▼ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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BORING LOG B-4

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION:	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, %
40			41.5			0 50 100
		BOTTOM 4/27/82				
45						

0 0.5 1.0

◆ TORVANE STRENGTH, TSF

■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE

II 3.0" O.D. THIN WALLED SAMPLE

G GRAB SAMPLE OF DRILL CUTTINGS

NX CORE RUN

✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS

LIQUID LIMIT

WATER LEVEL

POROUS TIP

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BORING LOG B-4 (CONT.)

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.98 CASING: 34.79	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ⊙ MOISTURE CONTENT, % (0 – 50 – 100)
		Asphalt	1.0			
5		SAND; very loose to loose, brown, fine to medium grained (FILL)				
10			10.0			
15		SAND; very loose to loose, gray, fine to medium grained, oily (FILL) Water at 18 ft while drilling		SHEEN		
20						
25			25.5			
30		SILT; soft to medium stiff, gray (ALLUVIUM)				
35						

0 – 0.5 – 1.0
◆ TORVANE STRENGTH, TSF
◘ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
* SAMPLE NOT RECOVERED

▽ WATER LEVEL
POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT
PLASTIC LIMIT

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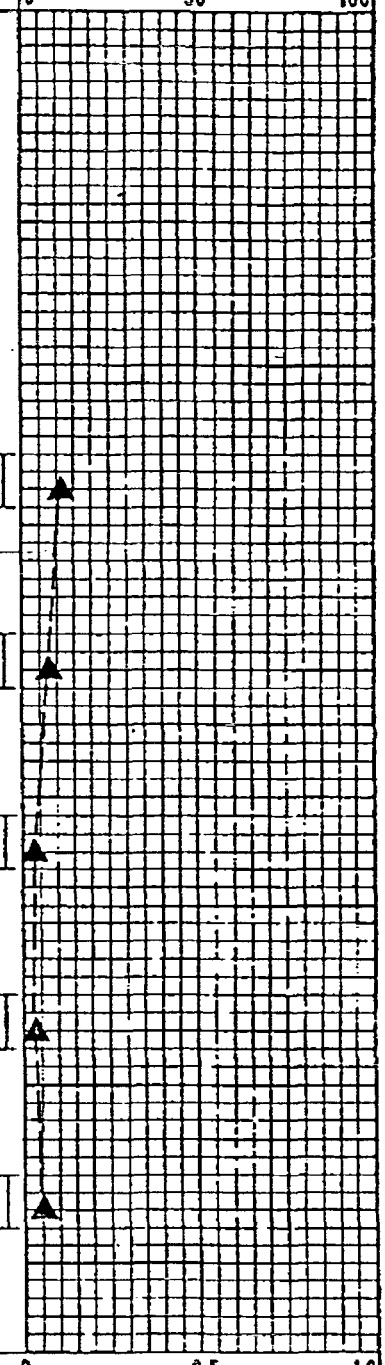
BORING LOG B-4

DATE MAY 1962 JOB NO. 210-1 FIG. 7

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.43 CASING: 34.83	DEPTH, FT.	GROUNDWATER	SAMPLES
		Gravel surface	0.5		
5 10		SAND; loose to medium dense, brown, fine to medium grained (FILL)			
			13.5	SHEEN	
15 20		SAND; loose, gray, fine to medium grained, oily (FILL) Water at 13.5 ft while drilling			
			23.5		
25 30		SILT; soft to medium stiff, gray, organics Rotten wood at 23.5-24 ft			
35		BOTTOM 4/27/82	35.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▼ WATER LEVEL
- ▬ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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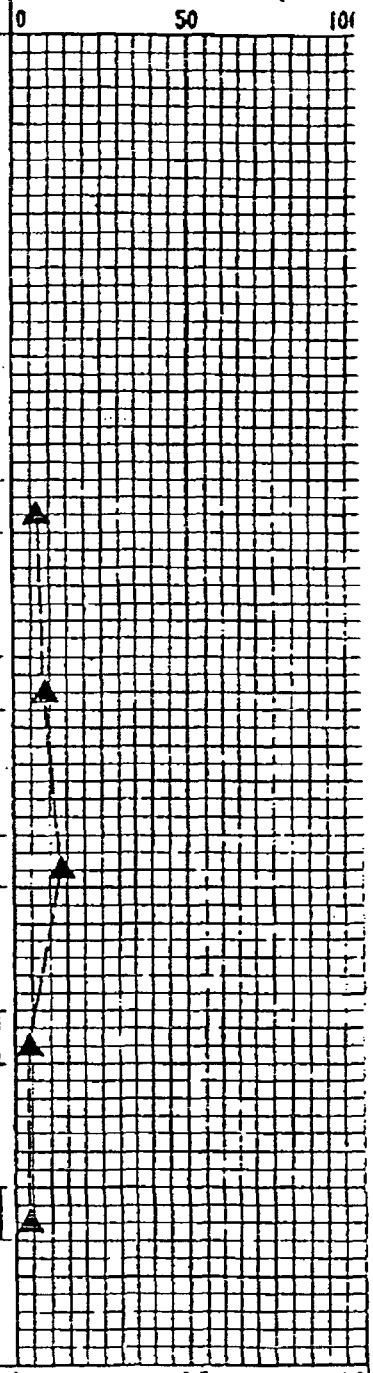
PORTLAND, OREGON

BORING LOG B-5

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.72 CASING: 35.41	DEPTH, FT.	GROUNDWATER	SAMPLES
5 10		SAND; loose to medium dense, brown fine to medium grained (FILL)	11.0		
15 20 25		SAND; loose to medium dense, gray brown to gray, fine to medium grained, oily (FILL)	26.0	SHEEN	
30 35		SILT; soft, gray, organics (ALLUVIUM)	35.0		
		BOTTOM 4/27/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED
- WATER LEVEL
- POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT

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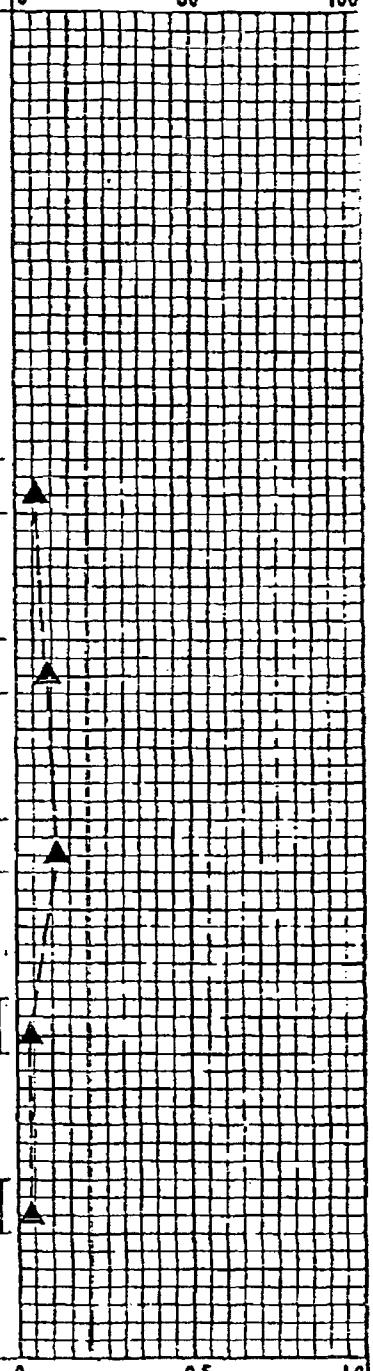
PORTLAND, OREGON

BORING LOG B-6

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.16 CASING: 35.82	DEPTH, FT.	GROUNDWATER	SAMPLES
		Crushed rock	1.0		
5		SAND; loose, brown, fine to medium grained (FILL)			
10		SAND; loose to medium dense, gray, fine to medium grained, oily (FILL)	10.0	SHEEN	
15					
20					
25		SILT; soft, gray, trace of clay, some stratified sand near contact, organics (ALLUVIUM)	25.0		
30					
35		BOTTOM 4/29/82	35.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
▌ NX CORE RUN
✱ SAMPLE NOT RECOVERED

▼ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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BORING LOG B-16

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.84 CASING: 35.59	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, % (0 – 50 – 100)
		Crushed rock	0.5			
5		SAND: loose, brown, fine to medium grained (FILL)				
10		SAND: loose to medium dense, gray, fine to medium grained, oily (FILL) Water at 17 ft while drilling	10.0	MW 1		
15						
20						
25		SILT: soft, gray, some stratified sand and wood near contact (ALLUVIUM)	25.0			
30		BOTTOM 4/29/82	30.0			
35						

0 – 0.5 – 1.0
◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- SAMPLE NOT RECOVERED
- ▼ WATER LEVEL
- ■ POROUS TIP

ATTERBERG LIMITS
- LIQUID LIMIT

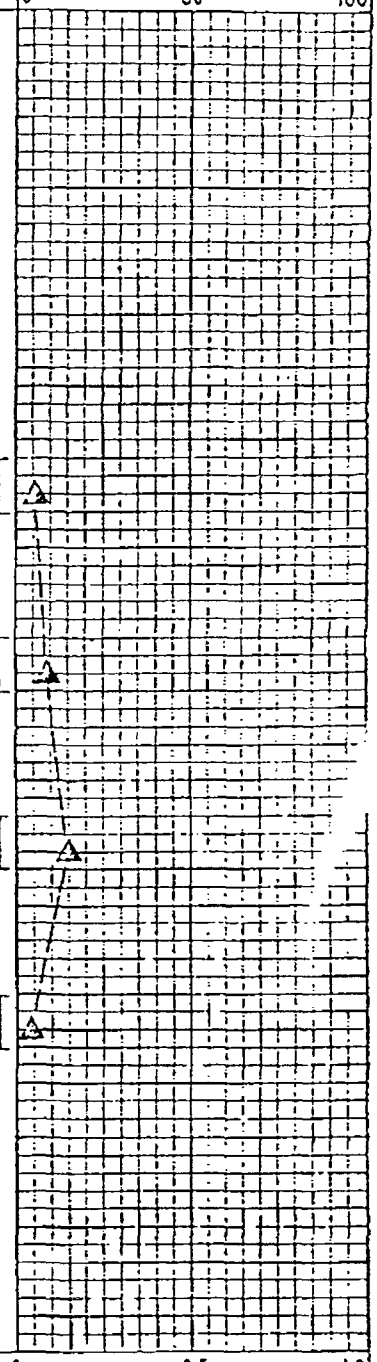
FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-17

COPPOR00000229

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.84 CASING: 35.59	DEPTH, FT.	GROUNDWATER	SAMPLES
		Crushed rock	0.5		
5		SAND: loose, brown, fine to medium grained (FILL)			
10		SAND: loose to medium dense, gray, fine to medium grained, oily (FILL) Water at 17 ft while drilling	10.0	1 MW	
15					
20					
25		SILT: soft, gray, some stratified sand and wood near contact (ALLUVIUM)	25.0		
30		BOTTOM 4/29/82	30.0		
35					

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED
- ▽ WATER LEVEL
- ■ POROUS TIP

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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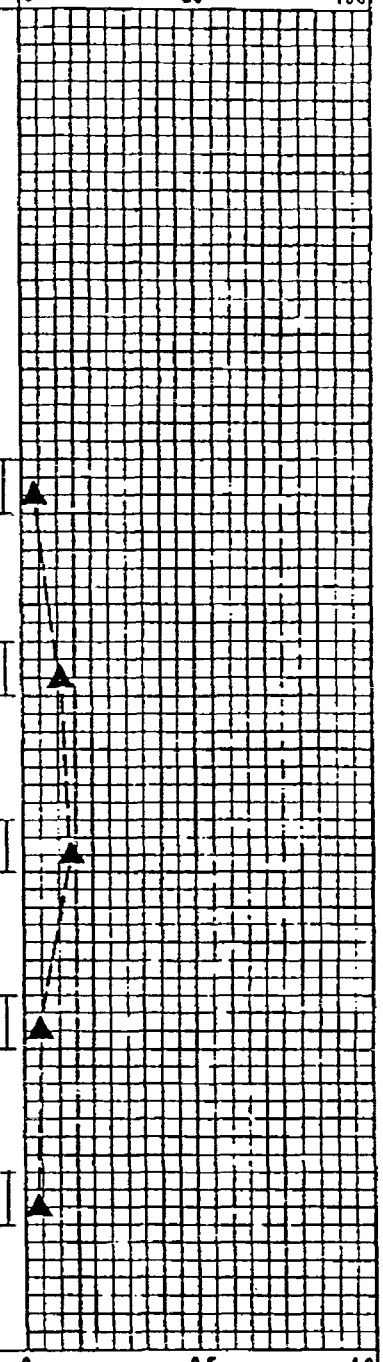
BORING LOG B-17

DATE MAY 1982 JOB NO. 210-1 FIG. 20

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.03 CASING: 35.76	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND: loose, brown, fine to medium grained, occasional rock (FILL)	16.5	SHEEN	
		SAND; medium dense, gray, fine to medium grained, oily (FILL)	25.0		
		SILT: soft, gray, some organics (ALLUVIUM)	35.0		
		BOTTOM 4/29/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
HX CORE RUN
✱ SAMPLE NOT RECOVERED

▼ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT
PLASTIC LIMIT

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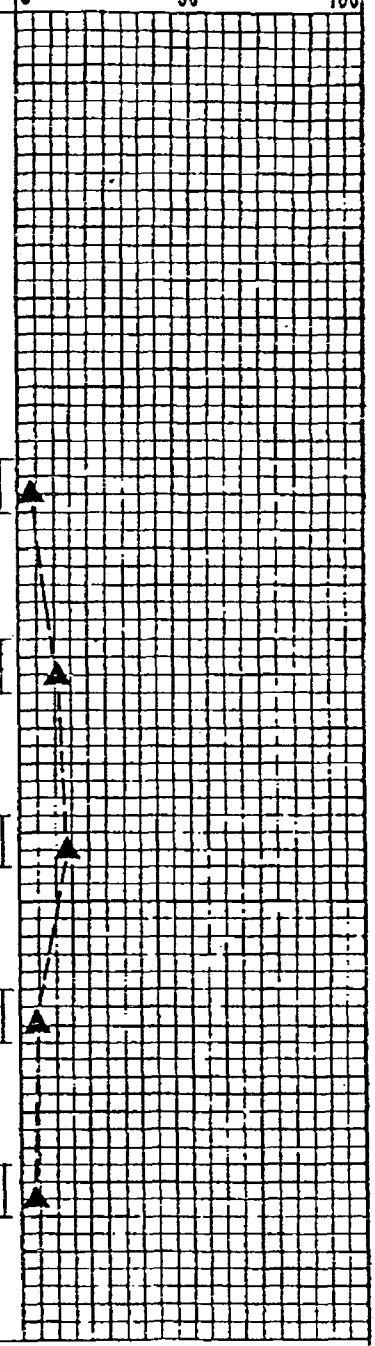
BORING LOG B-18

DATE MAY 1982 JOB NO. 210-1 FIG. 21

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.03 CASING: 35.76	DEPTH, FT.	GROUNDWATER	SAMPLES
5 10 15		SAND: loose, brown, fine to medium grained, occasional rock (FILL)	16.5	SHEEN	
20 25		SAND; medium dense, gray, fine to medium grained, oily (FILL)	25.0		
30 35		SILT: soft, gray, some organics (ALLUVIUM)	35.0		
		BOTTOM 4/29/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



◆ TORVANE STRENGTH, TSF
■ UNDRAINED SHEAR STRENGTH, TSF

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
* SAMPLE NOT RECOVERED

▼ WATER LEVEL
■ POROUS TIP

ATTERBERG LIMITS
LIQUID LIMIT
NATURAL WATER CONTENT

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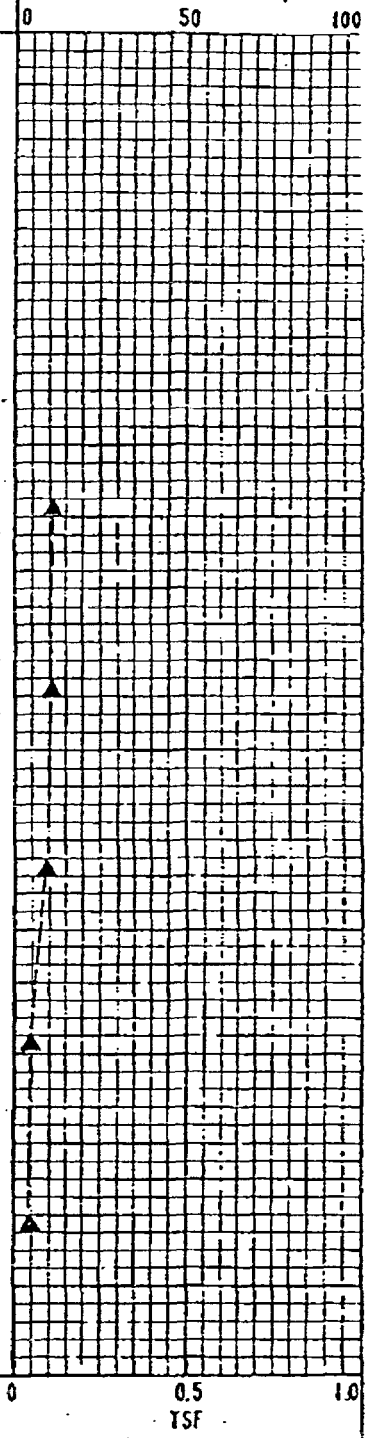
BORING LOG B-18

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.94 CASING: 34.67	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND, GRAVEL; loose, brown	1.5		
5		SAND; loose to medium dense, brown, fine to medium grained (FILL)			
10					
15				▼ 7/19/82 SHEEN	
20		SAND; loose, gray, fine to medium grained (FILL)	20.0		
25					
30		SILT; soft to medium stiff, gray to greenish gray with brownish red mottling, organics (ALLUVIUM)	28.0		
35		Bottom 7/6/82	35.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED
- ▼ WATER LEVEL
- ■ POROUS TIP
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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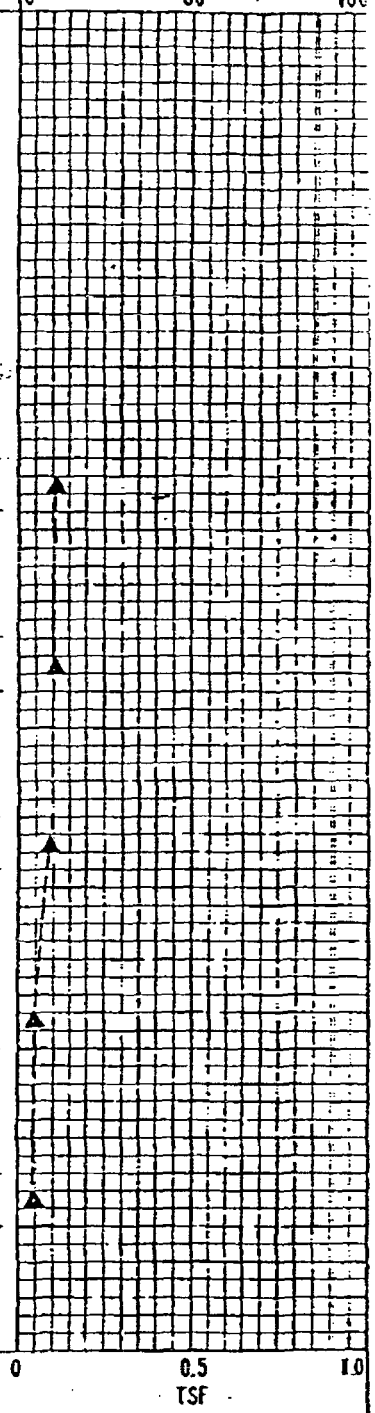
PORTLAND, OREGON

BORING LOG B-22

DATE JULY, 1982 JOB NO. 20-1-2 FIG.

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.94 CASING: 34.67	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND, GRAVEL; loose, brown	1.5		
5		SAND; loose to medium dense, brown, fine to medium grained (FILL)			
10					
15				7/19/82 SHEEN	
20		SAND; loose, gray, fine to medium grained (FILL)	20.0		
25					
30		SILT; soft to medium stiff, gray to greenish gray with brownish red mottling, organics (ALLUVIUM)	28.0		
35		Bottom 7/6/82	35.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- SAMPLE NOT RECOVERED
- WATER LEVEL
- POROUS TIP
- TORVANE STRENGTH TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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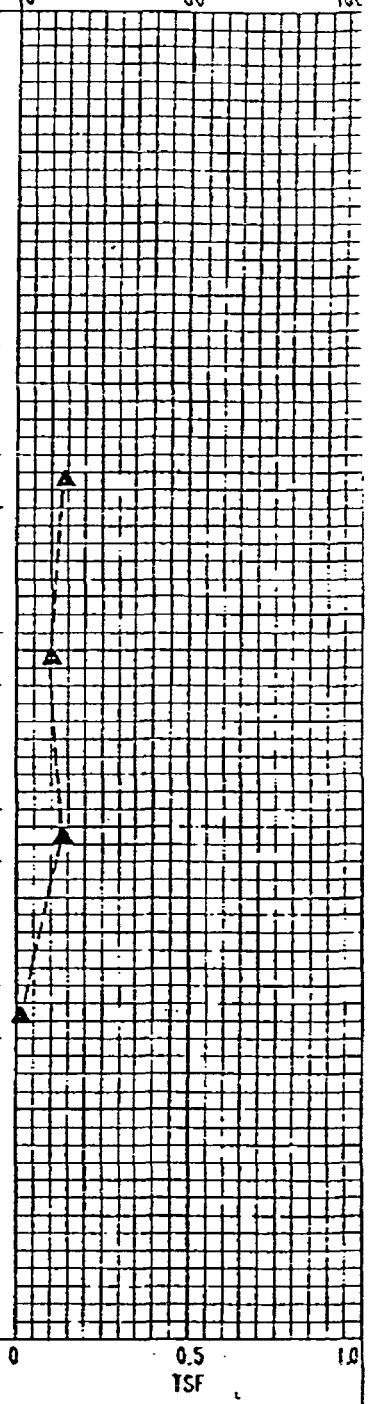
BORING LOG B-22

DATE JULY, 1982 JOB NO. 20-1-2 FIG.

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.33 CASING: 35.83	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND; loose to medium dense, brown to greenish brown, fine to medium grained, organics (FILL)			
5					
10					
15		18.3-2 in. wood fragment		7/19/82 SHEEN ?	
20		SAND; medium dense, gray, fine to medium grained, wood fragments (FILL)	20.0		
25					
		SILT; very soft to soft, greenish gray to gray with some brown mottling, organics (ALLUVIUM)	26.0		
30		Bottom 7/7/82	30.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- ▼ WATER LEVEL
- ■ POROUS TIP
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

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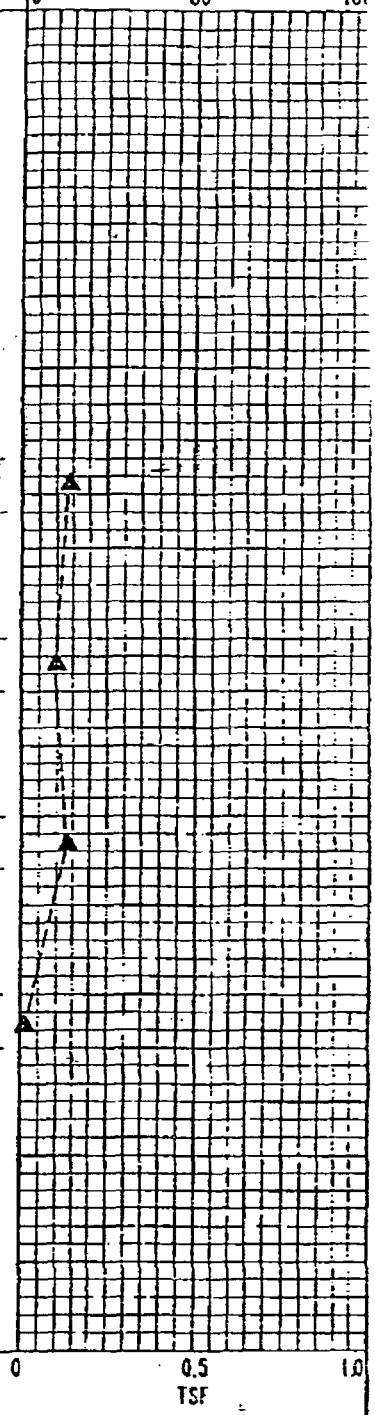
BORING LOG B-25

DATE JULY, 1982 JOB NO. 20-1-2 FIG.

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.33 CASING: 35.83	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND; loose to medium dense, brown to greenish brown, fine to medium grained, organics (FILL)			
5					
10					
15		18.3-2 in. wood fragment		7/19/82 SHEEN ?	
20		SAND; medium dense, gray, fine to medium grained, wood fragments (FILL)	20.0		
25			26.0		
		SILT; very soft to soft, greenish gray to gray with some brown mottling, organics (ALLUVIUM)			
30		Bottom 7/7/82	30.0		

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN-WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▽ WATER LEVEL
- POROUS TIP
- ◆ TORVANE STRENGTH TONS/SQ. FT. (TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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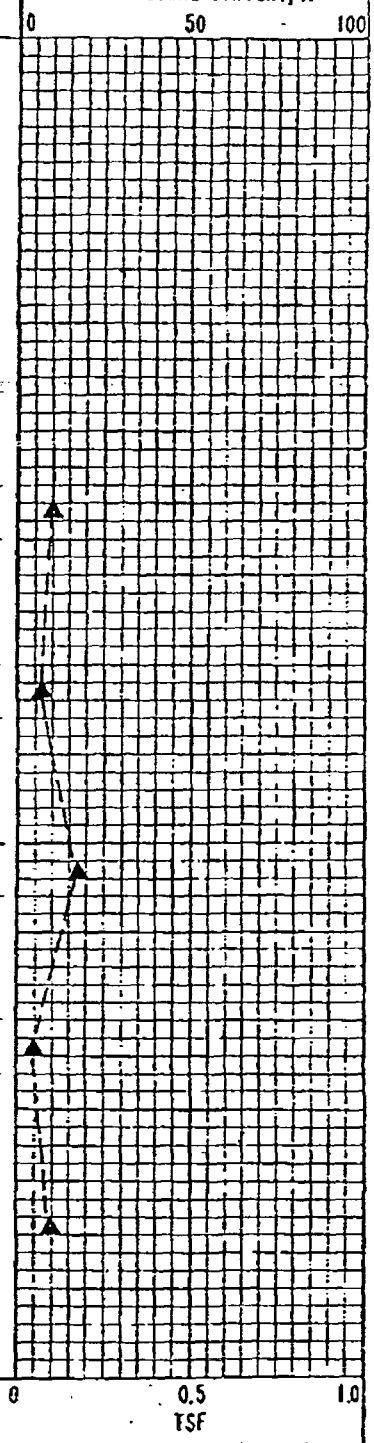
BORING LOG B-25

DATE JULY, 1982 JOB NO. 20-1-2 FIG.

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.94 CASING: 35.74	DEPTH, FT.	GROUNDWATER	SAMPLES
		SAND, GRAVEL	1.0		
5		SAND; loose to medium dense, brown to gray-brown, fine to medium grained (FILL)			
10			10.0		
15		SAND; loose to medium dense, gray, fine to medium grained, oily (FILL)		7/19/82 SHEEN	
20		SAND; loose, gray brown to gray, fine to medium grained, some SILT, organics, oily (FILL)	17.0		
25		SAND; medium dense, greenish gray, fine to medium grained (FILL)	21.5		
30		SILT; medium stiff, gray to greenish gray with orange-brown mottling (ALLUVIUM)	28.0		
35		SILT; stiff, brown to gray-brown with gray mottling (ALLUVIM)	33.0		
		Bottom 7/7/82			

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED
- ▼ WATER LEVEL
- POROUS TIP
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

FOUNDATION SCIENCES, INC.
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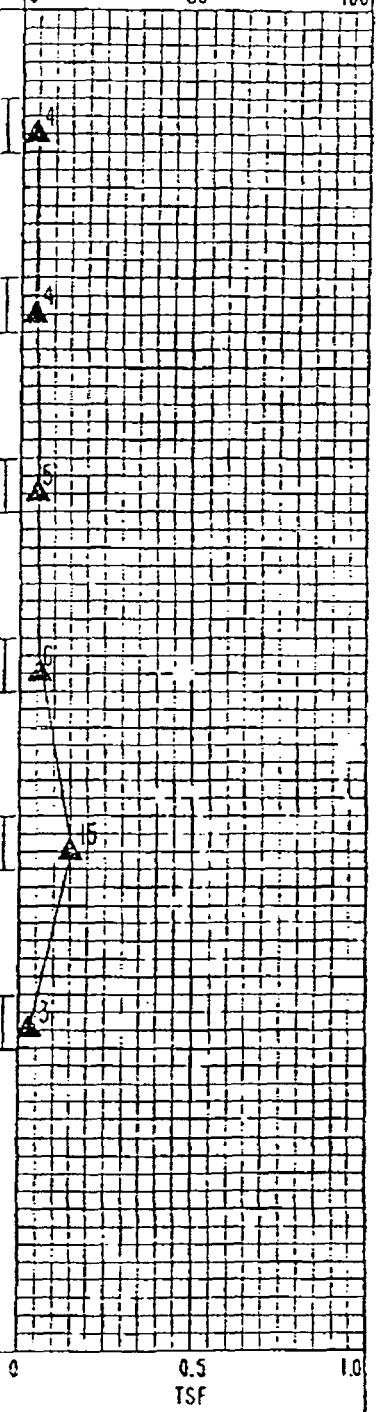
BORING LOG B-27

DATE JULY, 1982 JOB NO. 210-1-2 FIG.

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.39 FT	DEPTH, FT.	GROUNDWATER	SAMPLES	STD. PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT ● MOISTURE CONTENT, % (0 – 50 – 100)
5, 10, 15		FILL: SAND; very loose to loose, brown, fine- to medium-grained, clean.		3/7/83	S-1, S-2, S-3	
20		Becomes gray below 17.5 ft Very strong product odor and sheen on samples S-4, S-5 and S-6.	17.5		S-4	
25		1 in. gray silt and several pieces of gravel in sample S-5.			S-5, S-6	
30		(3/3/83)	31.0			



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- SAMPLE NOT RECOVERED
- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT (TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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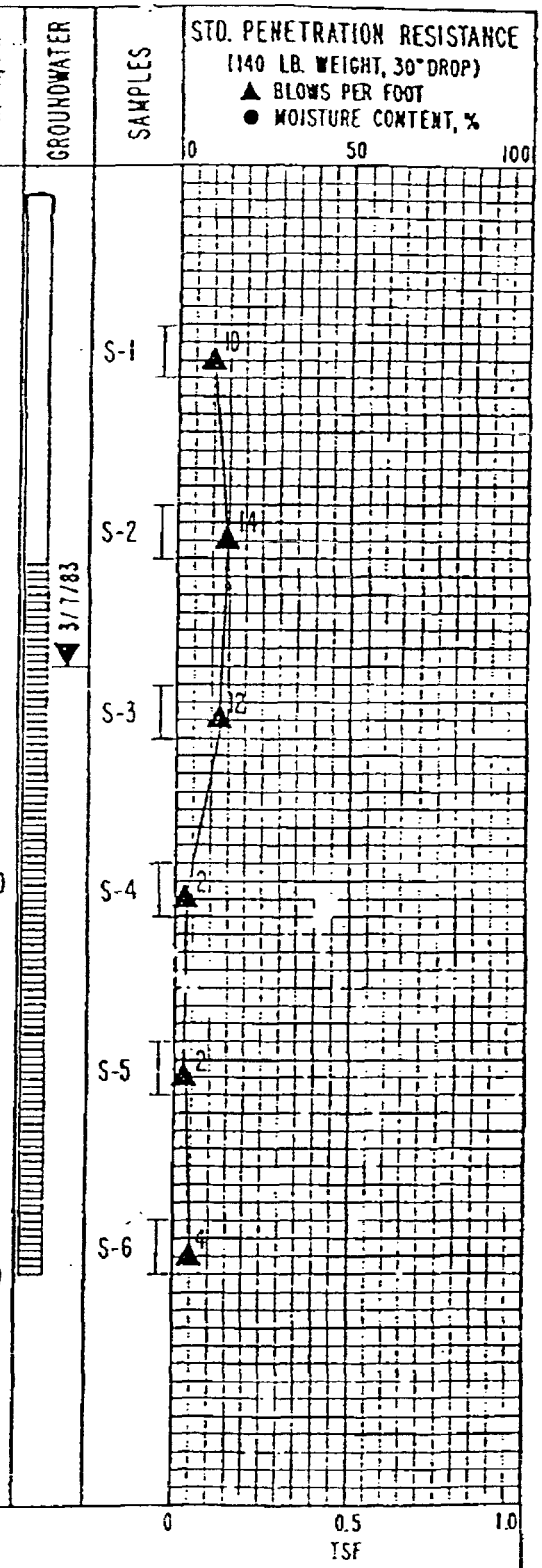
PORTLAND, OREGON

BORING LOG B-35

DATE MARCH 1983 JOB NO. 239-1 FIG. 5

COPPOR00000238

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 31.74 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
20		ALLUVIUM: SILT; very soft to soft, gray, mottled red-brown at 25 ft.	20.0
30		(3/3/83)	31.0



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

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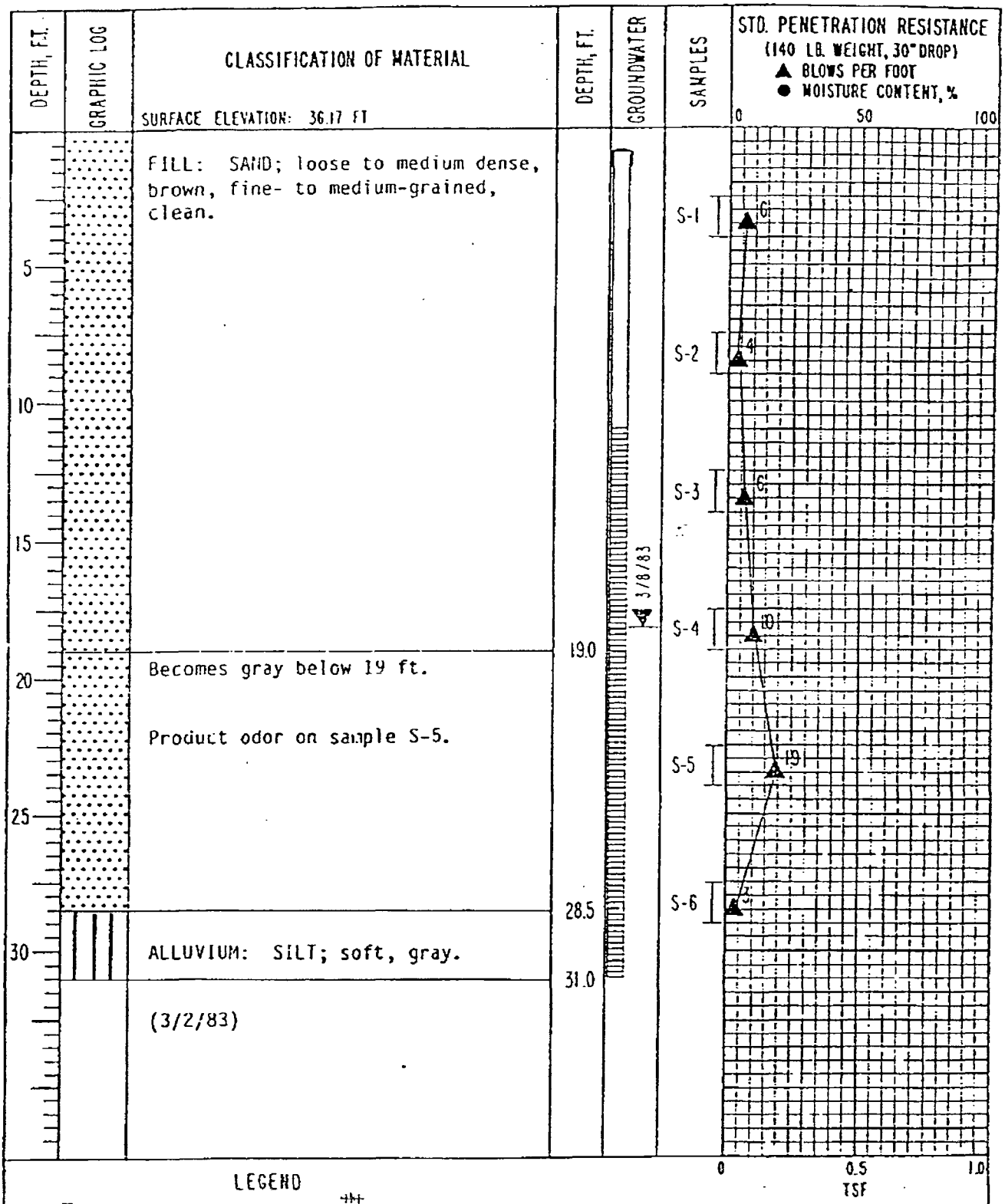
BORING LOG B-36

DATE MARCH 1983 JOB NO. 239-1 FIG. 6

COPPOR00000239

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.17 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
		Becomes gray below 19 ft. Product odor on sample S-5.	19.0
		ALLUVIUM: SILT; soft, gray.	28.5
		(3/2/83)	31.0



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH(TSF)

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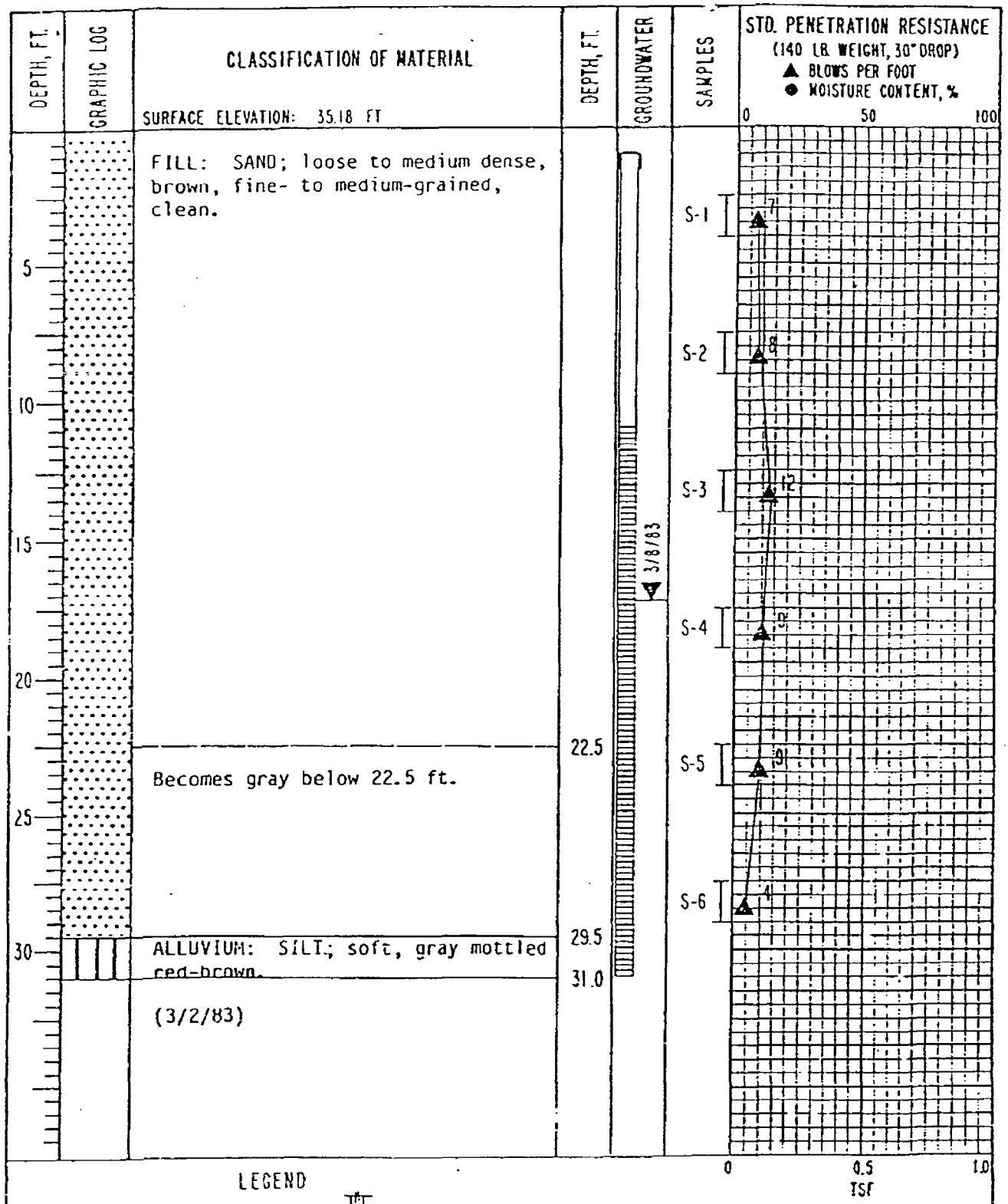
BORING LOG B-37

DATE MARCH, 1983 JOB NO. 239-1 FIG. 7

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.18 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
		Becomes gray below 22.5 ft.	22.5
		ALLUVIUM: SILT; soft, gray mottled red-brown.	29.5
		(3/2/83)	31.0



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- SAMPLE NOT RECOVERED
- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

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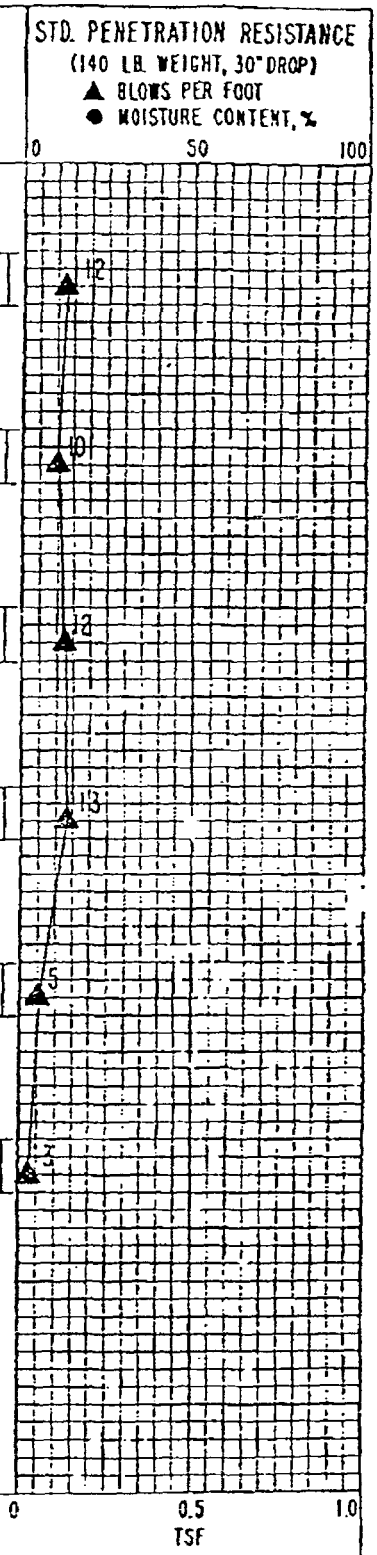
BORING LOG B-38

DATE MARCH, 1983 JOB NO. 239-1 FIG. 8

COPPOR00000241

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.61 FT	DEPTH, FT.	GROUNDWATER	SAMPLES
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.			S-1, S-2, S-3, S-4
		Becomes gray below 22.5 ft. 4 in. gray silt. Strong product odor on samples S-5 and S-6.	22.5	3/8/83	S-5
		ALLUVIUM: SILT; soft, gray.	28.3		S-6
		(3/2/83)	31.0		



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

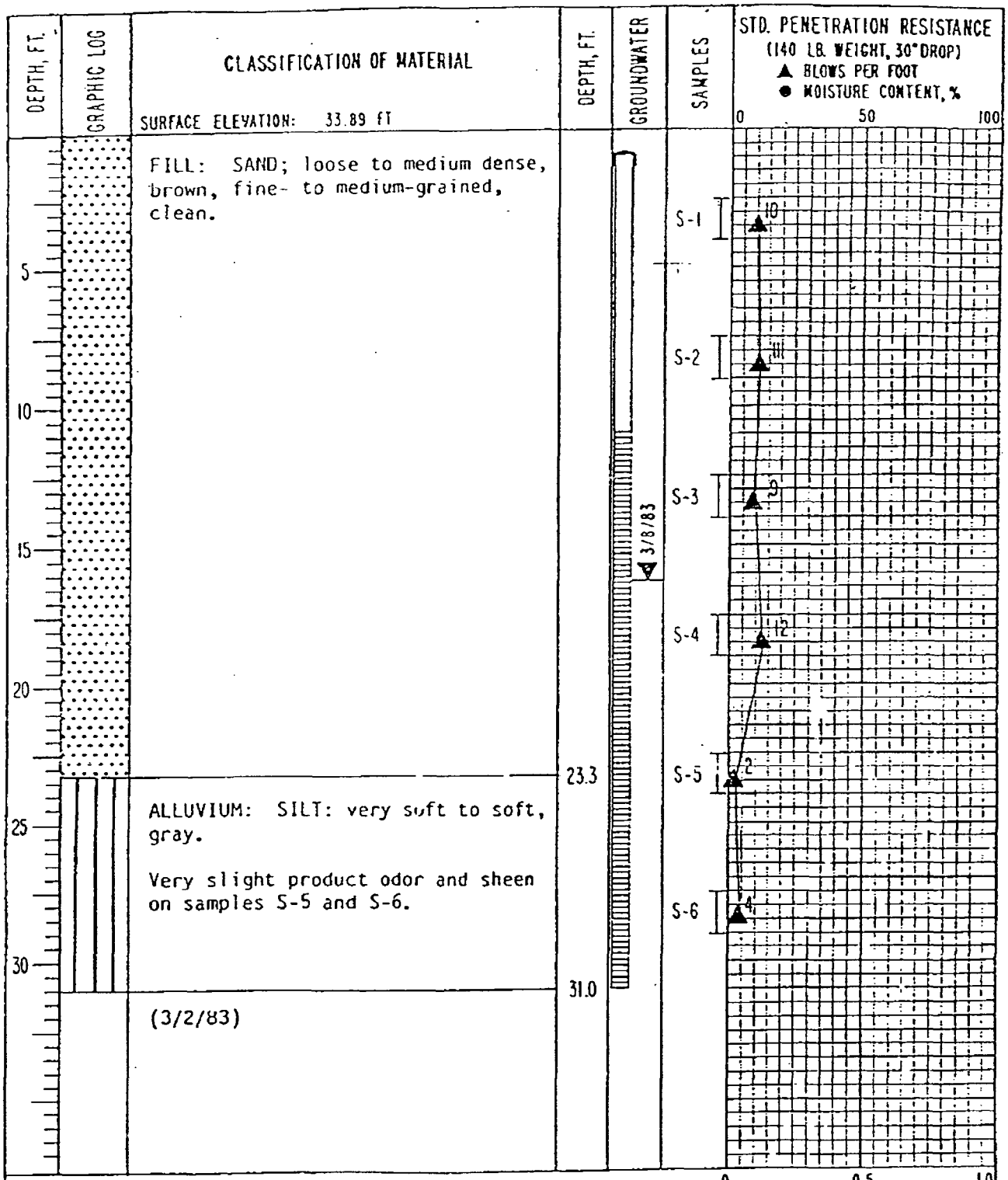
- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH (TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-39

DATE MARCH, 1983 JOB NO. 239-1 FIG. 9

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 33.89 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
		ALLUVIUM: SILT: very soft to soft, gray. Very slight product odor and sheen on samples S-5 and S-6.	23.3
		(3/2/83)	31.0



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT (TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-40

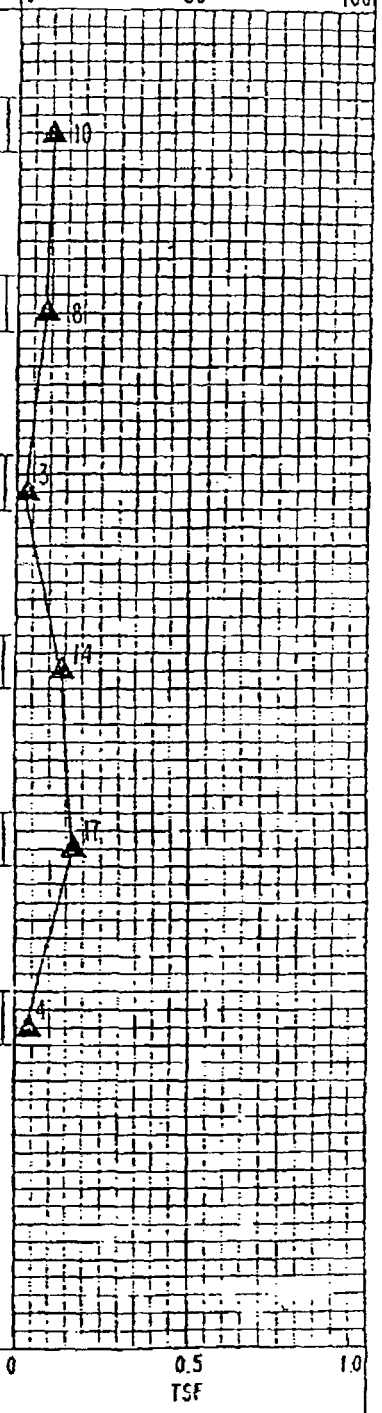
DATE MARCH, 1983 JOB NO. 239-1 FIG. 10

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.96 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
5			
10			
15			
20			21.0
		Becomes gray below 21 ft.	
		1 in. gray silt, inclined 30°.	
25		Very slight product odor and sheen on sample S-6.	
			29.5
30		ALLUVIUM: SILT; soft, gray.	30.0
		(3/2/83)	

GROUNDWATER: 3/8/83

SAMPLES: S-1, S-2, S-3, S-4, S-5, S-6

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ. FT. (TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

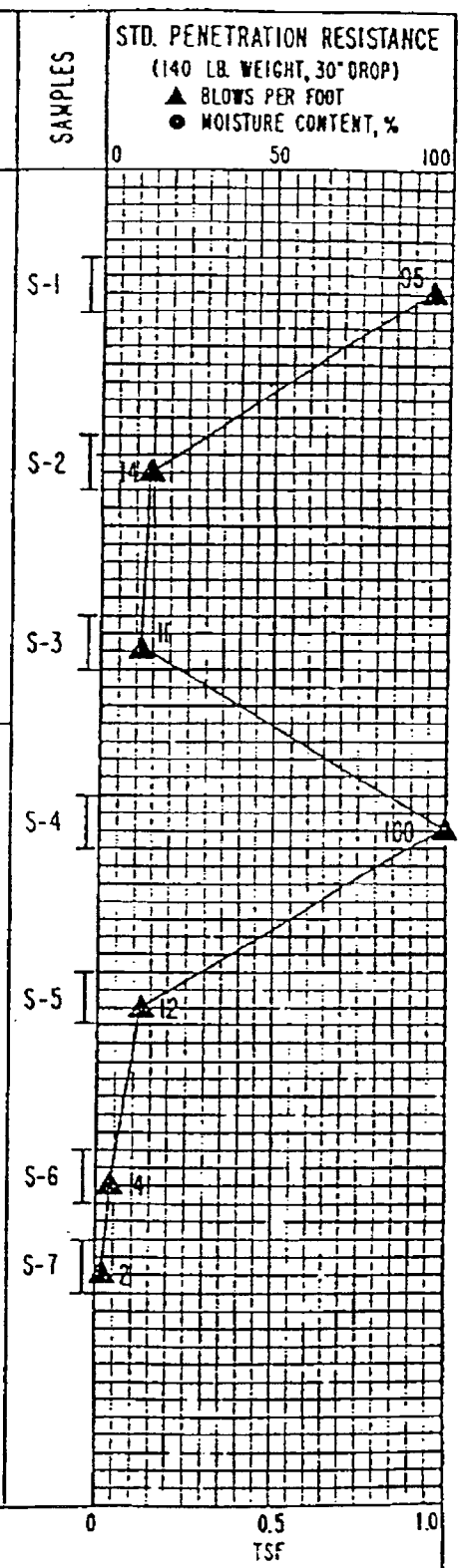
FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-41

DATE MARCH, 1983 JOB NO. 239-1 FIG. 11

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.49 FT	DEPTH, FT.
		Asphalt	0.5
5		FILL: Gravel and angular rock fragments, silty; very dense, brown.	8.5
10		FILL: SAND; medium dense, brown, fine- to medium-grained, clean.	
15			
		Light-colored wood.	
20			21.0
		Becomes gray below 21 ft. Very strong product odor and sheen on sample S-5.	
25			
30		1 in. gray silt at bottom of S-7.	31.5
		(3/2/83)	

GROUNDWATER: 3/7/83



LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

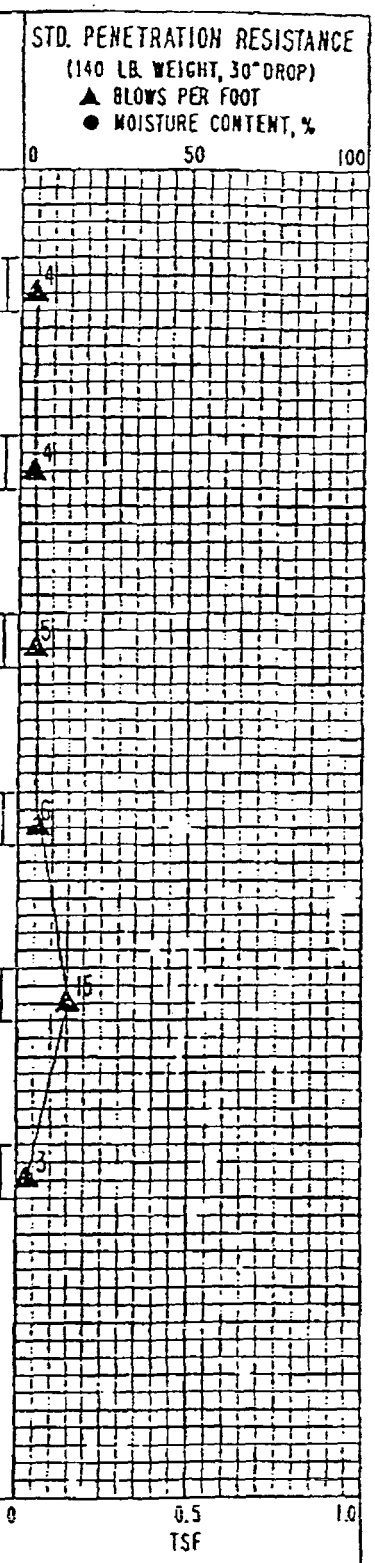
- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ▣ UNDRAINED SHEAR STRENGTH (TSF)

FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-34

DATE MARCH, 1983 JOB NO. 239-1 FIG. 4

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.39 FT	DEPTH, FT.	GROUNDWATER	SAMPLES
		FILL: SAND; very loose to loose, brown, fine- to medium-grained, clean.			S-1, S-2, S-3
		Becomes gray below 17.5 ft Very strong product odor and sheen on samples S-4, S-5 and S-6.	17.5	3/7/83	S-4, S-5, S-6
		1 in. gray silt and several pieces of gravel in sample S-5.			
		(3/3/83)	31.0		



LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

FOUNDATION SCIENCES, INC.
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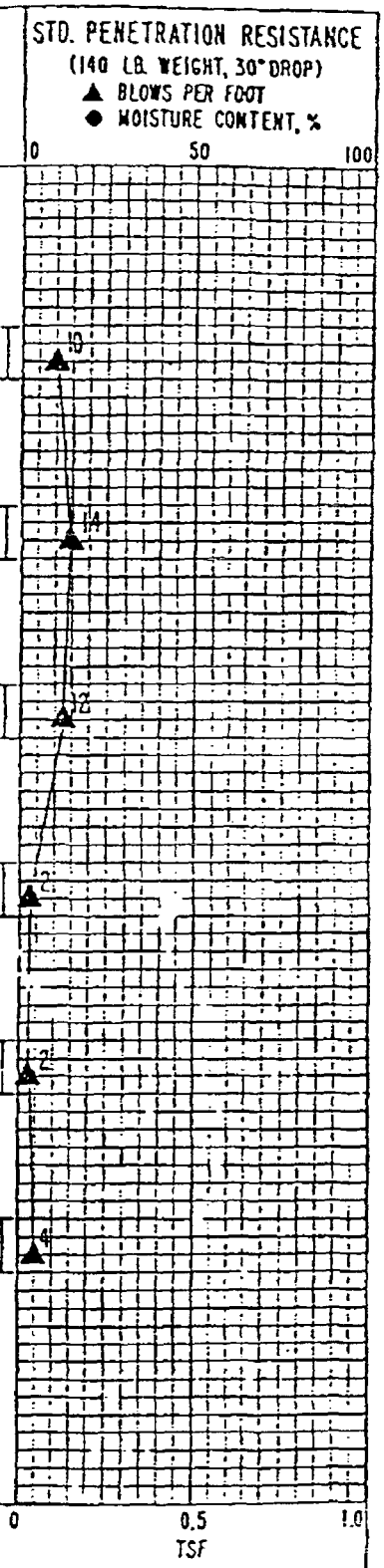
PORTLAND, OREGON

BORING LOG B-35

DATE MARCH 1983 JOB NO. 230-1 FIG. 5

COPPOR00000246

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 31.74 FT	DEPTH, FT.	GROUNDWATER	SAMPLES
0–20		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.		3/7/83	S-1, S-2, S-3
20–31		ALLUVIUM: SILT; very soft to soft, gray, mottled red-brown at 25 ft.	20.0		S-4, S-5, S-6
31		(3/3/83)	31.0		



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS

- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ. FT. (TSF)
- UNDRAINED SHEAR STRENGTH (TSF)

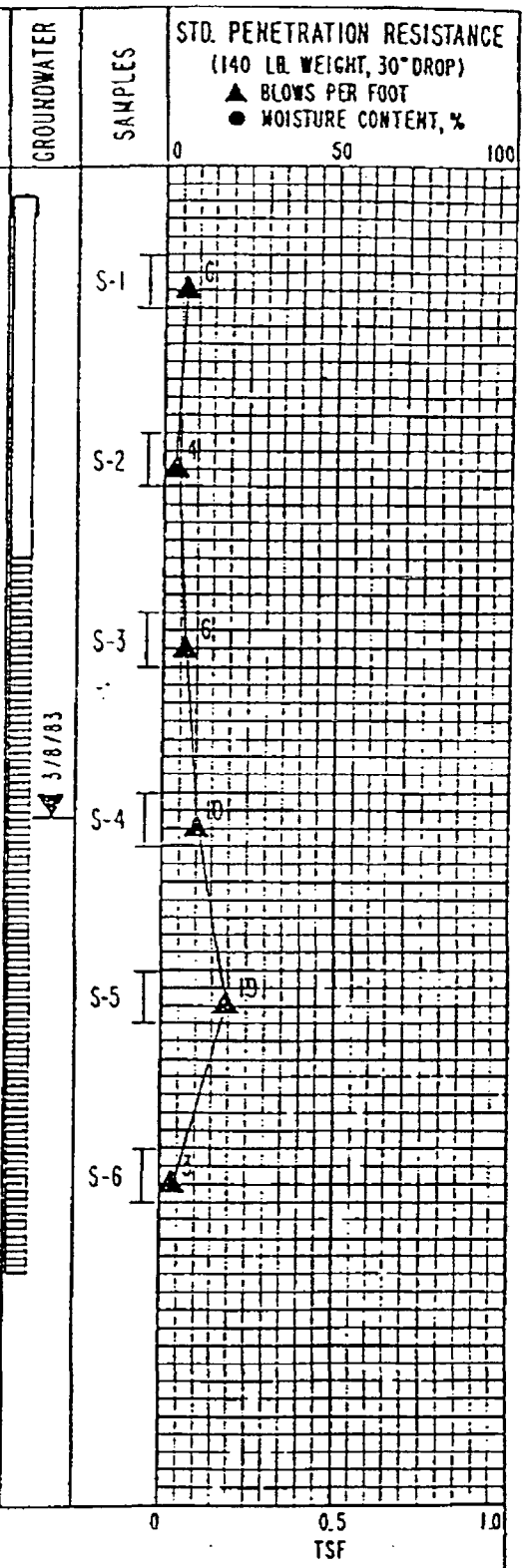
FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-36

DATE MARCH 1983 JOB NO. 239-1 FIG. 6

COPPOR00000247

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 36.17 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
5			
10			
15			
			19.0
20		Becomes gray below 19 ft. Product odor on sample S-5.	
25			
			28.5
30		ALLUVIUM: SILT; soft, gray.	
			31.0
		(3/2/83)	



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- TORVANE STRENGTH TONS/SQ.FT.(TSF)
- UNDRAINED SHEAR STRENGTH(TSF)

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GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-37

DATE MARCH, 1983 JOB NO. 239-1 FIG. 7

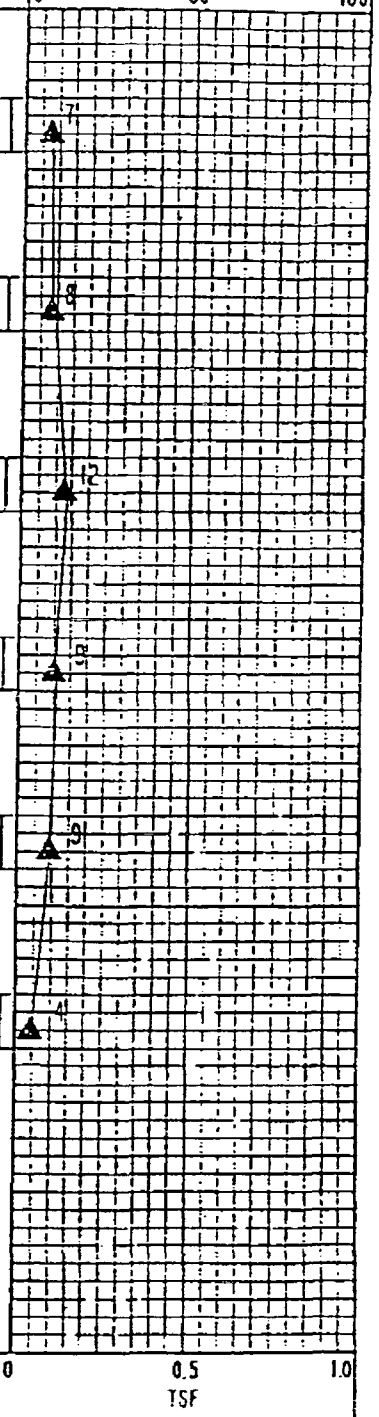
COPPOR00000248

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 35.18 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
5			
10			
15			
20			
		Becomes gray below 22.5 ft.	22.5
25			
30		ALLUVIUM: SILT; soft, gray mottled red-brown.	29.5
		(3/2/83)	31.0

GROUNDWATER: 3/8/83

SAMPLES: S-1, S-2, S-3, S-4, S-5, S-6

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

FOUNDATION SCIENCES, INC.
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PORTLAND, OREGON

BORING LOG B-38

DATE MARCH, 1983 JOB NO. 239-1 FIG. 8

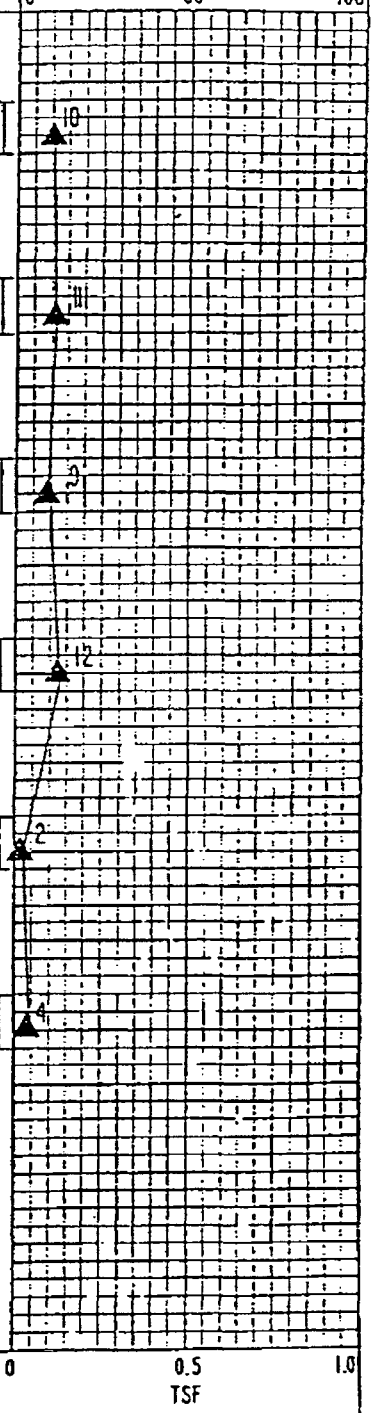
COPPOR00000249

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 33.89 FT	DEPTH, FT.
0–23.3		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
23.3–31.0		ALLUVIUM: SILT: very soft to soft, gray. Very slight product odor and sheen on samples S-5 and S-6.	23.3
31.0		(3/2/83)	31.0

GROUNDWATER: 3/8/83

SAMPLES: S-1, S-2, S-3, S-4, S-5, S-6

STD. PENETRATION RESISTANCE
(140 LB. WEIGHT, 30" DROP)
▲ BLOWS PER FOOT
● MOISTURE CONTENT, %



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- HX CORE RUN
- ✱ SAMPLE NOT RECOVERED

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ.FT.(TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

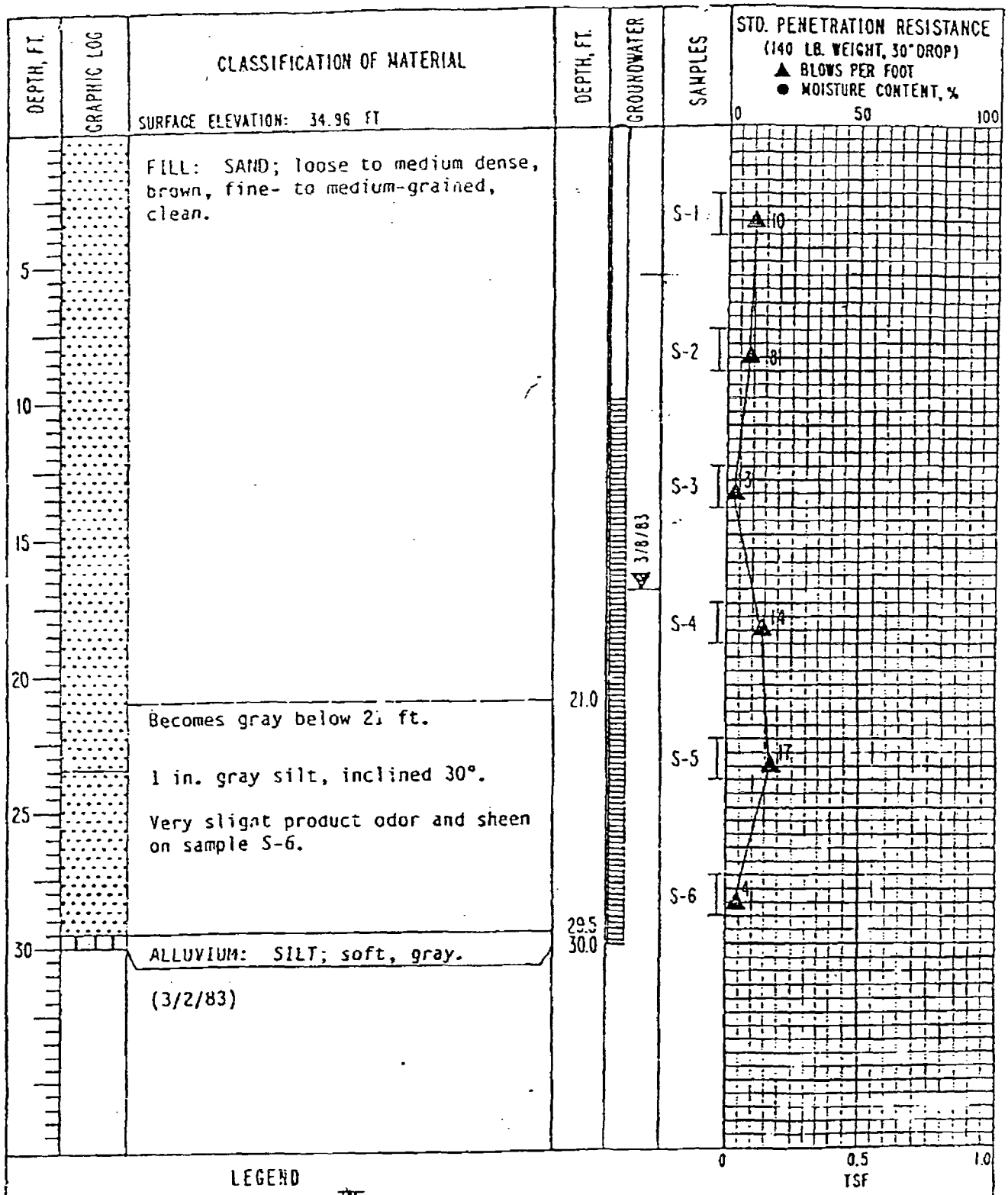
FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-40

DATE MARCH, 1983 JOB NO. 239-1 FIG. 10

COPPOR00000250

DEPTH, FT.	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: 34.96 FT	DEPTH, FT.
		FILL: SAND; loose to medium dense, brown, fine- to medium-grained, clean.	
		Becomes gray below 21 ft.	21.0
		1 in. gray silt, inclined 30°.	
		Very slight product odor and sheen on sample S-6.	
		ALLUVIUM: SILT; soft, gray.	29.5 30.0
		(3/2/83)	



LEGEND

- 2.0" O.D. SPLIT SPOON SAMPLE
- 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- ✱ SAMPLE NOT RECOVERED
- WATER LEVEL
- SLOTTED CASING
- ◆ TORVANE STRENGTH TONS/SQ. FT. (TSF)
- ■ UNDRAINED SHEAR STRENGTH (TSF)

ATTERBERG LIMITS
- LIQUID LIMIT
- NATURAL WATER CONTENT
- PLASTIC LIMIT

FOUNDATION SCIENCES, INC.
GEOTECHNICAL CONSULTANTS
PORTLAND, OREGON

BORING LOG B-41

DATE MARCH, 1983 JOB NO. 239-1 FIG. 11

COPPOR00000251

DEPTH, FT	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION:	DEPTH, FT	GROUNDWATER	SAMPLE	(140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT 0 10 20 30
		LIGHT TO DARK BROWN - MEDIUM SAND - LOOSE			8 9.5	
10						
		13.5			13 14.5	
15		BLACK MEDIUM SAND STRONG DEISEL SMELL				
					18 19.5	
20						
					23 24.5	
25						
		29			28 29.5	
30		DARK GREY SILT - PLASTIC DENSE				

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE

II 3.0" O.D. THIN WALLED SAMPLE

G GRAB SAMPLE OF DRILL CUTTINGS

NX CORE RUN

* SAMPLE NOT RECOVERED

▼ WATER LEVEL

RIEDEL INTERNATIONAL, INC.
1 NICHANNEL AVE.
P.O. BOX 3000 PORTLAND, OREGON 97208

BORING LOG U-2

DATE 3-19-85 JOB NO. 8204 FIG. 1/1

COPPOR00000252

DEPTH, FT	GRAPHIC LOG	CLASSIFICATION OF MATERIAL SURFACE ELEVATION:	DEPTH, FT	GROUNDWATER	SAMPLE	(140 LB WEIGHT, 30" DROP) BLOWS PER FOOT 0 10 20 50 100
		BROWN MEDIUM GRAINED SAND LOOSE - NO GAS ODOR			7 / 15	
5						
					8 / 9	
10						
					13 / 18	
		STONG GAS ODOR				
15						
		?		▽ 17"		
		DARK GREY GREEN SILT DENSE - NO GAS ODOR			16 / 19	
20						
		?				
		LIGHT BROWN SILT - DENSE NO GAS ODOR			13 / 24	
25						
30						

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▽ WATER LEVEL

RIEDEL INTERNATIONAL INC
[illegible] N. CHANNEL AVE
P.O. BOX [illegible] PORTLAND OREGON [illegible]

BORING LOG U-3

DATE 3-20-85 JOB NO. 8504 FIG. 1/1

COPPOR00000253

DEPTH, FT	GRAPHIC LOG	CLASSIFICATION OF MATERIAL	DEPTH, FT	GROUNDWATER	SAMPLE	(140 LB WEIGHT, 30" DROP) ▲ BLOWS PER FOOT 0 10 20
		SURFACE ELEVATION:				
		LIGHT GREY-MEDIUM SAND NO GAS ODOR			3 4.5	
		½" SILT FLOAT (GREY GREEN)			8 9.5	
		STRONG DEISEL ODOR			13 14.5	
		INCREASE IN SILT STRONG DEISEL ODOR			18 19.5	
					23 24.5	
		29' STRONG DEISEL SMELL GREY GREEN SILT			28 29.5	
		? MED. SAND -- LIGHT GREY 33½' GREY GREEN SILT, WOOD PIECES			33 34.5	

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▼ WATER LEVEL

REDEL INTERNATIONAL INC
N. CHANNEL AVE
P.O. BOX PORTLAND, OREGON

BORING LOG U-4

DATE 3-20-85 JOB NO. 2004 FIG. 1/1

COPPOR00000254

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/23/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	3.5 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-1

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
20.1', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Damp						
		Moist			1		SM	Brown silty sand, 85% brown fine to medium sand, 15% silt to fine sand
		Moist			2			
		Moist	0		3		ML	Brown sandy silt, 5 to 15% sand, gray and rust-colored mottling
					4			
					5			Bottom of Boring at 3.5 feet
					6			
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/27/2000
Drilling Method:	Hand Auger	Hole Diameter:	2 Inches
Sampling Method:	Grab	Hole Depth:	4.5 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-2

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
20.2', COP Datum		

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery / Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Moist	0		1		SM	Brown silty sand, 5 to 15% silt, 85 to 95% fine to medium sand
					2			
					3			Gravel at SM/ML contact
		Moist	17		4		ML	Gray sandy silt with sand, approximately 20% sand, low plasticity, occasional gravel
		Moist			5			Bottom of Boring at 4.5 feeet below grade
					6			
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/23/2000
Drilling Method:	Hand Auger	Hole Diameter:	2 Inches
Sampling Method:	Grab	Hole Depth:	4.5 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-3

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
22.5', COP Datum		

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Moist			1		SP-SM	Brown poorly graded sand with silt, 5 to 10% silt, 90 to 95% fine to medium sand
					2			
		Moist			3			Grades more silt, up to 20% silt
			4		4			
		Moist	12				ML	Gray-stained silt with sand, 20% sand, crushed and rounded gravel at SM-ML contact.
					5			
					6			Bottom of Boring at 4.5 feet
					7			
					8			
					9			
					10			
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	12 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-4

Page 1 of 1

Location Map: See figure 2

Elevation	Northing	Easting
26.4', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SM	Brown silty sand, 60 to 70% brown, fine to medium sand, subangular, 15 to 20% silt, 5 to 10% gravel and cobbles
		Moist			2			
					3			Multi-color roofing sand, visible in soil at 3 feet
					4			
					5			
					6		SP	Brown poorly graded sand, 90% sand, 5% silt, 5% gravel
		Moist			7			
					8			
					9			Grades more gravel, orange mottling (rust)
		Moist			10		SM	Brown silty sand, 15% lumps of silt, 85% sand
					11			
		Wet			12		ML	Gray silt, 5 to 15% fine sand, no plasticity
					13			Bottom of Boring at 12 feet
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	9 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: **H-5**

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
25.2', COP Datum		

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP-SM	
					2			Brown poorly graded sand with silt, 85 to 90% Sand, 5 to 10% silt, approximately 5 to 10% crushed gravel
		Moist			3			
					4			Grades less gravel
		Moist			5			
					6			Brown poorly graded sand with silt, 90% Sand, 10% silt
		Moist			7			Grades rust-colored
		Wet			8		ML	Dark gray sandy silt, 90 to 95% silt, 5 to 10% very fine sand, trace coarse gravel, non-plastic
		Moist			9			
					10			Bottom of Boring at 9 feet
					11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	10 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-6

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
26.2', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			SP-SM	Brown poorly graded sand with silt, 85 to 95% fine to medium sand, subangular, 5% gravel, 5 to 10% silt
					2				
					3				
		Moist			4				Grades less gravel
					5				Grades no gravel
		Moist			6				
					7			SP	Brown poorly graded sand, 95% sand, 5% silt, no product odor
		Moist			8				
					9			ML	Rust coloration Gray silt, trace sand
		Wet			10				
					11				Bottom of boring at 10 feet
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				
					21				
					22				

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Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	10 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-7

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
26.2', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			Brown poorly graded sand with silt, 90 to 95% fine to medium sand, subangular, 5 to 10% silt
					2		SP-SM	
					3			Trace gravel at 3.5 feet
		Moist			4			
					5			
					6			
					7			
		V. Moist			8			Rust coloration at 8.5 feet
		Wet			9		ML	Gray silt with sand, 15% fine sand
					10			Grades no sand
					11			Bottom of Boring at 10 feet
					12			
					13			
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront Area
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	12 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-8

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
27.5', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP-SM	
		Moist			2			Brown poorly graded sand with silt, 90% fine to medium subangular sand, 10% silt
					3			
					4			
					5		SP	Brown poorly graded sand, 95% sand, 5% silt
		Moist			6			
					7			
		Moist			8			Grades more gravel, rounded to angular
					9			
					10			Rust-colored at 10 feet
					11		ML	Wood fragments (roots/twigs) at contact Gray silt with sand, 80% silt, 20% fine sand, grades less sand with depth
					12			
					13			Bottom of Boring at 12 feet
					14			
					15			
					16			
					17			
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05C	Client:	Tosco
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	NWH	Date Drilled:	10/25/2000
Drilling Method:	Hand Auger	Hole Diameter:	4 Inches
Sampling Method:	Grab	Hole Depth:	14 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: H-9

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
29.0', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Moist			1		SP	Brown poorly graded sand, 95% fine to medium, subangular sand, 5% silt
					2			
					3			
					4			
		Moist			5		SP-SM	Brown poorly graded sand with with silt, 10 to 15% silt, 85 - 90% sand
					6			
					7			Gravel, angular to rounded at 7 feet
		Moist			8			
					9			
					10			
		Moist			11			Grades rust-colored and less silt
	▽				12			Grades dark gray
		Wet			13		ML	Dark gray silt, 10% fine sand, 90% silt
					14			
					15			Bottom of Boring at 14 feet
					16			
					17			
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05D	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot
Driller:	Cascade Drilling	Date Drilled:	2/16/2001
Drilling Method:	HSA	Hole Diameter:	14 Inches
Sampling Method:	Dames&Moore	Hole Depth:	12 feet
Casing Type:	PVC	Well Diameter:	6-Inches
Slot Size:	0.010"	Well Depth:	12 feet
Gravel Pack:	10X20	Casing Stickup:	2.5 feet

Boring/Well No: **RT-3**

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			SP	
		Moist			2				Poorly graded brown sand with gravel, 60% medium subangular sand, 30% crushed gravel, 10% silt
					3				
		Moist			4				
Sand	▽	Wet			5				
					6			GP	Crushed gravel, 3/8-inch minus, trace sand observed
					7				
					8				
					9			ML	Gray silt with gravel, 80% silt, 20% gravel, trace sand and organics observed
		Wet			10				Gray silt
Bentonite / Blank					11				
					12				Bottom of Boring at 12 feet
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				
					21				
					22				

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Project No:	B17-05D	Client:	Tosco/Chevron	Boring/Well No:	RT-4
Logged By:	NWH	Location:	Tosco Willbridge Sand Lot	Page 1 of 1	
Driller:	Cascade Drilling	Date Drilled:	2/16/2001	Location Map	See Figure 2
Drilling Method:	HSA	Hole Diameter:	14 Inches		
Sampling Method:	Dames&Moore	Hole Depth:	15 feet		
Casing Type:	PVC	Well Diameter:	6-Inches		
Slot Size:	0.010"	Well Depth:	14 feet		
Gravel Pack:	10X20	Casing Stickup:	2.5 feet		
Elevation		Northing		Easting	

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			SP	
		Moist			2				Brown poorly graded sand with gravel, 75% medium sand, 20% crushed gravel, 5% silt
					3				
		Moist			4				
	▽	Wet			5				
Sand					6			GP	Poorly graded crushed gravel with sand, 3/8-inch minus and 3/4-inch minus (75%), 25% sand
					7				
					8				
					9				
		Wet			10				
					11				
					12			ML	Gray silt
Blank					13				
Bentonite					14				
					15				
					16				Bottom of Boring at 15 feet
					17				
					18				
					19				
					20				
					21				
					22				

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/23/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	16 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-1

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
24.6', COP Datum		

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP	
					2			Brown, poorly graded sand, 60% medium subangular sand, 30% fine sand, 5% silt, 5% angular to rounded gravel
					3			
					4			
			0		5			
		Moist	0		6			
					7			Grades gray in color at 6.75 feet
					8			
					9			
		Moist	6		10			
					11			
					12			
	▽				13			Grades more gravel, angular
		Wet	33		14		ML	Gray silt, trace sand
					15			
					16			
					17			Bottom of Boring at 16 feet
					18			
					19			
					20			
					21			
					22			

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-10

Location Map: See Figure 2

Elevation	Northing	Easting
36.2', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP-SM	
					2			Brown poorly graded sand with silt, 90% sand, approximately 10% silt, occasional rounded to crushed gravel
		Moist			3			
					4			
					5			
		Moist			6			
					7			
					8			
		Moist			9			
					10		SP	Brown poorly graded sand, 95% sand, 5% silt
					11			
					12			
					13			
		Moist			14			Brown silty sand, 85% sand, 15% silt
					15		SM	
					16			
					17			
	▽				18			Occasional gravel, grades gray at groundwater interface
		Wet			19			
					20			
					21			
					22		ML	Gray silt, 90% silt, 10% fine sand

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-10

Page 2 of 2

Location Map

Elevation	Northing	Easting
36.2', COP Datum		

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite						23			ML	Gray sandy silt, 10% fine sand
						24				
						25				Bottom of Boring at 24 feet
						26				
						27				
						28				
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

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Project No:	B17-05C	Client:	Tosco/Chevron	Boring/Well No: SLP-11
Logged By:	NWH	Location:	Tosco Willbridge Riverfront	Page 1 of 2
Driller:	Cascade Drilling	Date Drilled:	10/24/2000	Location Map: See Figure 2
Drilling Method:	Probe	Hole Diameter:	2 Inches	
Sampling Method:	Macro	Hole Depth:	24 Feet	
Casing Type:	NA	Well Diameter:	NA	
Slot Size:	NA	Well Depth:	NA	
Gravel Pack:	NA	Casing Stickup:	NA	

Elevation	Northing	Easting
36.7', COP Datum		

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite			Damp			1		SP-SM	
						2			Brown poorly graded sand with silt, coarse gravel observed, 10% silt
			Moist			3			
						4			
						5			
						6			
						7			
						8			
			Moist			9			Grades slightly more silt
						10			
						11			
			Moist			12			
						13			
						14			
						15			
			Moist			16			
						17		SP	Brown poorly graded sand, 25% medium sand, 70% fine sand, 5% silt
						18			
		▽	Wet			19			Grades gray in color at groundwater interface
						20			
						21			
						22		ML	Gray silt, 10% sand, 90% silt

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-11

Location Map

Elevation	Northing	Easting
36.7', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					23			ML	Gray silt, 10% sand, 90% silt
					24				
					25				Bottom of Boring at 24 feet
					26				
					27				
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-12

Location Map: See Figure 2

Elevation	Northing	Easting
36.5', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite							SP-SM	
					1			
					2			Brown poorly graded sand with silt, 90% subangular, fine to medium sand, 10% silt
		Moist						
					3			
					4			
					5			
		Moist			6			
					7			
					8			
					9			
					10			Encountered trace quantities of small, rounded gravel
					11			
					12			
					13			
		Moist			14			
					15			
					16			
					17			
					18			
	▽				19			Grades gray in color at groundwater interface
					20			
					21			Black poorly graded sand with silt
		Wet Sat			22			

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-12

Location Map

Elevation	Northing	Easting
36.5', COP Datum		

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite						23			SP-SM	Black poorly graded sand with silt, 10 to 15% silt.
						24				
						25				Bottom of Boring at 24 feet
						26				
						27				
						28				
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-13

Page 1 of 1

See Figure 2

Elevation	Northing	Easting
31.2', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP	
					2			Brown poorly graded sand, 90 to 95% fine to medium sand, 5% silt, occasional gravel
					3			
					4			
					5			Gravel with approximately 20% wood and debris
					6			
					7			
					8			
					9			
					10			Rust-colored at 10 feet
					11			Brown coloration from 10.5 to 13 feet
					12			
					13			Rust-colored at 13.5 feet
					14			
		Moist			15			
	▽	Wet			16		SP-SM	Brown poorly graded sand with silt, 90% sand, 10% silt
					17			Gray silt, trace fine sand observed
		Wet			18		ML	
					19			
					20			
					21			Bottom of Boring at 20 Feet
					22			

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/23/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	16 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-2

Page 1 of 1

Location Map

See Figure 2

Elevation	Northing	Easting
20.4', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			SP-SM	
					2				Brown poorly graded sand with silt, 40% medium subangular sand, 50% fine sand, 10% silt
					3				
					4				
					5				
		Moist	4		6				Grades gray in color at 5.75 feet
					7				
					8				
		Moist			9				
			38		10				
					11				Poorly graded gravel with sand, 80% fine crushed gravel, 20% sand
	▽				12			GP	
		Wet			13				
			87		14				
					15			ML	Gray silt
					16				
					17				Bottom of Boring at 16 feet
					18				
					19				
					20				
					21				
					22				

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Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/23/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: **SLP-3**

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
23.3', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1			
					2			Brown poorly graded sand, 40% medium subangular sand, 50% fine sand, 10% silt
					3			
					4			
			11		5			
		Moist			6			Grades gray in color at 5.5 feet
					7		SM	
					8			
		Moist	73		9			Occasional pea gravel and larger rock at 9 feet
					10			
					11			
					12			
		Moist	83		13			
	▽				14		GP	3/4" minus crushed gravel with occasional crushed rock greater than 2" diameter,
					15			
		Wet			16			
					17		GP/ GM	Lumps of gray silt mixed with crushed gravel
			66		18			
					19		ML	Gray silt
		Wet			20			
					21			Bottom of Boring at 20 feet
					22			

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/23/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-4

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
26.1', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP-SM	Brown poorly graded sand with silt
					2			
					3			
					4			
			0		5			Grades gray in color
					6			
					7		SP	Gray poorly graded sand with gravel, 65% fine to medium sand, 45% mixed rounded and crushed gravel, trace silt
		Moist	56		8			
					9			
					10			
					11			
					12			
		Wet	88		13			
					14			
					15		SM	Gray silty sand with gravel, gravel 15%,
					16			
					17			Sand grading coarser, less silt
					18			
		Wet			19		ML	Gray silt, trace sand observed
					20			
					21			Bottom of Boring at 20 feet
					22			

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/23/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-5

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
31.6', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Moist			1			SP	Brown poorly graded sand, fine to medium, subangular, trace silt observed
					2				
		Moist			3				
					4				
					5				
		Moist			6				
					7				
					8				
					9			SM	Brown silty sand, 20% silt, 80 % sand
		Moist			10				
					11				
					12				
		Wet			13				
	▽				14				
		Wet			15				
					16				Dark gray silt
					17			ML	
		Wet			18				
					19				
					20				
					21				Bottom of Boring at 20 feet
					22				

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron	Boring/Well No:	SLP-6
Logged By:	NWH	Location:	Tosco Willbridge Riverfront	Page 1 of 1	
Driller:	Cascade Drilling	Date Drilled:	10/23/2000	Location Map	See Figure 2
Drilling Method:	Probe	Hole Diameter:	2 Inches		
Sampling Method:	Macro	Hole Depth:	20 feet		
Casing Type:	NA	Well Diameter:	NA		
Slot Size:	NA	Well Depth:	NA		
Gravel Pack:	NA	Casing Stickup:	NA		

Elevation	Northing	Easting
34.0', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Sample Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite		Moist			1			SP	
					2				Brown poorly graded sand, medium to fine sand, trace silt observed
					3				
					4				
		Moist			5				Occasional large rock encountered
					6				
		Moist			7				
					8				
		Moist			9				
					10			SM	Occasional crushed rock at 10 feet Brown silty sand, 80% sand, 20% silt
					11				
		Moist			12				
					13			SP-SM	Brown poorly graded sand with silt, 90% sand, 10% silt
					14				Grades gray at 14.5 feet
					15				
		Wet			16				
					17				
					18			GP	Crushed rock, mostly fine (3/4" minus) with some up to 2"
		Wet			19				
					20			ML	Dark gray silt, trace sand and gravel observed
					21				Bottom of Boring at 20 feet
					22				

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-7
Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
34.8', COP Datum		

Well Completion: Backfill, Casing

Static Water Level

Depth (feet)	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
1					SP-SM	
2						Brown poorly graded sand with silt, 10% silt, 90% fine to medium sand
3						
4						
5						
6						Grading slightly more silt, occasional gravel
7						
8	Moist					
9						Brown silty sand, 10 to 30% silt, 70 to 90% fine to medium subangular sand with occasional gravel up to 2"
10					SM	
11	Moist					
12						
13						Brown well-graded sand with silt, 10% coarse sand, 50% medium sand, 30% fine sand, 10% silt, occasional gravel up to approximately 5%
14	Moist				SW/SM	
15						Grades less silt
16						
17						Poorly graded sand with silt 10% small rounded to subrounded gravel, up to 5% silt, 85% fine to medium sand
18	Moist				SP	
19	Wet					Grades gray in color
20					ML	Gray silt, 5 to 15% fine sand
21						Bottom of Boring at 20 feet
22						

Bentonite

KHM

Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	20 feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-8

Page 1 of 1

Location Map: See Figure 2

Elevation	Northing	Easting
33.3', COP Datum		

Well Completion (Backfill, Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SP-SM	Brown poorly graded sand with silt, 10% silt, 90% fine to medium sand, subangular, occasional gravel observed
		Damp			2			
					3			
					4			
					5			
		Moist			6			Occasional 2" to 6" lenses of increased silt
					7			
					8			
		Moist			9		SM	Brown silty sand, 80% fine to medium sand, 20% brown silt
					10			
					11			
					12			
					13			
		Moist			14			
					15			
					16			
	▽	Wet			17			Sand color turns gray at groundwater interface
					18			
					19		ML	Gray silt, trace sand observed
					20			
					21			Bottom of Boring at 20 feet
					22			

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Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron	Boring/Well No: **SLP-9**
Logged By:	NWH	Location:	Tosco Willbridge Riverfront	Page 1 of 2
Driller:	Cascade Drilling	Date Drilled:	10/24/2000	Location Map
Drilling Method:	Probe	Hole Diameter:	2 Inches	See Figure 2
Sampling Method:	Macro	Hole Depth:	24 Feet	
Casing Type:	NA	Well Diameter:	NA	
Slot Size:	NA	Well Depth:	NA	
Gravel Pack:	NA	Casing Stickup:	NA	

Elevation	Northing	Easting
35.7', COP Datum		

Well Completion (Backfill / Casing)	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite					1		SM	
					2			Brown silty sand, 85% fine to medium sand, 15% silt
		Damp			3			
					4			
					5			
					6			Grades more silt, 25% silt, 75% sand
		Moist						
					7		SP-SM	Brown poorly graded sand with silt, 90% sand, 10% silt
					8			
					9			Dark gray-brown sand with trace silt
					10			
		Moist			11		SP	
					12			
					13			Color grades dark gray
					14			
		Moist			15		SP-SM	Dark gray poorly graded sand with silt, 10% silt, 90% sand
					16			
					17			
	▽	Wet			18			Grades more silt
					19			
					20			
					21			
		Wet			22		ML	

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Environmental Management Incorporated

Project No:	B17-05C	Client:	Tosco/Chevron
Logged By:	NWH	Location:	Tosco Willbridge Riverfront
Driller:	Cascade Drilling	Date Drilled:	10/24/2000
Drilling Method:	Probe	Hole Diameter:	2 Inches
Sampling Method:	Macro	Hole Depth:	24 Feet
Casing Type:	NA	Well Diameter:	NA
Slot Size:	NA	Well Depth:	NA
Gravel Pack:	NA	Casing Stickup:	NA

Boring/Well No: SLP-9

Location Map

Elevation	Northing	Easting
35.7', COP Datum		

Well Completion: Backfill	Well Completion: Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample: Recovery	Sample: Interval	Soil Type	LITHOLOGY / DESCRIPTION
Bentonite			Wet			23			ML	Gray silt with sand,80% silt, 20% fine sand
						24				
						25				
						26				
						27				
						28				
						29				
						30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				

BORING NO. TOS-HP-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER	PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0										ASPHALT 0.0'
								gw		Road gravel. 1.5'
										Fine grey silty SAND; 10% coarse; 30% medium; 50% fine; 10% silt; no product odor.
						Dry				
5						Mst				
								sm		Grey silty SAND; 20% coarse, 40% medium; 35% fine; 5% silt; no product odor.
10	*				25	Mst				Grey silty SAND; fine to medium; 20% coarse; 5% silt; faint product odor.
15										Grey silty SAND; 20% coarse, 40% medium; 35% fine; 5% silt. Same as above; strong product odor.
										▼ Strong product odor.
20	*				40	Wt				
						Sat				Grey silty SAND; 20% coarse; 30% medium, 40% fine; 10% silt; strong product odor. Same as above; moderate product odor.
					15					Grey silty SAND; 30% coarse; 40% medium; 20% fine; 10% silt.
25						Wt				
						Wt		ml		Grey sandy SILT; 90% silt; 10% fine sand; and organics (root traces); non-plastic slight product odor. 26.5'
30										BOTTOM OF BORING = 28.0 FEET
35										

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-HP-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	
0									Asphalt
									Road gravel. 2.0'
							ml		Grey SILT, low plasticity, no sand, no product odor. 2.75'
					Dry				Grey SAND; 20% fine, 50% medium, 25% coarse, 5% silt.
5					Mst				
					Mst				Grey SAND; same as above.
									No sheen on water; no product odor.
10	*			163	Mst				SAND; grey, silty, 5% silt; slight product odor; 20% fine, 50% medium, 25% coarse. No sheen on water.
15					Mst		sm		Moderate product odor. SAND, grey, same as above. Sheen on water.
					Mst				Grey SAND; same as above.
20				253	Wt				
				12	Wt				Grey brown SAND; 20% coarse; 50% medium; 75% fine; 5% silt.
				48	Sat				SAND; same as above.
25									No product odor; no sheen on water. 28.5'
30					Sat/Mst				Grey sandy SILT; non-plastic; 5% very fine sand; no product odor. Harder.
					Sat/Mst		ml		Brown silt; 5% fine sand, dense.
35									Grey SILT; non-plastic; 5% fine sand; no product odor. As above with grey brown mottling.

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-300.1A

BOTTOM OF BORING = 36.0 FEET

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000284

BORING NO. TOS-HP-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT
									Road gravel.
					Mst				Brown silty SAND; 50% fine sand; 20% medium sand; 10% coarse sand; 20% silt; sheen on water, no product odor.
					Dry				
					Mst				
5									Brown silty SAND; 30% coarse; 55% fine to medium 15% silt; sheen on water; no product odor.
							sm		
				105					
					Mst				
10									No sheen on water; no product odor. Grey silty SAND; 20% coarse; 40% medium; 25% fine; 15% silt.
					Mst				
	*			138					
15							sm		Sheen on water; strong product odor.
									Grey silty SAND; 15% coarse; 20% medium; 45% fine; 20% silt, silt lenses 1/4"; strong product odor.
20	*			395	Wt				
					Wt				
									Grey silty SAND; 20% coarse; 40% medium; 25% fine; 5% silt; no sheen; no product odor. Grey silty SAND; same as above.
	*			27					Slight product odor, slight sheen; grey silty SAND; same as above.
25									
					Wt				
									Grey silty SAND; 30% silt. Grey silty SAND; same as above.
									28.5'
									Grey sandy SILT; 20% fine sand; non-plastic.
30							ml		
									Grey sandy SILT; 10% fine sand; no product odor; no sheen; low plasticity, root traces/organics; no mica.
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: G. TECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. TOS-HP-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
									Rock/soil roadbed. 1.5'
					Dry/Mst				Brown silty SAND: 60% fine sand; 10% medium sand; 30% silt.
5									Brown silty SAND: 20% coarse; 50% medium; 20% fine; 10% silt; no product odor.
	*						sm		
				2.5	Dry				Brown silty SAND; 20% coarse; 15% fine; 30% medium; 15% silt; no product odor.
10									
					Mst				Brown silty SAND; 50% fine; 15% medium 15% coarse; 20% silt. 14.0'
				138	Wt		ml		3" grey SILT; no sand; moderately plastic; wet; no product odor. 15.0'
15									Brown silty SAND; 40% coarse; 30% medium; 20% fine; 10% silt.
									Depth to water approximately 18.4 ft.
					Wt				▽ Brown SAND; 20% coarse; 60% medium; 15% fine; 5% silt. Gravel .25" Brown sand; 5% silt.
20	*			2	Wt				
					Wt Sat		sm		Same as above; no product odor.
25									Grey SAND; 30% coarse; 50% medium; 20% fine; trace silt.
	*			3					Grey SAND; same as above. 30.0'
30							ml		Strong contact with grey SILT; some organics (wood).
35									BOTTOM OF BORING = 32.0 FEET

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-HP-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gm		Crushed ROCK roadbed. 2.0'
					MOIST		sm		Brown SILTY SAND; medium; grain size with 20% silt.
	*			700					Grey SILTY SAND (stained) 20% silt; grading finer; strong product odor. 5.75'
5							ml		Grey SILT; with 20% fine sand. 6.5'
					MOIST SAT		ml		▽ Brown SANDY SILT with 15% fine sand; non-plastic; no product odor.
10	*			5.0					Stiff; grey-brown SILT; 10% fine sand; no product odor.
15	*			5.5	SAT				Stiff; grey SILT; with 10% fine sand with grey and orange mottle; low plasticity.
20					SAT				Grey SANDY SILT; as above.
					SAT				No recovery.
25									Grey SANDY SILT; as above.
									Tan SILT; 10% fine sand.
									BOTTOM OF BORING = 28.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: NEAR BNSF RAIL
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000287

BORING NO. TOS-HP-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
							gw		GRAVEL roadbed with sand and silt. 2.5'
	*			6	MOIST		sm		Brown SILTY SAND with 10% silt, angular fill; sand; no product odor.
5									
					MOIST				
10									SAND as above. 12.0'
	*			35					
					WET		ml		Light grey CLAYEY SILT with 10% fine sand; black and orange mottle; moderate plasticity; no product odor.
15									
20									Loose; coarse brown SILT to very fine sand; 15% fine sand; non plastic.
									Stiff grey SANDY SILT.
25									Stiff; tan SILT; with 10% fine sand; low plasticity; no product odor.
	*			19	SAT				
30									BOTTOM OF BORING = 28.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: BEHIND TOSCO WAREHOUSE
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000288

BORING NO. TOS-HP-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 24.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
							gw		Brown SILTY SAND; 20% sand, grading less sand; non-plastic; no product odor. 1.0'
							sm		2.0'
	*			7.5	MOIST				Brown SANDY SILT; with high organic content; roots and organic debris; grey and black mottle.
5									Brown SANDY SILT; as above; fewer organics.
					MOIST				Grey SANDY SILT with mica; trace organics; 5% fine sands.
10	*			15.5	WET				Brown SANDY SILT; 5% fine sand; low plasticity.
					SAT		ml	▽	Grey SANDY SILT; 10% fine sand; no odor or sheen. Brown SANDY SILT; 01-15% fine sand. Grading coarser.
15	*								
20									Stiff grey SANDY SILT; no product odor.
									Stiff gray SILT; 10% fine sand; low plasticity; no odor.
25									BOTTOM OF BORING = 24.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TRUCK LOADING/DOANE AVE.
PROJECT NO.: 815-300.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

BORING NO. TOS-HS-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98

CHECKED BY N.W.H. DATE FINISHED 10-27-98

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Crushed ROCK with sand. 0.5'
									Brown SILTY SAND; 50% coarse; 10% medium; 10% fine sand; 20% silt; no product odor.
	*			3	MOIST				Same brown SAND; no product odor.
5									
							sm		SAND as above; less silt; moderate product odor.
	*			18	MOIST				
10									Grading darker
				78	MOIST				Grey-black SAND.
									Dark grey SAND; as above; faint product odor.
15	*			84	WET				▽
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: TRIPOD/HAMMER
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: NEAR TK 3411
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000290

BORING NO. TOS-HS-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98

CHECKED BY N.W.H. DATE FINISHED 10-27-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gr		ROCK/SAND 0.5'
					MOIST				Brown SILTY SAND; 20% silt; gravel. No product odor.
5							sm		Brown SILTY SAND; as above; slight product odor.
	*			<18	MOIST				
10									Color Variable; brown to grey; moderate product odor.
					MOIST				Moderate product odor.
15									Grey SILTY SAND; as above; strong product odor (gasoline).
	*			128	WET				▽
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: TRIPOD/HAMMER
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: NEAR TK 3411
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-HS-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98
CHECKED BY N.W.H. DATE FINISHED 10-27-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							g-		ROCK/SAND 0.5'
					Mst				Brown SAND, 40% coarse 40% medium; 10% fine; 10% silt, no product product odor.
				28					Grades to grey silty SAND at 4 ft. Slight product odor.
5					Mst				Brown silty SAND; 10% silt, 50% coarse, 30% medium, 10% fine.
				31	Mst		sm		Moderate product odor.
									Sand; some as above.
10									
	*			28					
					Mst				Brown SAND; some as above.
15									▽ Dark grey SAND; strong product odor.
	*			65	Wt				
									TOTAL DEPTH = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PROBE TRIPOD
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TANK 3411
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. TOS-HS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-05-98
CHECKED BY N.W.H. DATE FINISHED 11-05-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY / SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0						gw		ROCK 0.5'
				Mst				Brown silty SAND: 30% coarse, 20% medium, 40% fine, 10% silt.
								Thin silt layer, brown sandy SILT, 10% fine sand.
				Mst				Brown silty SAND, 30% coarse, 30% medium, 30% fine, 10% silt.
5								No product odor.
								Slight product odor.
								Slight product odor.
			92	Mst		sm		Brown SILTY SAND (same as above).
10								Moderate product odor.
	*			Mst				
								Brown SILTY SAND, same as above, moderate product odor.
15	*		61					Strong product odor.
				Wt				Grey silty SAND, same as above.
	*		134					▽ Black SILTY SAND; 30% coarse; 30% medium, 20% fine. 18.0'
						ol		SILT; grey; 50% organics (roots). 18.25'
				Wt		ml		Grey sandy SILT; 10% coarse sand; trace fine gravel; slight product odor, low plasticity, organics.
20								TOTAL DEPTH = 20.0 FEET
25								
30								
35								

DRILLING CO.: GEO-TECH
DRILLING METHOD: GEO PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TANK 3411
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000293

BORING NO. TOS-LS-1

COORDINATES N/ E/

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98
CHECKED BY N.W.H. DATE FINISHED
APPROVED BY GROUND SURFACE EL.
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Rock/Sand Rock bed/gravel and sand. 2.0'
					Mst		sm		Medium brown SAND, poorly sorted; silty SAND ~15% silt.
5					Mst				
				2.0					Coarse silty SAND; 30% silt; no product odor. 11.0'
10							ml		Grey sandy SILT; moderate plasticity, moist; 5% fine sand; black and grey; slight mottle; moderate product odor.
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-27-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-LS-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Ballast Rock 2.0'
					Mst				Rock/Roadbed/brick, sand, clay, mixed.
5					Mst		sm		Brown, poorly sorted, silty SAND, non plastic, no odor.
									Brown silty SAND, 70% coarse grains; 10% silt; 20% fine sand, no product odor. Product odor; very faint. 9.0'
10					Mst		ml		Sandy grey SILT; 10% fine sand, 90% silt; no product odor (wet).
15					Wt				Slight product odor; grey SILT; same as above.
									BOTTOM OF BORING = 20.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH, UPPER
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-27-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-LS-3

COORDINATES N _____ E _____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98

CHECKED BY N.W.H. DATE FINISHED _____

APPROVED BY _____ GROUND SURFACE EL. _____

TOTAL DEPTH 12'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							sw		SAND 1.0'
					Wl		sm		SAND 2.0'
					Msl				Brown SILT, 3% fine sand, black mottle, non plastic, no product odor.
5					Wl				Brown SILT; grey mottle; moderate plasticity; no product odor.
							ml		
					Wl				
10									Brown SILT; same as above, 5% fine sand.
									BOTTOM OF BORING = 12 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: NEAR PT
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-LS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 12'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					Mst				Silty SAND, brown; 10% silt, 40% coarse; 20% medium; 30% fine.
				27					
					Mst				SAND; same as above.
5									No product odor; moist.
					Mst				
				9			sm		
									SAND; same as above. SAND and SILT; 5% fine sand, sandy silt, mica flakes 1%; no organics; dense; moderate plasticity; no product odor.
10					Mst				▽
					Wt				
15				9					
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-LS-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							gc		Rock blanket.	.05'
									SAND, silty, brown, no product odor.	
				6					Brown, silty SAND, same as above.	
				12	Mst		sm		Slight product odor at 4 feet.	
5					Mst					
					Wt				▽ Wet silty SAND.	6.5'
				178					SILT, grey, 10% fine sand, low plasticity, slight product odor. Strong product odor, low plasticity.	
10							ml		Grey sandy SILT, same as above, low plasticity, strong product odor.	
									Grey SILT, same as above, moderate product odor.	
15				28						
									BOTTOM OF BORING - 16.0 FEET	
20										
25										
30										
35										

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &

BORING NO. TOS-LS-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gm		Rock Surface. 1.0'
					Mst				SAND, brown, silty, 40% coarse, 80% medium, 30% fine.
									SAND, brown, same as above.
									Slight product odor, same as above, very loint.
5					Mst		sm		
				25					
					Wt				▽ Fine silty SAND, 60% fine sand, 40% silt, slight product odor. 10.0'
10									Fine grey SILT, sandy, moderate plasticity, 10% fine sand; slight product odor.
					Wt				
				9			ml		
15				10					SILT, same as above with organic (root traces).
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000299

BORING NO. TOS-RF-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-12-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	*			0	Mst		sw		SAND: beach sand, <5% silt; 95% fine to medium sand. 1.0'
							sm		Silty SAND; 10% silt; 90% fine sand; brown. Grey silty SAND; 30% silt; 70% coarse sand; non plastic. 6.0'
5							ml		Grey, clayey SILT, 90% silt; 10% clay, moderate plasticity. 6.5'
							sm		Grey silty SAND; 40% silt; 60% fine sand; low plasticity. 8.0'
	*						ml		Sandy SILT; 10% sand. 8.5'
							sm		2" red silty SAND, red/orange, rust colored. 9.0'
10					Wt		ml	▽	Grey sandy SILT; 5% sand; fine orange spotting; mottled sand.
	*			0					Fine grey sandy SILT; 5% fine sand; small amount of black and orange mottle; low plasticity, wet.
15									
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: WILBRIDGE
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000300

BORING NO. TOSCO-RF-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Gravel ballast. 2.0'
					Mst				SAND; low quartz; grayish brown; mixed color with brown, 15% silt; poorly sorted, non plastic, no odor.
5							sm		
	*			2.0					8.0'
10									Grey with some brown mottle SILT, grey, no sand, no odor.
					Mst				Grey SILT; low plasticity.
15							ml		
	*			3.0					
20									BOTTOM OF BORING = 20.0 FEET
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000301

BORING NO. TOS-UB-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0'
							gw		COBBLES: 2-3". 2.5'
					Mst				Brown SAND; 65% medium; 35% fine; < 5% silt; no product odor.
5									
					Mst				
							sw		SAND; 90% sand; 10% gravel.
10									
	*			0					SAND WITH SILT; 80% sand as above; 20% silt; no product odor. 14.5'
15							ml		CLAYEY SILT; 5% fine sand; no product odor. 15.5'
	*			0	Wt Sat				Brown SAND (as above). SAND with 20% gravel fine to coarse.
							sw		Brown SAND (as above).
	*			0	Sat				
20									BOTTOM OF BORING = 20 FEET
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-2:-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		GRAVEL 1.0'
									Brown SAND: fine to medium; 60% medium; 80% fine; trace organics.
5					Mst				
	*			0					Rootlets; no product odor.
							sw		
10					Dp				Rootlets.
					Mst				
15				0	Sat				
	*								Grading to grey sand, some. 16.5'
									Dark grey SAND; 0-10% silt; no product odor.
					Sat				Reddish brown SAND; 15% silt.
20	*			10			sm		Grey SAND.
									Dark grey to black SAND; faint product odor.
	*			140	Sat				
25									BOTTOM OF BORING = 24.0 FEET
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILLBRIDGE 54" SANITARY SEWER
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					Dp				ASPHALT 1.0'
					Wt/Mst		gm		Rock and sand roadbed; large round rock with sand matrix. 2.0'
					Mst				Very fine SAND with 10-15% silt; brown.
	*			0.5					Very fine sand as above.
5					Mst				Very fine sand; grading looser; brown; no product odor.
	*			0	Wt		sp		
					Wt				Brown sand; medium grained.
10					Sat				Dark grey; balck sand with 5% silt; occasional pebbles; heavy sheen; diesel odor; (no pebbles) same as above; slight product odor. Depth to water 9.1' below ground surface after sampling. 11.0'
	*			100	Sat		ml		Stiff; dark brown; grey silt, low plastiicity; occasional rootlets.
15									BOTTOM OF BORING = 12.0 FEET
									Water at 12.45 feet.
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILLBRIDGE/SANSERVER
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. TOS-UB-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT	1.0'
							gw		GRAVEL: graded river rock.	2.0'
					Mst				SAND; clean, coarse grey with red and clear quartz grains; 20% quartz coarse.	
					Wt		sw	▽		
5	*			0	Wt				Sand as above.	7.0'
							ml		Silt lense; 2" thick.	7.5'
							sw			9.0'
	*			0			ml		Brown silt with 5-10% fine sand.	10.0'
10					Sat		sm		Black SAND, strong product odor (diesel) many wood fragments and trace gravel.	
	*			145	Sat					
									BOTTOM OF BORING = 12.0 FEET	
15										
20										
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: WILLBRIDGE/SANSERVER
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000305

BORING NO. TOS-UB-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							ml		ASPHALT 1.0'
							gw		ROCK (roadbed) 2.0'
					Dry		sm		Brown silty SAND: 20% silt; no product odor.
					Msl				4.5'
5	*			140	Msl				Grey green sandy SILT; very fine sand; faint product odor.
	*			185	Wt		ml		SILT (as above).
10					Wt				Rootlets, wood, organics, no sheen, moderate product odor.
	*			177	Wt				
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: HAND AUGER
SAMPLING METHOD: BRASS TUBE
PROJECT NAME:
LOCATION: 10" WOOD USP? ABANDONED
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000306

BORING NO. TOS-UB-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							ml		ASPHALT 12" 1.0'
					Dp		gw		Coarse clean dark grey SAND with rock (roadbed). 2.5'
					Dp				Brown to grey SAND; 10% coarse; 60% medium; 25% fine; trace silt.
5					Mst				
	*			0	Mst		sw		SAND as above.
	*				Wt				10.0'
10	*			0	Wt		gw		SAND with fine to coarse gravel (fill). GRAVEL fine, no product odor. Hard object at 11.8 feet.
									BOTTOM OF BORING = 12 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: STORM IN N. BOARD FRONT
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 20.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT Gray 1.0"
					Dp		sm		Brown SAND with silt; 85% fine to medium sand with 15% silt no product odor.
5					Mst				Very fine brown SAND WITH SILT; 80% sand; 20% silt; no product odor. 7.5'
	*			0					
					Wt		ml		SILT WITH SAND; brown, low plasticity silt, with 15% fine sand; no product odor. 9.5'
	*			1					
10							sm		Grading to SILTY SAND. SAND WITH SILT; brown. 11.0'
					Wt		ml		Sandy SILT; 60% silt; 40% fine sand; brown, non-plastic; no product odor. 13.0'
15							sm		Silty SAND; 5% silt.
	*			15					SAND; black; 15% silt; fine gravel; no product odor.
									FILL
					Wt				Black SAND; 10% coarse; 35% medium; 55% fine; trace fine gravel; faint product odor or organics.
20									TOTAL DEPTH = 20.0 FEET
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: 60" SANITARY GS LOT
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-18-99	APPROVED BY		DESK NUMBER	

BORING NO. TOS-UB-8

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
									Brown medium to fine SAND; no product odor.
					Mst				
5									▽
					Mst				Brown SAND; 80% fine sand; 15% very fine sand; 5% silt; no product odor.
	*			0	Mst		sm		
					Wt				
10									Brown SAND; as above, no product odor.
	*			0.5					
					Sat				Brown SAND; as above.
15									Dark brown SAND as above; no product odor.
	*			0	Sat				
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

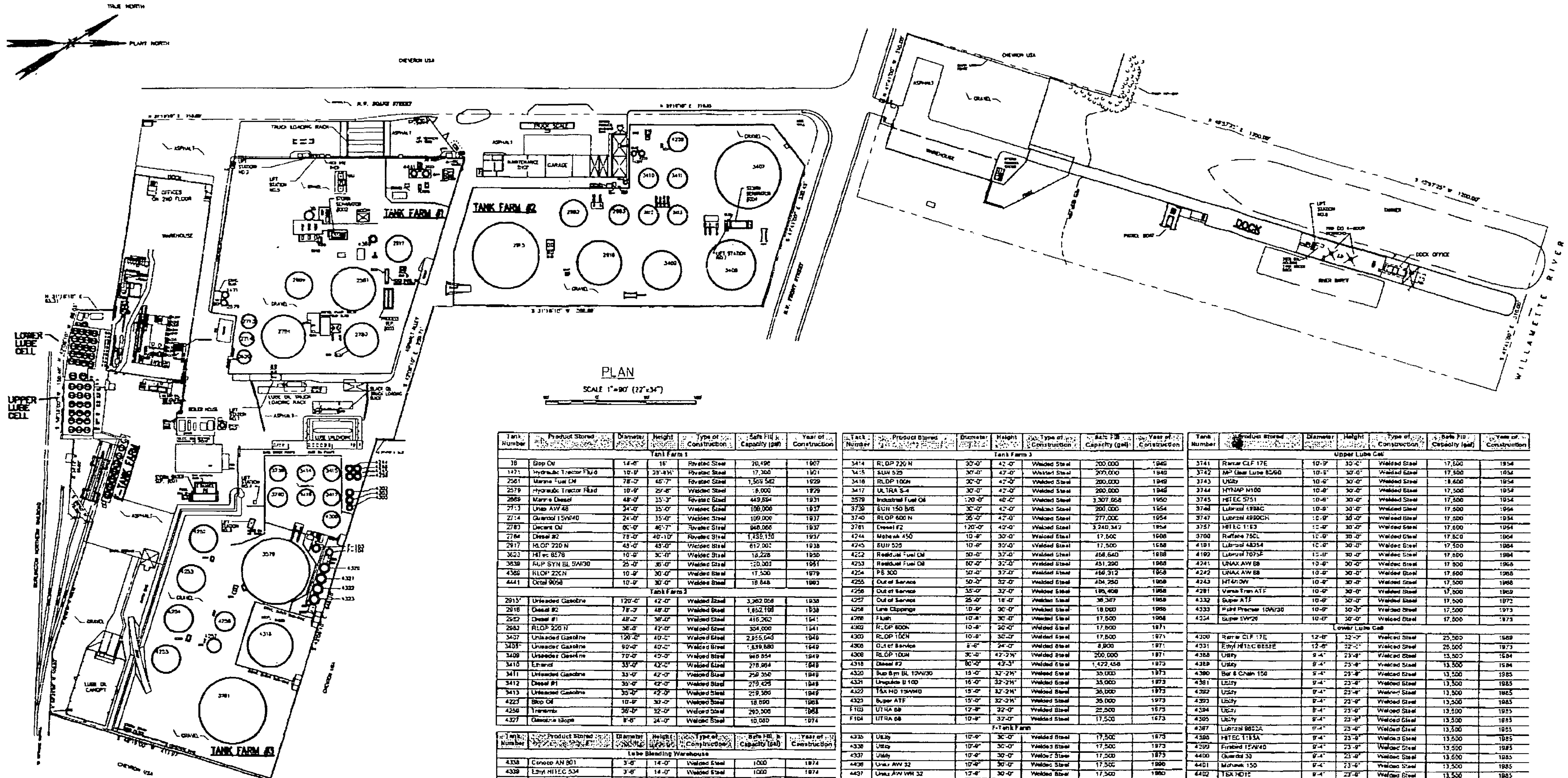
DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 60" SANITARY
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME & DISK NUMBER	
DATE	6-20-99	APPROVED BY			

IT CORPORATION

COPPOR00000309

COPPOR0000310



PLAN

SCALE 1"=90' (22"x34")

Tank Number	Product Stored	Diameter	Height	Type of Construction	Safe Fill Capacity (gal)	Year of Construction
			Tank Farm 1			
38	Slop Oil	14'-6"	16'	Riveted Steel	20,496	1907
1471	Hydraulic Tractor Fluid	10'-9"	23'-8¾"	Riveted Steel	17,300	1921
2561	Marine Fuel Oil	78'-0"	45'-7"	Riveted Steel	1,569,542	1929
2579	Hydraulic Tractor Fluid	10'-9"	29'-6"	Welded Steel	16,000	1929
2669	Marine Diesel	48'-0"	35'-3"	Riveted Steel	449,694	1931
2713	Unax AW 46	24'-0"	35'-0"	Welded Steel	109,000	1937
2714	Guardol 15W40	24'-0"	35'-0"	Welded Steel	109,000	1937
2783	Decant Oil	60'-0"	46'-7"	Riveted Steel	948,066	1937
2784	Diesel #2	78'-0"	40'-10"	Riveted Steel	1,439,130	1937
2917	RLOP 220 N	45'-0"	45'-0"	Welded Steel	617,002	1938
3623	HiTec 8578	10'-9"	30'-0"	Welded Steel	18,228	1950
3639	RUP SYN BL 5W30	25'-0"	36'-0"	Welded Steel	120,003	1951
4369	RLOP 220N	10'-9"	30'-0"	Welded Steel	17,500	1979
4441	Octel 9058	10'-9"	30'-0"	Welded Steel	18,848	1993
			Tank Farm 2			
2915*	Unleaded Gasoline	120'-0"	42'-0"	Welded Steel	3,262,058	1938
2916	Diesel #2	78'-7"	48'-0"	Welded Steel	1,662,198	1938
2952	Diesel #1	48'-7"	38'-0"	Welded Steel	416,262	1941
2983	RLOP 220 N	38'-0"	42'-0"	Welded Steel	304,000	1941
3407	Unleaded Gasoline	120'-0"	40'-0"	Welded Steel	2,955,640	1949
3408*	Unleaded Gasoline	90'-0"	40'-0"	Welded Steel	1,639,880	1949
3409	Unleaded Gasoline	70'-0"	40'-0"	Welded Steel	949,654	1949
3410	Ethanol	35'-0"	42'-0"	Welded Steel	278,964	1949
3411	Unleaded Gasoline	35'-0"	42'-0"	Welded Steel	259,350	1949
3412	Diesel #1	35'-0"	42'-0"	Welded Steel	279,425	1949
3413	Unleaded Gasoline	35'-0"	42'-0"	Welded Steel	279,380	1949
4223	Slop Oil	10'-9"	30'-0"	Welded Steel	18,690	1968
4259	Transmix	36'-0"	32'-0"	Welded Steel	295,506	1968
4327	Gasoline Slops	8'-6"	24'-0"	Welded Steel	10,080	1974

Tank Number	Product Stored	Diameter	Height	Type of Construction	Safe Fill Capacity (gal)	Year of Construction
			Lube Blending Warehouse			
4338	Conoco AN 801	3'-6"	14'-0"	Welded Steel	1000	1974
4339	Ethyl HITEC 534	3'-6"	14'-0"	Welded Steel	1000	1974
4340	Ethyl HITEC 365	3'-6"	14'-0"	Welded Steel	1000	1974
4341	Utility	3'-6"	14'-0"	Welded Steel	1000	1974
4342	HITEC 005	3'-6"	14'-0"	Welded Steel	1000	1974
4343	Viscoplex 1-307	3'-6"	14'-0"	Welded Steel	1000	1974
4344	Oleic Acid/Emersol 213	3'-6"	14'-0"	Welded Steel	1000	1974
4345	Lubrizol 6750	3'-6"	14'-0"	Welded Steel	1000	1974
4346	Utility	3'-6"	14'-0"	Welded Steel	1000	1974
4347	Utility	3'-6"	14'-0"	Welded Steel	1000	1974
F-14	Flush - Under Lab	5'-3"	30'-0"	Welded Steel	5000	1961
F-8	Utility			Welded Steel	1000	1966
F-9	Line Clippings			Welded Steel	2200	1954
F-13	Slops - Under Lab	5'-3"	30'-0"	Welded Steel	5000	1961

Tank Number	Product Stored	Diameter	Height	Type of Construction	Safe Fill Capacity (gal)	Year of Construction
			Tank Farm 3			
3414	RLOP 220 N	30'-0"	42'-0"	Welded Steel	200,000	1949
3415	SUN 525	30'-0"	42'-0"	Welded Steel	200,000	1949
3416	RLOP 100N	30'-0"	42'-0"	Welded Steel	200,000	1949
3417	ULTRA S-4	30'-0"	42'-0"	Welded Steel	200,000	1949
3579	Industrial Fuel Oil	120'-0"	40'-0"	Welded Steel	3,307,658	1950
3739	SUN 150 B/S	30'-0"	42'-0"	Welded Steel	200,000	1954
3740	RLOP 600 N	35'-0"	42'-0"	Welded Steel	277,000	1954
3761	Diesel #2	120'-0"	40'-0"	Welded Steel	3,240,342	1954
4744	Mohawk 450	10'-9"	30'-0"	Welded Steel	17,500	1968
4745	SUN 525	10'-9"	30'-0"	Welded Steel	17,500	1968
4252	Residual Fuel Oil	50'-0"	37'-0"	Welded Steel	468,640	1968
4253	Residual Fuel Oil	50'-0"	32'-0"	Welded Steel	451,290	1968
4254	PS 300	50'-0"	37'-0"	Welded Steel	469,312	1968
4255	Out of Service	50'-0"	32'-0"	Welded Steel	404,250	1968
4256	Out of Service	35'-0"	32'-0"	Welded Steel	195,408	1968
4257	Out of Service	25'-0"	16'-0"	Welded Steel	38,307	1968
4258	Line Clippings	10'-9"	30'-0"	Welded Steel	18,000	1966
4266	Flush	10'-9"	30'-0"	Welded Steel	17,500	1968
4302	RLOP 600N	10'-9"	30'-0"	Welded Steel	17,500	1971
4303	RLOP 100N	10'-9"	30'-0"	Welded Steel	17,500	1971
4306	Out of Service	8'-6"	24'-0"	Welded Steel	8,900	1971
4308	RLOP 100N	30'-0"	42'-2¾"	Welded Steel	200,000	1971
4318	Diesel #2	80'-0"	43'-3"	Welded Steel	1,422,458	1973
4320	Sup Syn BL 10W30	15'-0"	32'-2¾"	Welded Steel	35,000	1973
4321	Unipude B 100	15'-0"	32'-2¾"	Welded Steel	35,000	1973
4322	TSX HD 15W40	15'-0"	32'-2¾"	Welded Steel	35,000	1973
4323	Super ATF	15'-0"	32'-2¾"	Welded Steel	35,000	1973
F103	UTRA 68	17'-9"	32'-0"	Welded Steel	25,500	1973
F104	UTRA 68	10'-9"	32'-0"	Welded Steel	17,500	1973
			F-Tank Farm			
4335	Utility	10'-9"	30'-0"	Welded Steel	17,500	1973
4336	Utility	10'-9"	30'-0"	Welded Steel	17,500	1973
4337	Utility	10'-9"	30'-0"	Welded Steel	17,500	1973
4436	Unax AW 32	10'-9"	30'-0"	Welded Steel	17,500	1990
4437	Unax AW WR 32	10'-9"	30'-0"	Welded Steel	17,500	1990
F10	Utility	10'-8"	10'-0"	Welded Steel	5,200	1954
F11	Utility	10'-8"	10'-0"	Welded Steel	5,200	1954
F12	Utility	10'-8"	10'-0"	Welded Steel	5,200	1954

Tank Number	Product Stored	Diameter	Height	Type of Construction	Safe Fill Capacity (gal)	Year of Construction
			Upper Lube Cell			
3741	Ramar CLF 17E	10'-9"	30'-0"	Welded Steel	17,500	1954
3742	MP Gear Lube 85/90	10'-9"	30'-0"	Welded Steel	17,500	1954
3743	Utility	10'-9"	30'-0"	Welded Steel	18,600	1954
3744	HYNAP N100	10'-9"	30'-0"	Welded Steel	17,500	1954
3745	HITEC 5751	10'-9"	30'-0"	Welded Steel	17,500	1954
3746	Lubrizol 4998C	10'-9"	30'-0"	Welded Steel	17,500	1954
3747	Lubrizol 4990CH	10'-9"	30'-0"	Welded Steel	17,500	1954
3757	HITEC 1153	10'-9"	30'-0"	Welded Steel	17,600	1954
3700	Raffene 75CL	10'-9"	30'-0"	Welded Steel	17,500	1964
4191	Lubrizol 48254	10'-9"	30'-0"	Welded Steel	17,500	1964
4192	Lubrizol 7075F	10'-9"	30'-0"	Welded Steel	17,600	1964
4241	UNAX AW 68	10'-9"	30'-0"	Welded Steel	17,500	1968
4242	UNAX AW 68	10'-9"	30'-0"	Welded Steel	17,600	1968
4243	HT4/10W	10'-9"	30'-0"	Welded Steel	17,500	1968
4281	Versa Tran ATF	10'-9"	30'-0"	Welded Steel	17,500	1969
4332	Super ATF	10'-9"	30'-0"	Welded Steel	17,500	1972
4333	Point Premier 10W/30	10'-9"	30'-0"	Welded Steel	17,500	1973
4334	Super 5W20	10'-0"	30'-0"	Welded Steel	17,500	1973
			Lower Lube Cell			
4330	Ramar CLF 17E	12'-6"	32'-0"	Welded Steel	25,500	1969
4331	Ethyl HITEC 8858E	12'-6"	32'-0"	Welded Steel	25,500	1973
4388	Utility	9'-4"	23'-9"	Welded Steel	13,500	1984
4389	Utility	9'-4"	23'-9"	Welded Steel	13,500	1984
4390	Bar & Chain 150	9'-4"	23'-9"	Welded Steel	13,500	1985
4391	Utility	9'-4"	23'-9"	Welded Steel	13,500	1985
4392	Utility	9'-4"	23'-9"	Welded Steel	13,500	1985
4393	Utility	9'-4"	23'-9"	Welded Steel	13,500	1985
4394	Utility	9'-4"	23'-9"	Welded Steel	13,500	1985
4395	Utility	9'-4"	23'-9"	Welded Steel	13,500	1985
4387	Lubrizol 8802A	9'-4"	23'-9"	Welded Steel	13,500	1985
4398	HITEC 1153A	9'-4"	23'-9"	Welded Steel	13,500	1985
4399	Firebird 15W40	9'-4"	23'-9"	Welded Steel	13,500	1985
4400	Guardol 30	9'-4"	23'-9"	Welded Steel	13,600	1985
4401	Mohawk 150	9'-4"	23'-9"	Welded Steel	13,500	1985
4402	TSX HD15	9'-4"	23'-9"	Welded Steel	13,500	1985
4403	HT4/30W	9'-4"	23'-9"	Welded Steel	13,500	1985
4404	Fleet Sup EC 15W40	9'-4"	23'-9"	Welded Steel	13,500	1985
4405	HITEC 3472	9'-4"	23'-9"	Welded Steel	13,500	1987
4406	Lubrizol 8990A	9'-4"	23'-9"	Welded Steel	13,500	1987
4407	Ethyl HITEC 388	9'-4"	23'-9"	Welded Steel	13,500	1987
4408	Ethyl HITEC 5756	9'-4"	23'-9"	Welded Steel	13,500	1987

ALPHA ENGINEERS and CONSTRUCTORS, INC.
2929 NW 29th AVE, PORTLAND, OR 97210 Tel (503)227-3317/Fax (503)227-3244

AEC PROJECT NUMBER: 25-31

DRAWING NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR. BY	DATE
		A	UPDATED FOR SWPCP	DAB	SM	WHB	02/12/98
		B	REVISE BARRELS ON TANK DATA AND LOGO	OKB	WHB	WHB	03/10/03
		C	ADD LUBE OIL CANOPY AND WASTE STORAGE	OKB	WHB	WHB	11/22/04
		D	GENERAL REVISION	CEW	WHB	WHB	12/08/06

NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR. BY	DATE

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ConocoPhillips Pipe Line Company
5528 N.W. DOANE AVE
PORTLAND OREGON

DR. D.A.BYNUM	CONTRACTOR No.
DSGN. D.A.BYNUM	PROJECT NO. 25-31
CK. MK / AP. KJP	DWG. SCALE AS SHOWN
DATE 02/12/98	PLOT SCALE

PORTLAND TERMINAL

TITLE: SITE PLAN

DWG. No. 0608-C-1000 SHEET 1 OF 1 REV. No. D

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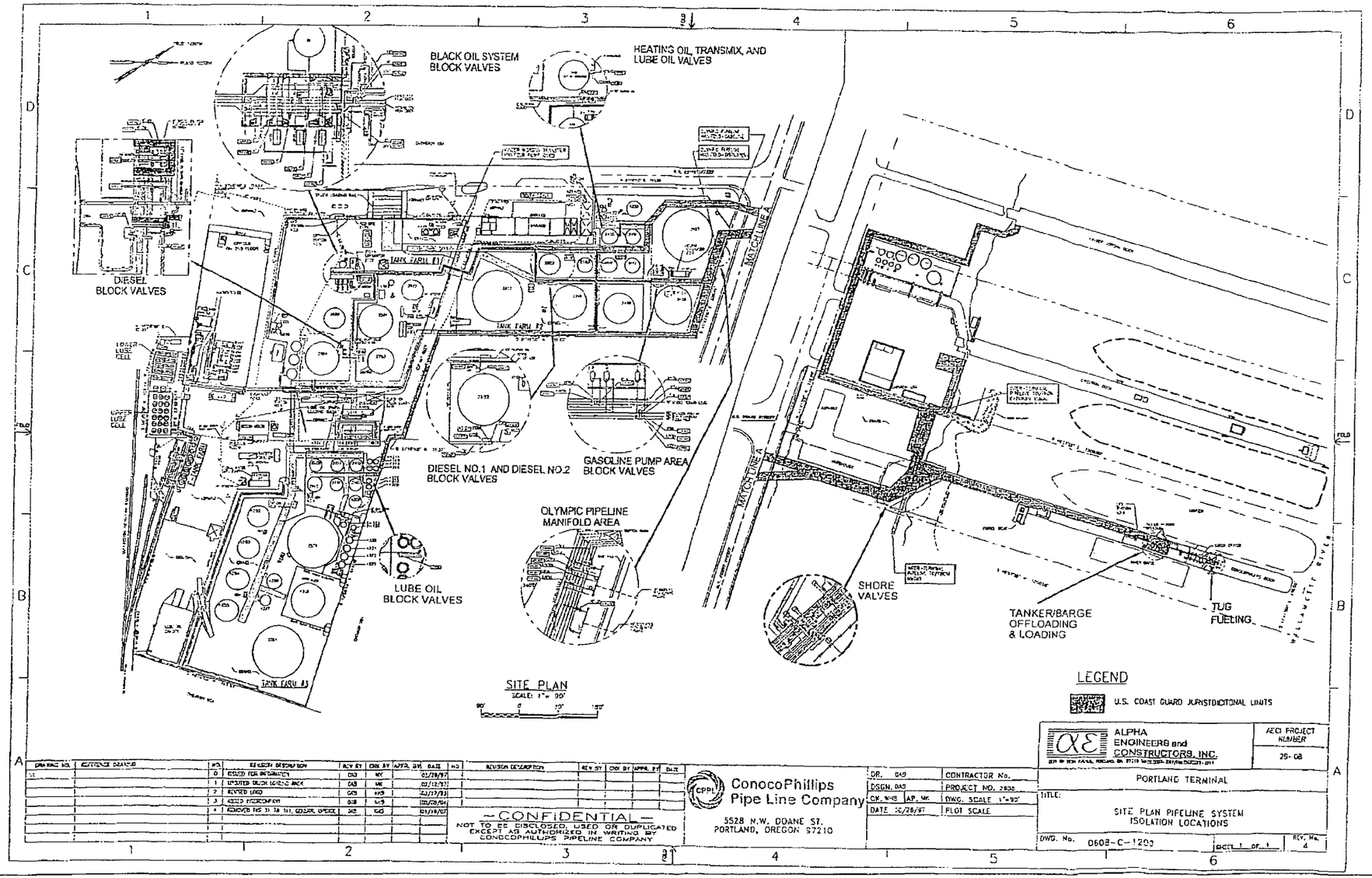

DRAWING NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR BY	DATE
		0	ISSUED FOR INFORMATION	DAB	MK		02/28/97
		1	UPDATED BLOCK VALVES	DAB	MK		02/12/97
		2	REVISED LAYOUT	DAB	MKB		02/27/97
		3	ADDED INFORMATION	DAB	MKB		03/20/97
		4	REMOVED THE 31 TO 161, COLUMN UPDATE	DAB	MKB		03/19/97

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ConocoPhillips Pipe Line Company
5528 N.W. DOANE ST.
PORTLAND, OREGON 97210

DR. DAB		CONTRACTOR No.
DSGN. DAB		PROJECT NO. 2836
CK. MKB	APP. MK	DWG. SCALE 1"=90'
DATE 02/26/97		PLOT SCALE

ALPHA ENGINEERS and CONSTRUCTORS, INC.

AEC PROJECT NUMBER 29-08

PORTLAND TERMINAL

TITLE: SITE PLAN PIPELINE SYSTEM ISOLATION LOCATIONS

DWG. No. 0608-C-1200 SHEET 1 OF 1 REV. No. 4

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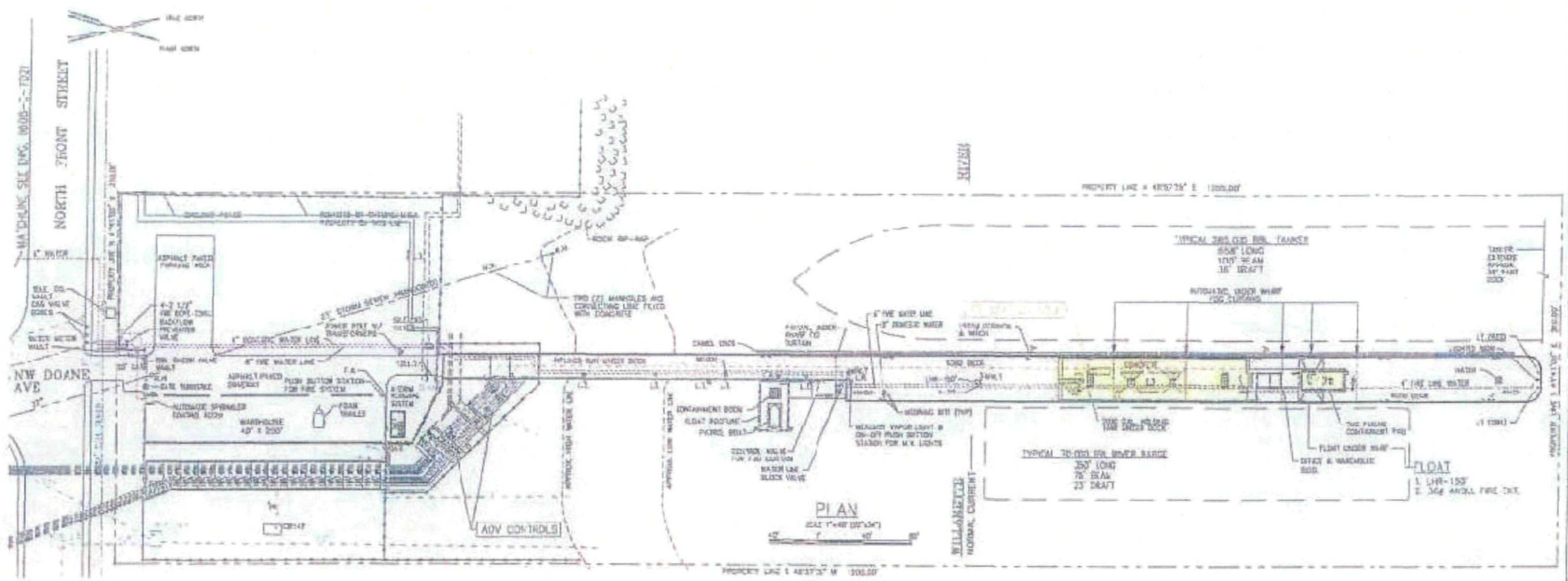
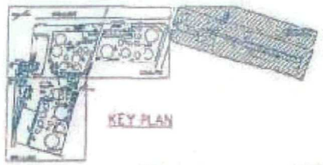


LEGEND

- STORM DRAINAGE TO SEPARATOR
- STORM DRAINAGE TO RIVER
- PROCESS DRAIN
- SANITARY SEWER
- CITY WATER
- NATURAL GAS
- UNTREATED DRAINAGE
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003



KEY PLAN

DRAWING NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR BY	DATE	NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR BY	DATE
0808-C-7021	RIM TANK WALL REVISION ARRANGEMENT	1	FOR REVIEW AND COMMENT	MB	AS	MB	02/05/97						
		2	REVISION SHEET	MB	AP	MB	02/24/97						
		3	ADDED STORM DRAINAGE LEGEND	MB	AP	MB	03/24/97						
		4	UPDATED FOR BID SET	MB	AP	MB	05/12/98						
		5	REVISION FOR CONTROLS	MB	MB	MB	05/14/03						
		6	REVISED BARGE LOADING AREA										
		7	REVISED TRUCK LOADING	CM	MB	MB	12/08/05						

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ConocoPhillips Pipe Line Company
5228 SW DOANE, AVE.
PORTLAND OR 97210

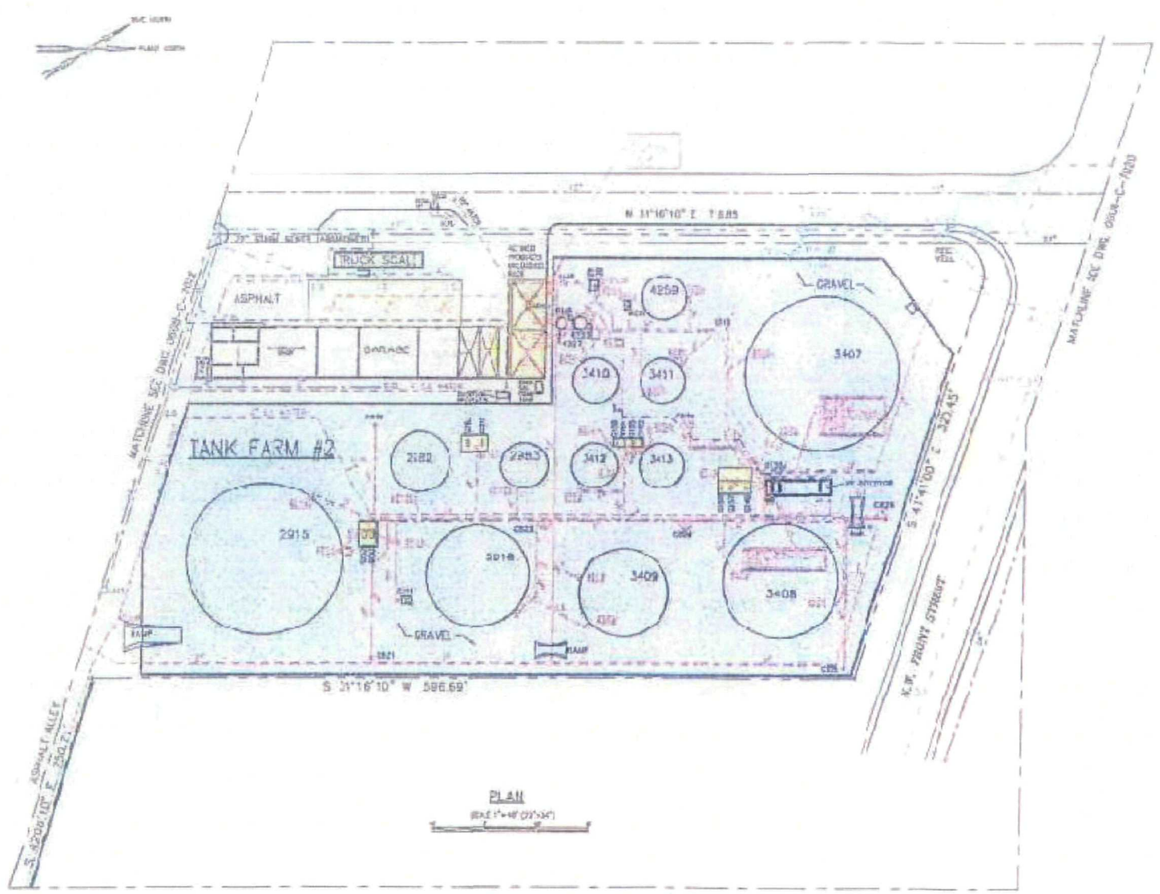
DR. DARTMUN	CONTRACTOR No.	
DSGN. DARTMUN	PROJECT NO. 22-11	
CK. MK AP. KJ	DWG. SCALE AS SHOWN	
DATE 01/15/03	PLOT SCALE	

PORTLAND TERMINAL

TITLE: DOCK FACILITIES
SITE DRAINAGE PLAN

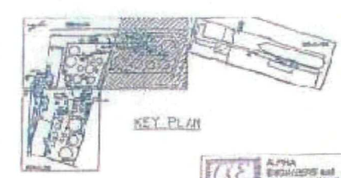
DWG. No. 0808-C-7020 SHEET 1 OF 1 REV. No. F

COPPOR00000313



LEGEND

- STORM DRAINAGE TO SEPARATOR
- STORM DRAINAGE TO RIVER
- PROCESS DRAIN
- RECOVERED OIL TO STORAGE
- SANITARY SEWER
- CITY WATER
- NATURAL GAS
- UNTREATED DRAINAGE
- STORM WATER DIRECTED TO STORM WATER SEPERATOR #004
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003



KEY PLAN

ALPHA ENGINEERS and CONSULTANTS, INC.

DRAWING NO.	REFERENCE DRAWING
0508-C-7020	ECOM FACILITIES REVIEW REPRESENTS
0508-C-7021	SAME, SAME AS ABOVE WITH ADDITIONS

NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR BY	DATE
A	FOR REVIEW AND COMMENT	CAB	MR	RHB	03/08/17
B	UPDATED TANKS	CAB	MR	RHB	03/08/17
C	REVISE STORM DRAINAGE LEGEND	SHB	MR	RHB	03/24/17
D	UPDATED FOR SCOOP	SHB	SM	RHB	10/18/18
E	UPDATE FOR DWG#'S 0508-C-7020	SHB	SM	RHB	06/14/18
F	REMOVE DWG NO. AND ADDED DWG	SHB	SHB	RHB	03/14/19
G	UPDATED TO BLOCK	CTR	RHB	RHB	12/08/20

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ConocoPhillips Pipe Line Company
5228 SW DOANE, AVE.
PORTLAND OR 97210

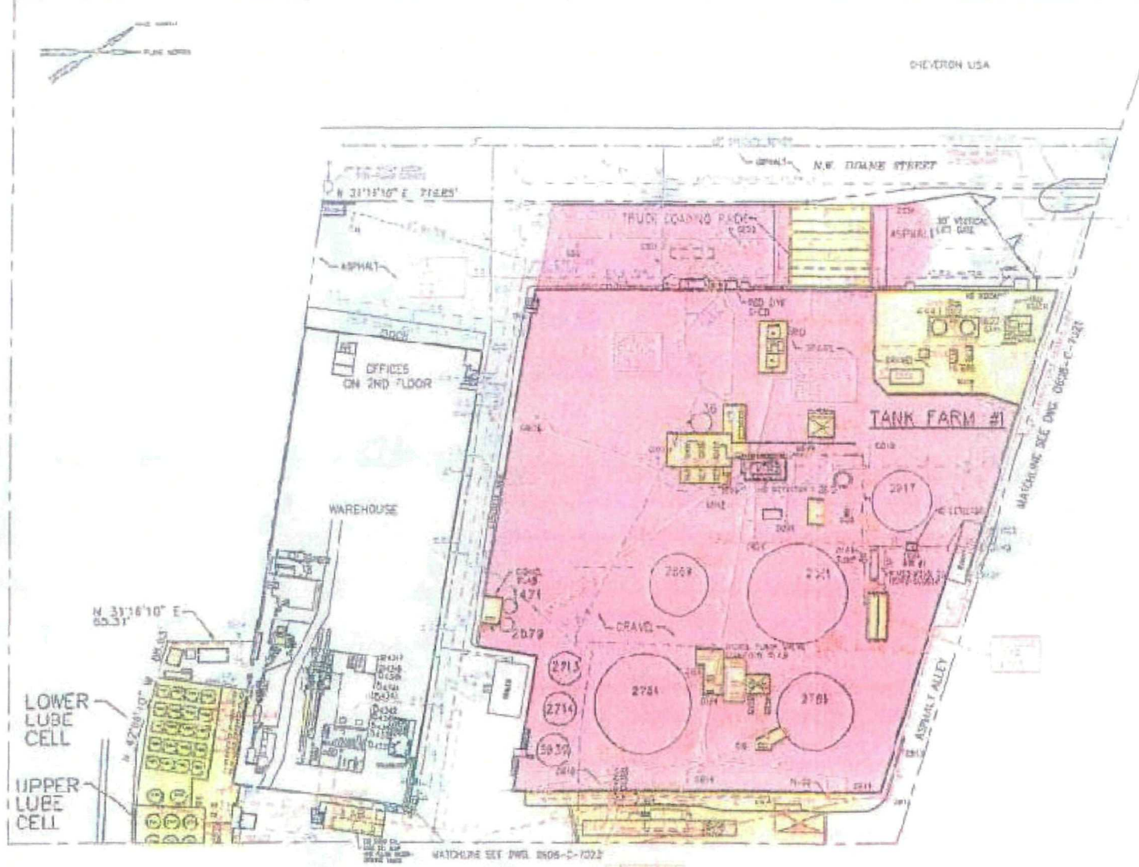
DR. CABRERA	CONTRACTOR No.
DESIGN R.H. BRIGGS	PROJECT NO. 15-31
CK. MR / AP. RHB	DWG. SCALE AS SHOWN
DATE 03/16/17	PLOT SCALE

PORTLAND TERMINAL

TITLE: TANK FARM 2
SITE DRAINAGE PLAN

DWG. No. 0508-C-7021

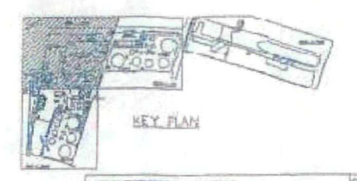
COPPOR00000314



PLAN

LEGEND

- STORM DRAINAGE TO SEPARATOR
- STORM DRAINAGE TO RIVER
- PROCESS DRAIN
- RECOVERED OIL TO STORAGE
- SANITARY SEWER
- CITY WATER
- NATURAL GAS
- UNTREATED DRAINAGE
- STORM WATER DIRECTED TO STORM WATER SEPERATOR #002
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003



KEY PLAN

ALPHA ENGINEERS and CONSTRUCTORS, INC.

DRAWING NO.	REFERENCE DRAWING	NO.	REVISION DESCRIPTION	REV. BY	CHK. BY	APPR. BY	DATE
0608-C-7021	Sub. 0608-C-7 SHEET, ARRANGEMENT	A	FOR REVIEW AND COMMENT	DB	JM	WB	01/06/97
0608-C-7022	Sub. FARM NO.1 SHEET, ARRANGEMENT	B	GENERAL REVISE	DB	VK	WB	01/16/97
		C	REVISED STORM DRAINAGE LOCATIONS	DB	JM	WB	02/19/97
		D	UPDATED PER SHOP	DB	VK	WB	02/13/98
		E	UPDATED TO REFLECT CHANGES ON 0608-C-7000DWG		VK	WB	03/13/98
		F	REVISE TANK NO. AND REVISE LOCS	DB	WB	WB	03/18/03
		G	REVISE WATERLINE	CM	WB	WB	12/02/08

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ConocoPhillips Pipe Line Company
5228 SW DOANE, AVE.
PORTLAND OR 97219

DR.	CONTRACTOR No.
DSGN.	PROJECT NO. 32-31
CK.	DWG. SCALE AS SHOWN
DATE	PLOT SCALE

PORTLAND TERMINAL

TITLE: TANK FARM 1
SITE DRAINAGE PLAN

DWG. No. 0608-C-7022 | SHEET 1 OF 1 | REV. No. 0

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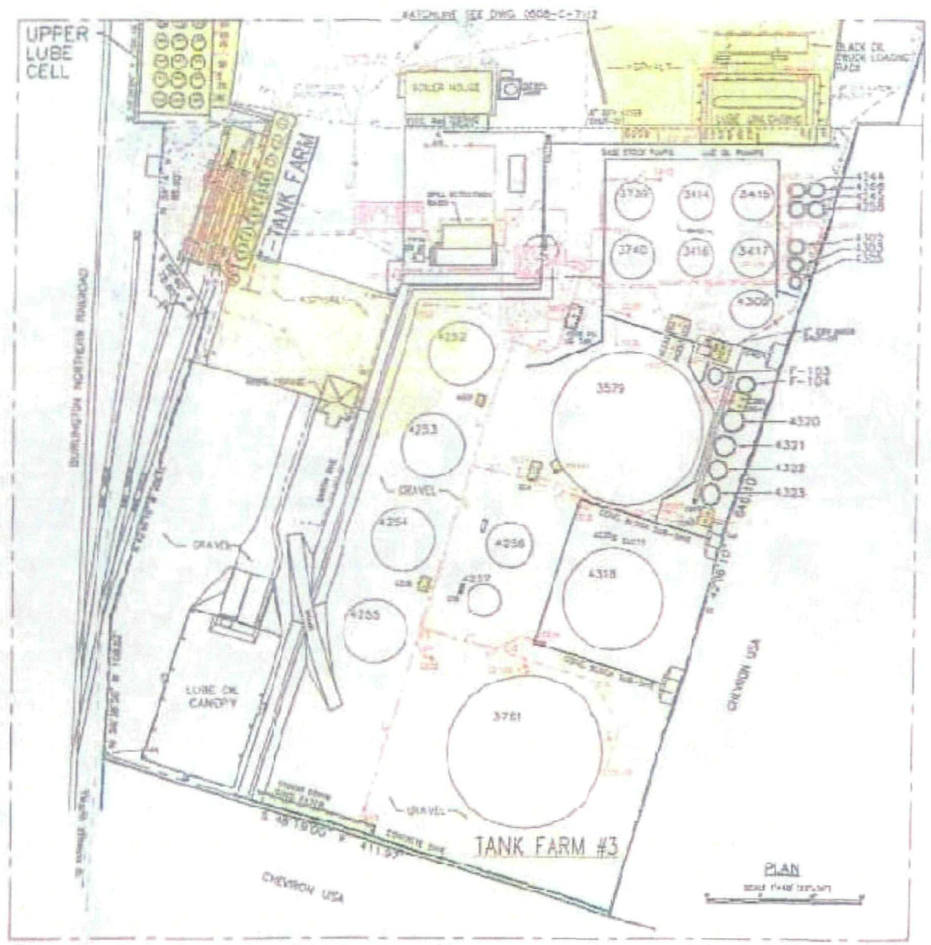
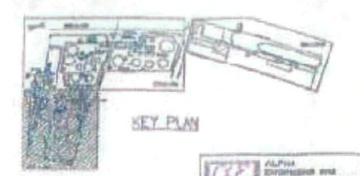


LEGEND

- STORM DRAINAGE TO SEPARATOR
- STORM DRAINAGE TO RIVER
- PROCESS DRAIN
- SANITARY SEWER
- CITY WATER
- NATURAL GAS
- UNTREATED DRAINAGE
- STORM WATER DIRECTED TO STORM WATER SEPERATOR #001
- PROCESS WATER DIRECTED TO PROCESS SEPARATOR #003



KEY PLAN

ALPHA ENGINEERING AND CONSTRUCTION, INC.

PORTLAND TERMINAL

TITLE: TANK FARM 3
SITE DRAINAGE PLAN

DWG. No. 0601-C-7023

REV. No. 0

ConocoPhillips Pipe Line Company
5338 SW DOANE AVE.
PORTLAND OR 97210

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CONTRACTOR No.
PROJECT NO. 25-21
DWG. SCALE AS SHOWN
PLOT SCALE

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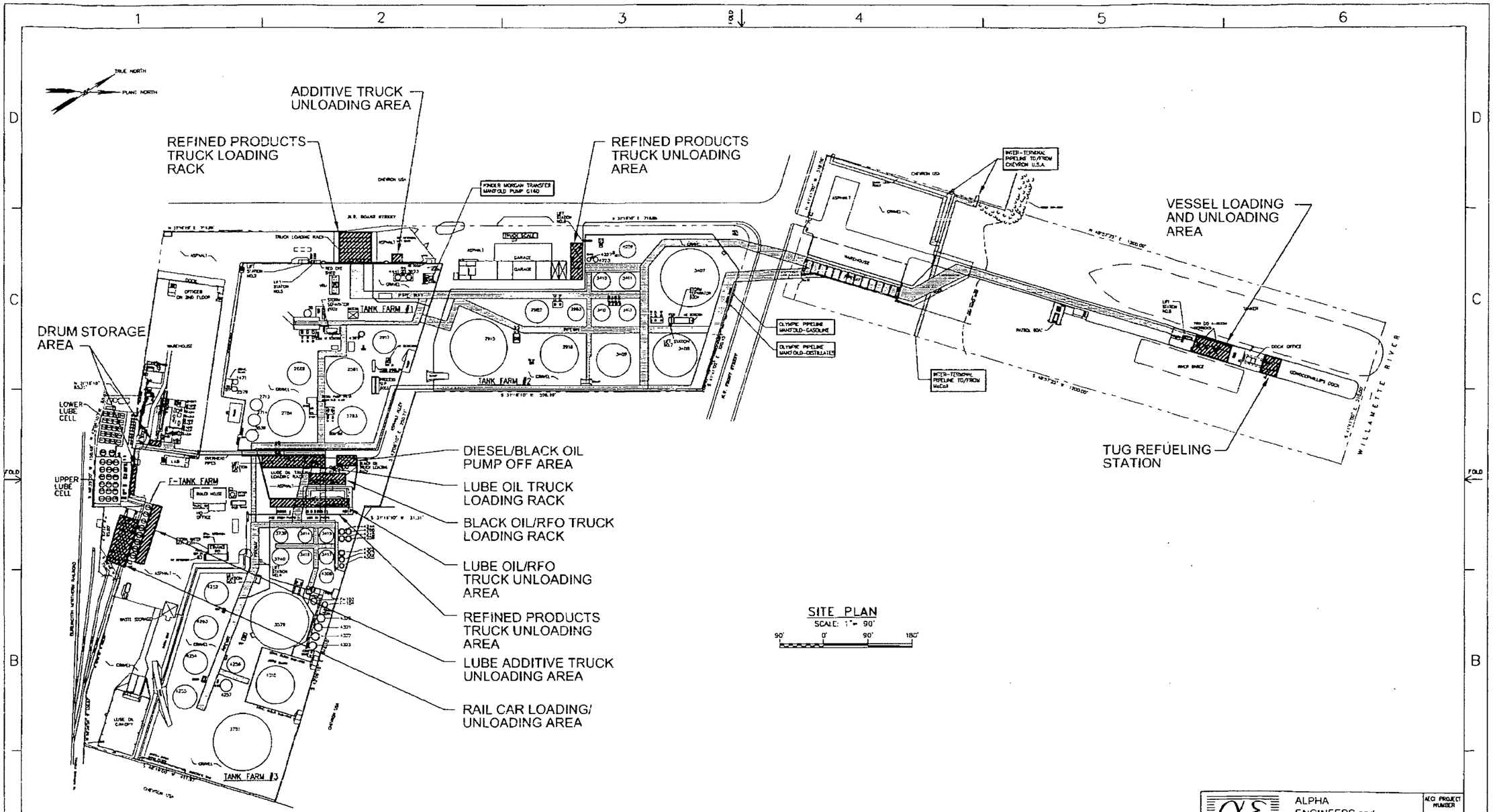

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		0	FOR INFORMATION ONLY	DAB	KJP		05/12/97
		1	UPDATED FOR SPOC PLAN	DAB	WHB		03/13/00
		2	REMOVE VEHICLE FUELING, ADD D. STORAGE	DAB	WHB		03/14/04
		3	ADD LUBE CANOPY	DAB	WHB		02/28/06
		4	GENERAL REVISION	CWP	DAB	DAB	04/14/08

NO.	REVISION DESCRIPTION	REV BY	CHK BY	APPR. BY	DATE

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ConocoPhillips Pipe Line Company
5528 NW DOANE ST
PORTLAND, OREGON 97210

ALPHA ENGINEERS and CONSTRUCTORS, INC.
2929 NW 29th AVE, PORTLAND, OR. 97210 Tel:(503)227-3317/Fax:(503)227-3244

AEC PROJECT MANAGER: 25-31

DR. D.A.BYRUM	CONTRACTOR No.
DSGN. D.A.BYRUM	PROJECT NO. 25-31
CK. WHB / AP.	DWG. SCALE AS SHOWN
DATE 07/30/97	PLOT SCALE

PORTLAND TERMINAL

TITLE: SITE PLAN TRANSFER LOCATIONS

DWG. No. 0608-C-1201 | SHEET 1 OF 1 | REV. No. 4

Appendix D
Oil Spill Contingency Plan

This SPCC Plan will become part of the Facility Response & Oil Spill Contingency Plan.

Appendix E
Calculations

Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Tank Farm 1						
Storage tank	36	Slop Oil	Rupture or overfill	21,933 gallons	See attached drainage plan	Tank farm dike: Total containment capacity of Tank Farm 1 (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 4,150,608 gallons
Storage tank	1471	Hydraulic Tractor Fluid	Rupture or overfill	19,491 gallons		
Storage tank	2561	Marine Fuel Oil	Rupture or overfill	1,665,039 gallons		
Storage tank	2579	Hydraulic Tractor Fluid	Rupture or overfill	20,142 gallons		
Storage tank	2669	Marine Diesel	Rupture or overfill	477,164 gallons		
Storage tank	2713	Unax AW 46	Rupture or overfill	118,440 gallons		
Storage tank	2714	Guardol 15W/40	Rupture or overfill	118,440 gallons		
Storage tank	2783	Decant Oil	Rupture or overfill	985,230 gallons		
Storage tank	2784	Diesel #2	Rupture or overfill	1,459,514 gallons		
Storage tank	2917	RLOP 220 N	Rupture or overfill	649,728 gallons		
Storage tank	3623	HITec 6576	Rupture or overfill	20,368 gallons		
Storage tank	3639	Super Syn BI 5W/30	Rupture or overfill	132,188 gallons		
Storage tank	4369	RLOP 220 N	Rupture or overfill	20,368 gallons		
Storage tank	4441	Octel 9056	Rupture or overfill	20,368 gallons		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Tank Farm 2						
Storage tank	2915	Unleaded Gasoline	Rupture or overfill	3,450,580 gallons	See attached drainage plan	Tank farm dike; Total containment capacity of Tank Farm 2 (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 4,575,564 gallons
Storage tank	2916	Diesel#1/Diesel #2	Rupture or overfill	1,717,760 gallons		
Storage tank	2982	Diesel #1	Rupture or overfill	487,296 gallons		
Storage tank	2983	RLOP 220 N	Rupture or overfill	319,788 gallons		
Storage tank	3407	Unleaded Gasoline	Rupture or overfill	3,384,000 gallons		
Storage tank	3408	Unleaded Gasoline	Rupture or overfill	1,903,500 gallons		
Storage tank	3409	Unleaded Gasoline	Rupture or overfill	1,151,500 gallons		
Storage tank	3410	Ethanol	Rupture or overfill	302,269 gallons		
Storage tank	3411	Unleaded Gasoline	Rupture or overfill	302,269 gallons		
Storage tank	3412	Diesel #1	Rupture or overfill	302,269 gallons		
Storage tank	3413	Unleaded Gasoline	Rupture or overfill	302,269 gallons		
Storage tank	4223	Slop Oil	Rupture or overfill	20,368 gallons		
Storage tank	4259	Transmix	Rupture or overfill	230,300 gallons		
Storage tank	4327	Gasoline Slops	Rupture or overfill	10,187		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Tank Farm 3						
Storage tank	3414	RLOP 220 N	Rupture or overfill	222,360 gallons	See attached drainage plan	Tank farm dike; Total containment capacity of Tank Farm 3 (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 4,298,390 gallons
Storage tank	3415	SUN 525	Rupture or overfill	222,075 gallons		
Storage tank	3416	RLOP 100 N	Rupture or overfill	222,075 gallons		
Storage tank	3417	Ultra S-4	Rupture or overfill	222,075 gallons		
Storage tank	3579	Industrial Fuel Oil	Rupture or overfill	3,384,000 gallons		
Storage tank	3739	SUN 150 B/S	Rupture or overfill	222,075 gallons		
Storage tank	3740	RLOP 600 N	Rupture or overfill	302,269 gallons		
Storage tank	3761	Diesel #2	Rupture or overfill	3,384,000 gallons		
Storage tank	4244	Mohawk 450	Rupture or overfill	20,368 gallons		
Storage tank	4245	SUN 525	Rupture or overfill	20,368 gallons		
Storage tank	4252	Residual Fuel Oil	Rupture or overfill	470,000 gallons		
Storage tank	4253	Residual Fuel Oil	Rupture or overfill	470,000 gallons		
Storage tank	4254	PS 300	Rupture or overfill	470,000 gallons		
Storage tank	4255	Bio Diesel	Rupture or overfill	470,000 gallons		
Storage tank	4256	Out of Service	Rupture or overfill	230,300 gallons		
Storage tank	4257	Out of Service	Rupture or overfill	58,750 gallons		
Storage tank	4258	Line Clippings	Rupture or overfill	20,368 gallons		
Storage tank	4266	Flush	Rupture or overfill	20,368 gallons		
Storage tank	4302	RLOP 600 N	Rupture or overfill	20,368 gallons		
Storage tank	4303	RLOP 100 N	Rupture or overfill	20,368 gallons		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Tank Farm 3 (cont'd.)						
Storage tank	4305	Out of Service	Rupture or overfill	10,187 gallons		
Storage tank	4306	RLOP 100 N	Rupture or overfill	223,175 gallons		
Storage tank	4318	Diesel #2	Rupture or overfill	1,626,200 gallons		
Storage tank	4320	Sup Syn BL 10W/30	Rupture or overfill	42,575 gallons		
Storage tank	4321	Uniguide II 100	Rupture or overfill	42,575 gallons		
Storage tank	4322	TSX HD 15W/40	Rupture or overfill	42,575 gallons		
Storage tank	4323	Super ATF	Rupture or overfill	42,575 gallons		
Storage tank	F103	UTRA 58	Rupture or overfill	29,375 gallons		
Storage tank	F104	UTRA 58	Rupture or overfill	21,726 gallons		
F Tank Farm						
Storage tank	4335	Utility	Rupture or overfill	20,368 gallons	See attached drainage plan	Tank farm dike; Total containment capacity of F Tank Farm (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 16,338 gallons; The F Tank Farm is equipped with an open catch basin connected the process water system, which significantly increases the effective containment capacity of the F Tank Farm.
Storage tank	4336	Utility	Rupture or overfill	20,368 gallons		
Storage tank	4337	Utility	Rupture or overfill	20,368 gallons		
Storage tank	4436	Unax AW 32	Rupture or overfill	19,920 gallons		
Storage tank	4437	Unax WR 32	Rupture or overfill	19,930 gallons		
Storage tank	F10	Utility	Rupture or overfill	6,380 gallons		
Storage tank	F11	Utility	Rupture or overfill	6,380 gallons		
Storage tank	F12	Utility	Rupture or overfill	6,380 gallons		

Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell HL)	Direction of Flow	Containment Systems
Upper Lube Cell:						
Storage tank	3741	Remar CLF 17E	Rupture or overfill	20,368 gallons	See attached drainage plan	Tank farm dike; Total containment capacity of the Upper Lube Cell (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 42,378 gallons; Additionally, the Upper Lube Cell is equipped with an open catch basin connected the process water system, which significantly increases the effective containment capacity of the Upper Lube Cell.
Storage tank	3742	MP 80/90	Rupture or overfill	20,368 gallons		
Storage tank	3743	Utility	Rupture or overfill	20,368 gallons		
Storage tank	3744	HYNAP N 100	Rupture or overfill	20,368 gallons		
Storage tank	3745	HITEC 5751	Rupture or overfill	20,368 gallons		
Storage tank	3746	Lubrizol 4998C	Rupture or overfill	20,368 gallons		
Storage tank	3747	Lubrizol 4990CH	Rupture or overfill	20,368 gallons		
Storage tank	3757	HITEC 1193	Rupture or overfill	20,368 gallons		
Storage tank	3760	Raffene 750L	Rupture or overfill	20,368 gallons		
Storage tank	4181	Lubrizol 48254	Rupture or overfill	20,368 gallons		
Storage tank	4182	Lubrizol 7075F	Rupture or overfill	20,368 gallons		
Storage tank	4241	Unax AW 68	Rupture or overfill	20,368 gallons		
Storage tank	4242	Unax AW 68	Rupture or overfill	20,368 gallons		
Storage tank	4243	HT4/10W	Rupture or overfill	20,368 gallons		
Storage tank	4281	Versa Tran ATF	Rupture or overfill	20,368 gallons		
Storage tank	4332	Super ATF	Rupture or overfill	29,368 gallons		
Storage tank	4333	Point Premier 10W/30	Rupture or overfill	20,368 gallons		
Storage tank	4334	Super 5W/20	Rupture or overfill	20,368 gallons		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Lower Lube Cell						
Storage tank	4300	Ramar CLF 17E	Rupture or overfill	29,375 gallons	See attached drainage plan	Tank farm dike; Total containment capacity of the Lower Lube Cell (total area inside tank farm dike minus the total areas of all the tanks except the largest) equals 47,334 gallons; Additionally, the Lower Lube Cell is equipped with an open catch basin connected the process water system, which significantly increases the effective containment capacity of the Lower Lube Cell.
Storage tank	4331	Ethyl HiTec 6888 E	Rupture or overfill	29,375 gallons		
Storage tank	4388	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4389	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4390	Bar & Chain 150	Rupture or overfill	12,154 gallons		
Storage tank	4391	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4392	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4393	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4394	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4395	Utility	Rupture or overfill	12,154 gallons		
Storage tank	4397	Lubrizol 9692A	Rupture or overfill	12,154 gallons		
Storage tank	4398	HiTEC 1193A	Rupture or overfill	12,154 gallons		
Storage tank	4399	Firebird 15W/40	Rupture or overfill	12,154 gallons		
Storage tank	4400	Guardol 30	Rupture or overfill	12,154 gallons		
Storage tank	4401	Mohaw 150	Rupture or overfill	12,154 gallons		
Storage tank	4402	TSX HD 10	Rupture or overfill	12,154 gallons		
Storage tank	4403	HT4/30W	Rupture or overfill	12,154 gallons		
Storage tank	4404	Fleet Sup EC 15W/40	Rupture or overfill	12,154 gallons		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Lower Lube Cell (cont'd.)						
Storage tank	4405	HITEC 3472	Rupture or overfill	12,154 gallons		
Storage tank	4406	Lubrizol 9990A	Rupture or overfill	12,154 gallons		
Storage tank	4407	HITEC 388	Rupture or overfill	12,154 gallons		
Storage tank	4408	HITEC 5750	Rupture or overfill	12,154 gallons		
Lube Blending Warehouse						
Storage tank	4338	Conoco AN 801	Rupture or overfill	1,008 gallons	See attached *drainage plan*	The warehouse is equipped with two means of secondary containment. *The Blending and Container Filling Areas are equipped with concrete* floors sloped to catch basins that drain to two 5,000-gallon underground spill containment tanks located at the south end of the warehouse. The Package Storage Area is equipped with a concrete floor and curbing along the north side and northeast corner of the warehouse to prevent potential spills from packages products along that side, or additive tanks in the northeast corner, from migrating from the building.
Storage tank	4339	Ethyl HITEC 534	Rupture or overfill	1,008 gallons		
Storage tank	4340	Ethyl HITEC 385	Rupture or overfill	1,008 gallons		
Storage tank	4341	Utility	Rupture or overfill	1,008 gallons		
Storage tank	4342	HITEC 008	Rupture or overfill	1,008 gallons		
Storage tank	4343	Viscoplex 1-302	Rupture or overfill	1,008 gallons		
Storage tank	4344	Oleic Acid / Emersol 213	Rupture or overfill	1,008 gallons		
Storage tank	4345	Lubrizol 8780	Rupture or overfill	1,008 gallons		
Storage tank	4346	Utility	Rupture or overfill	1,008 gallons		
Storage tank	4347	Utility	Rupture or overfill	1,008 gallons		
Storage tank	F-8	Utility	Rupture or overfill			
Storage tank	F-9	Line Clippings	Rupture or overfill			
Storage tank	F-13	Slops - Under Lab	Rupture or overfill			
Storage tank	F-14	Flush - Under Lab	Rupture or overfill			

COPPOR00000325

Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Truck and Railcar Loading/Unloading Areas						
Refined Products Truck Loading Rack	NA	Gasoline, diesel, kerosene, ethanol and transmix	Truck/trailer overfill	600 gpm (maximum)	See attached drainage plans	The Refined Products Loading Rack utilizes vapor recovery and overfill protection/brake interlock systems. Trucks are equipped with high-level sensors. The drivers are responsible for presetting loading volumes and are in attendance at all times. The rack is surrounded by a sloped concrete slab. Runoff from the slab is into strip drains that lead to a 10,000 gallon spill containment tank. The secondary containment at the rack and containment tank is sufficient to contain the maximum anticipated spill.
			Compartment rupture	4,000 gallons (maximum)		
			Valve failure	100-200 gpm		
Gasoline Additive Truck Unloading Area	NA	Gasoline additives	Compartment rupture	4,000 gallons (maximum)	See attached drainage plans	The area is graded such that spills will flow towards the Refined Products Loading Rack containment area. Spills in this area could also flow to a storm water catch basin that drains to a storm water separator in Tank Farm 1. Therefore, terminal procedures require operators to seal off the catch basin with a magnetic cover during additive transfers such that the spills will pond in the area to facilitate recovery.
			Valve failure	100-200 gpm		
Refined Products Truck Unloading Area	NA	Gasoline and ethanol	Compartment rupture	4,000 gallons (maximum)	See attached drainage plans	A spill will flow to catch basins located in the center of the concrete containment pad and then into the process water system. The secondary containment can contain a spill of the maximum size anticipated. During the transfer of ethanol, the catch basin lift pump is shutdown to prevent an ethanol spill from entering the process system and dissolving into water.
			Valve failure	100-200 gpm		
Diesel/Black Oil Pump Off Area	NA	Diesel and black oils	Compartment rupture	4,000 gallons (maximum)	See attached drainage plans	A spill will be contained by perimeter curbing and catch basins that drain to the process water system.
			Valve failure	100-200 gpm		
Lube Oil Truck Loading Rack	NA	Lube oils	Truck/trailer overfill	600 gpm (maximum)	See attached drainage plans	The Lube Oil Truck Loading Rack area is paved and equipped with asphalt and concrete berms. Several catch basins drain the area to the process water system. The rack is equipped with a deadman switch that requires constant pressure from the operator to continue loading operations. Therefore, an operator has to be present at all times during loading of lube oils. The area is designed to contain the largest foreseeable spill of 5,000 gallons which is the largest compartment of a typical tank truck or trailer.
			Compartment rupture	5,000 gallons (maximum)		
			Valve failure	100-200 gpm		
Black Oil/RFO Truck Loading Rack	NA	Black oils and re-refined oils	Truck/trailer overfill	600 gpm (maximum)	See attached drainage plans	The Black Oil/RFO Truck Loading Rack area is paved and equipped with asphalt and concrete berms. Several catch basins drain the area to the process water system. The rack is equipped with a deadman switch that requires constant pressure from the operator to continue loading operations. Therefore, an operator has to be present at all times during loading. The area is designed to contain the largest foreseeable spill of 4,000 gallons which is the largest compartment of a typical tank truck or trailer.
			Compartment rupture	4,000 gallons (maximum)		
			Valve failure	100-200 gpm		

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Source	Container Identification	Substance Stored/Transferred	Potential Failure	Volume or Rate of Flow (Tank Vol. Based on Shell Ht.)	Direction of Flow	Containment Systems
Truck and Railcar Loading/Unloading Areas (cont'd.)						
Lube Oil/RFO Truck Unloading Area	NA	Lube oils and re-refined oils	Compartment rupture	4,000 gallons (maximum)	See attached drainage plans	A spill will be contained by perimeter curbing and catch basins that drain to the process water system.
			Valve failure	100-200 gpm		
Lube Additive Truck Unloading Area	NA	Lube oil additives	Truck/trailer overfill	600 gpm (maximum)	See attached drainage plans	The area is paved but not equipped with a dedicated containment system. As a result, operators place a cover over the nearby storm water catch basin during additive transfers. This prevents spills from entering the storm water system and causes the spill to continue down gradient into the a process water system catch basin.
			Compartment rupture	5,000 gallons (maximum)		
			Valve failure	100-200 gpm		
Railcar Loading/Unloading Area	NA	Lube base stocks, additives, finished lube oils; black oil	Railcar overfill	400 gpm (maximum)	See attached drainage plans	The Rail Car Loading/Unloading area is surrounded by a sloped gravel area and asphalt containment berm along the northwest perimeter of the area. Smaller sloped concrete slabs are located under each of the four transfer stations for the rack, and are equipped with catch basins that drain to the process water system. The combination of the concrete slabs, catch basins, and asphalt berms provide containment area for at least 30,000 gallons. Railcars are also loaded and unloaded under the supervision of terminal personnel. Operators are required to check the railcars and transfer equipment every 20 minutes and be present during the loading of the last 2,000 gallons. Operators are required to be present if offloading hazardous materials.
			Railcar rupture	30,000 gallons (maximum)		
			Valve failure	100 - 400 gpm		
Marine Dock						
Marine Transfers	NA	Gasoline, diesel, kerosene, black oil, and lube oil	Cargo hose failure	140,880 gallons (assumes 5 minute detection and shutdown, four hoses in use, simultaneous rupture, complete drainage following shutdown)	See attached drainage plans	The marine dock mainfold/riser area is surrounded by sloped concrete and bermed around the perimeter. The containment area drains to a 2,000 gallon spill containment tank beneath the dock, which is equipped with level-control activated pumps that pump any spilled product to the process water system. Transfer operations at the marine dock are conducted under the continual supervision of terminal and vessel personnel and in accordance with U.S. Coast Guard regulations. In the unlikely event of a spill at the marine dock or tug refueling area, terminal personnel will deploy a floating spill containment boom to encircle and contain the spill if it is safe to do so. Permanent floating boom is positioned around the dock to contain spilled product under the dock. Containment of gasoline spills is rarely, if ever, recommended due to the associated fire and explosion hazard.
				5,600 gpm (offloading); 2,100 gpm (loading)		
Tug Fueling			Hose failure	18,000 gpm (maximum)	See attached drainage plans	The tug refueling area at the dock is equipped with a similar containment system, which also drains to the holding tank.

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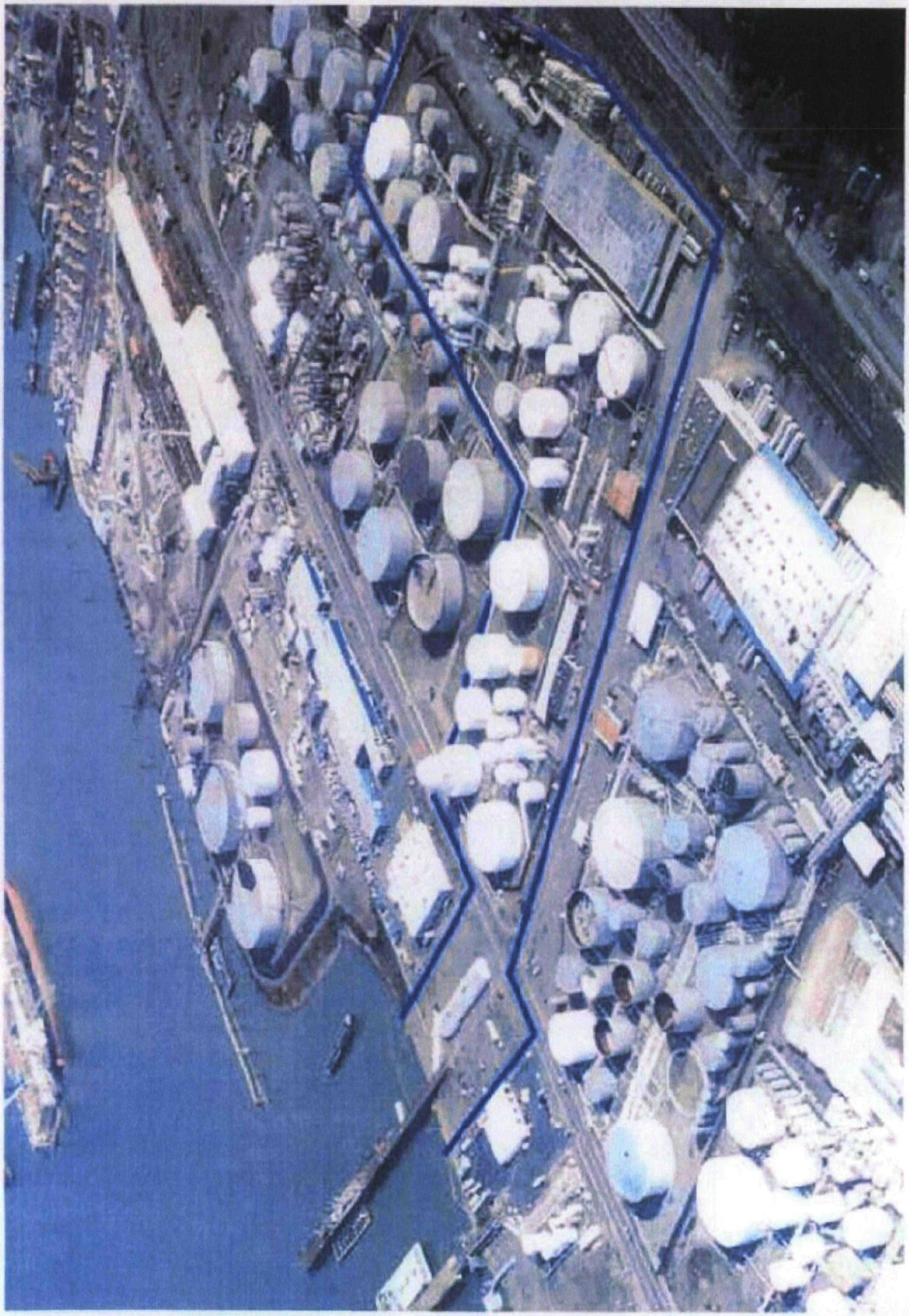

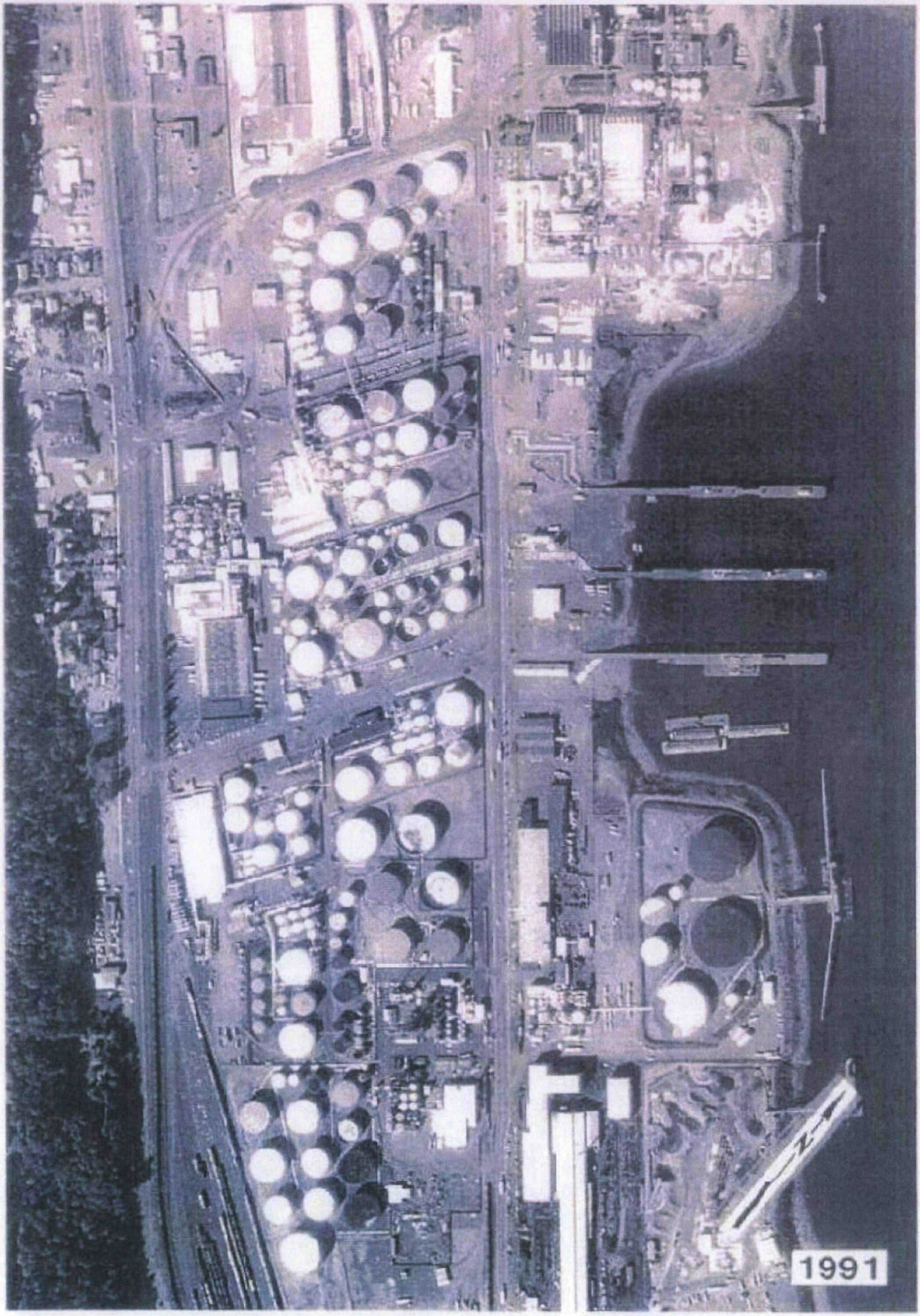
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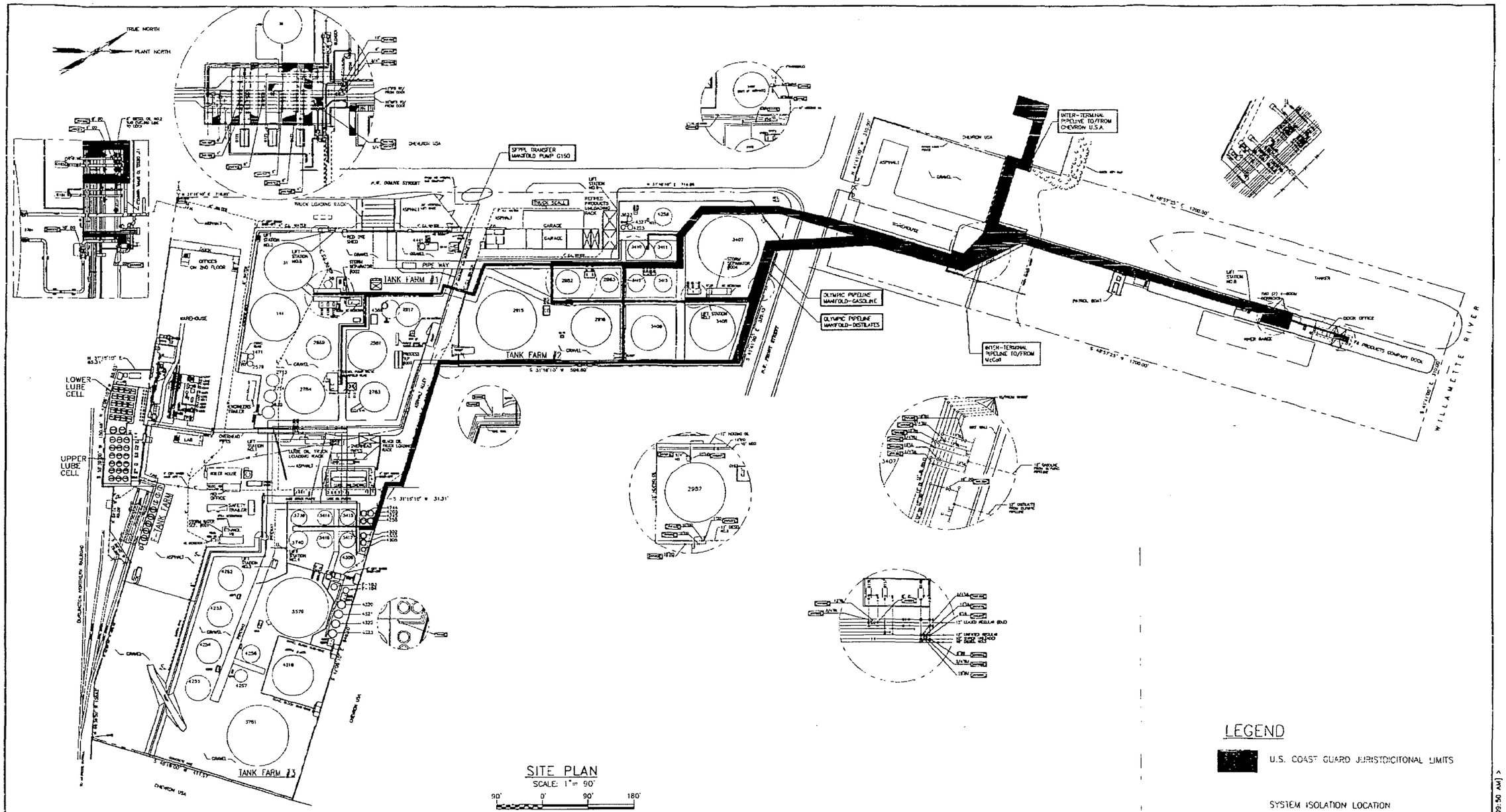


DRAWING NO.	REFERENCE DRAWINGS	REV. NO.	DATE	REVISED	DRAWN BY	CKD. BY
0608-C-1020	DOCK FACILITIES	0	08/26/97	ISSUED FOR INFORMATION	DAB	MK
0608-C-1021	TANK FARM NO.2 GENERAL ARRANGEMENT	1	09/12/97	UPDATED AREA 5A TO REFLECT TRUCK LOADING RACK UPGRADE PROJECT	DAB	MK
0608-C-1022	TANK FARM NO.1 GENERAL ARRANGEMENT					
0608-C-1023	TANK FARM NO.3 GENERAL ARRANGEMENT					

TOSCO
Tosco Distribution Company
A Division of Tosco Corporation
3528 NW Doane St.
Portland, Oregon 97210

ALPHA ENGINEERS and CONSTRUCTORS, INC.
19 NW 5th AVE, SUITE 204, PORTLAND, OR 97209 Tel (503)227-3317/Fax (503)227-3244

DRAWN BY	D.A.BYNUM
CHKD BY	MK
APPD BY	MK
SCALE	AS SHOWN
DATE	08/26/97

PORTLAND TERMINAL
PORTLAND, OREGON

SITE PLAN
PIPELINE SYSTEM
ISOLATION LOCATIONS

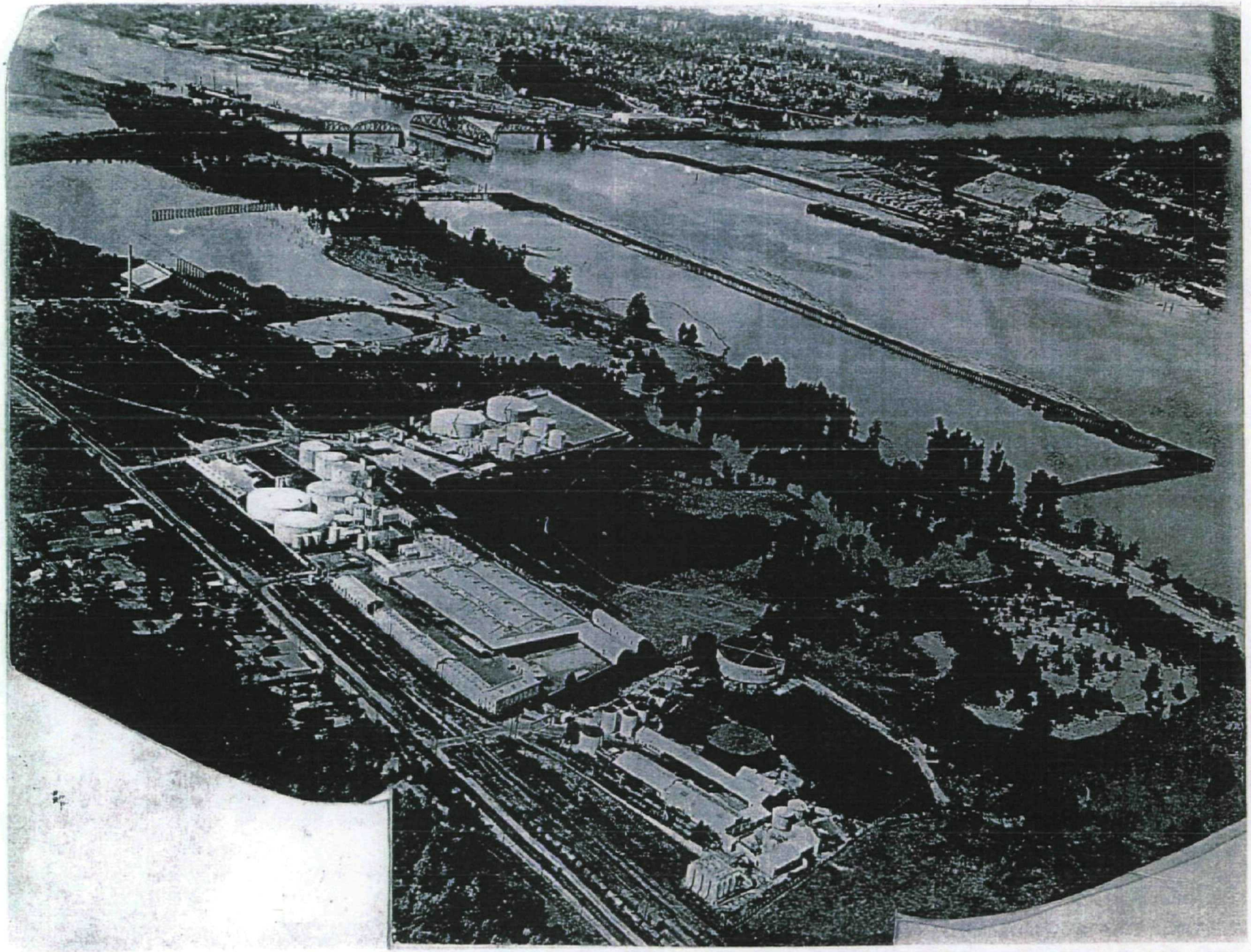
DRAWING NO.	SHEET	REV.
0608-C-1200	1 OF 1	1

08C1200I.DWG <CPD: 09/17/97 [TIME: 09:50 AM]>

COPPOR00000330

Oregon Historical Society, #OrHi 55793, Pre-1925

COPPOR00000331



Oregon Historical Society, #OrHi 54256, December 12, 1925

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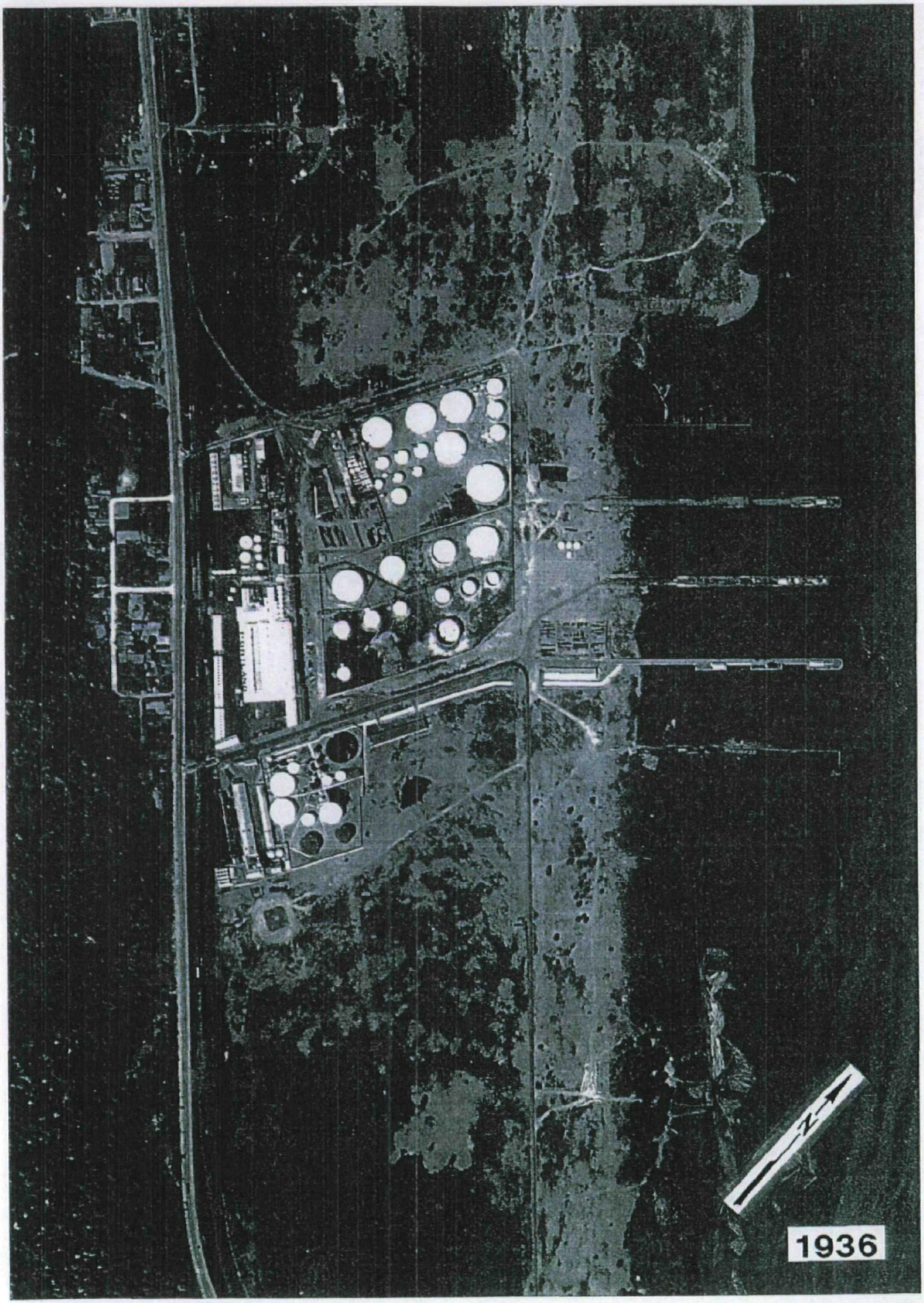
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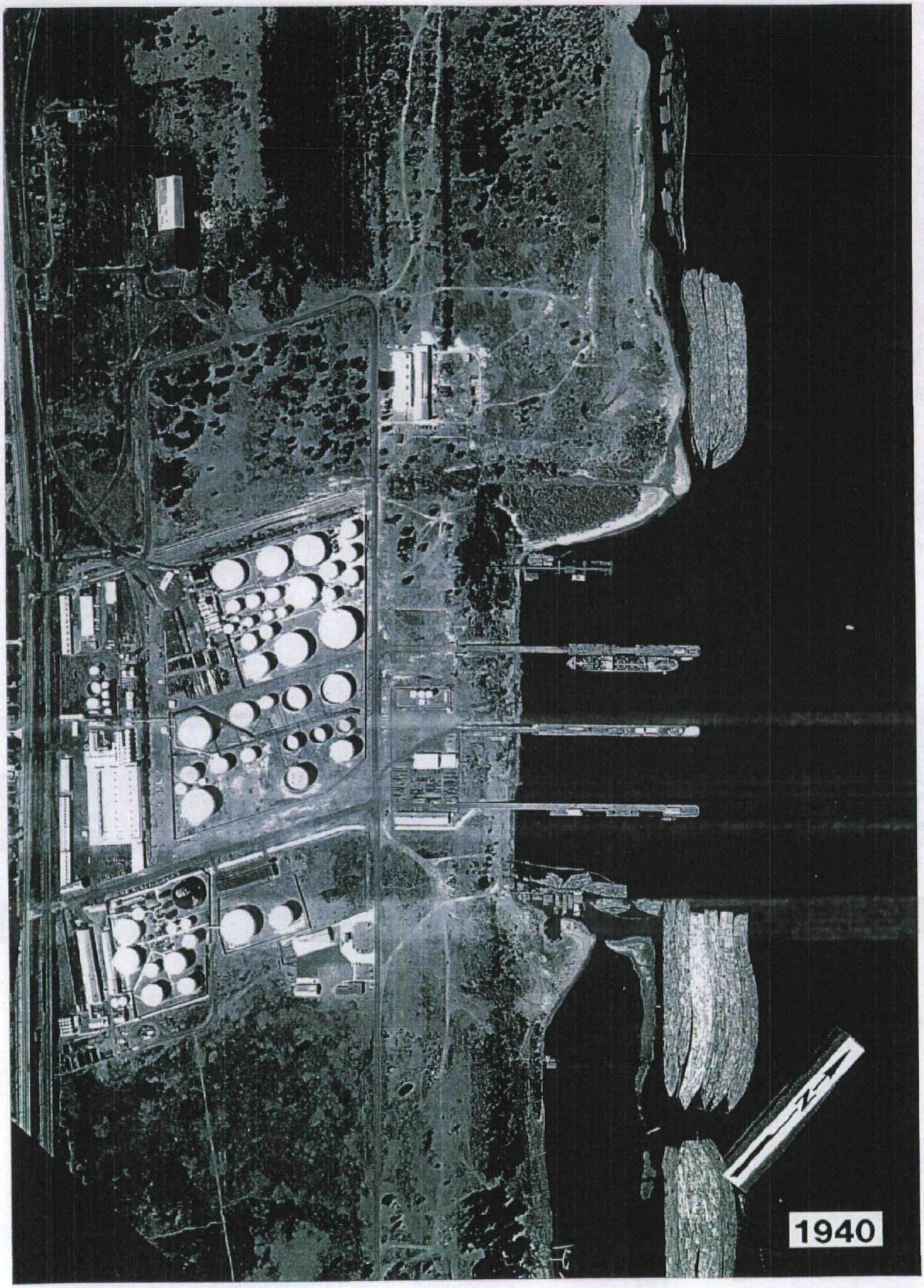
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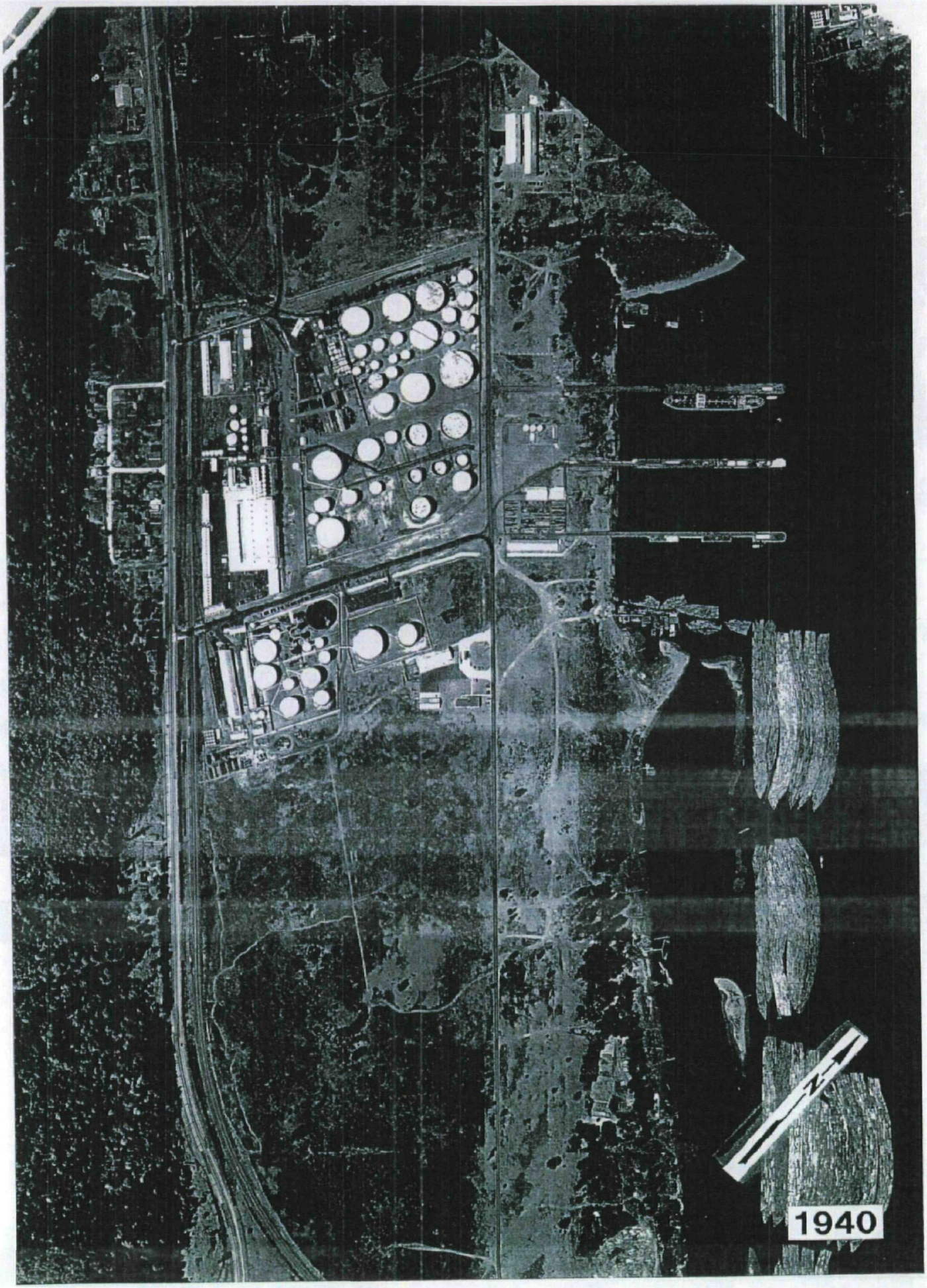
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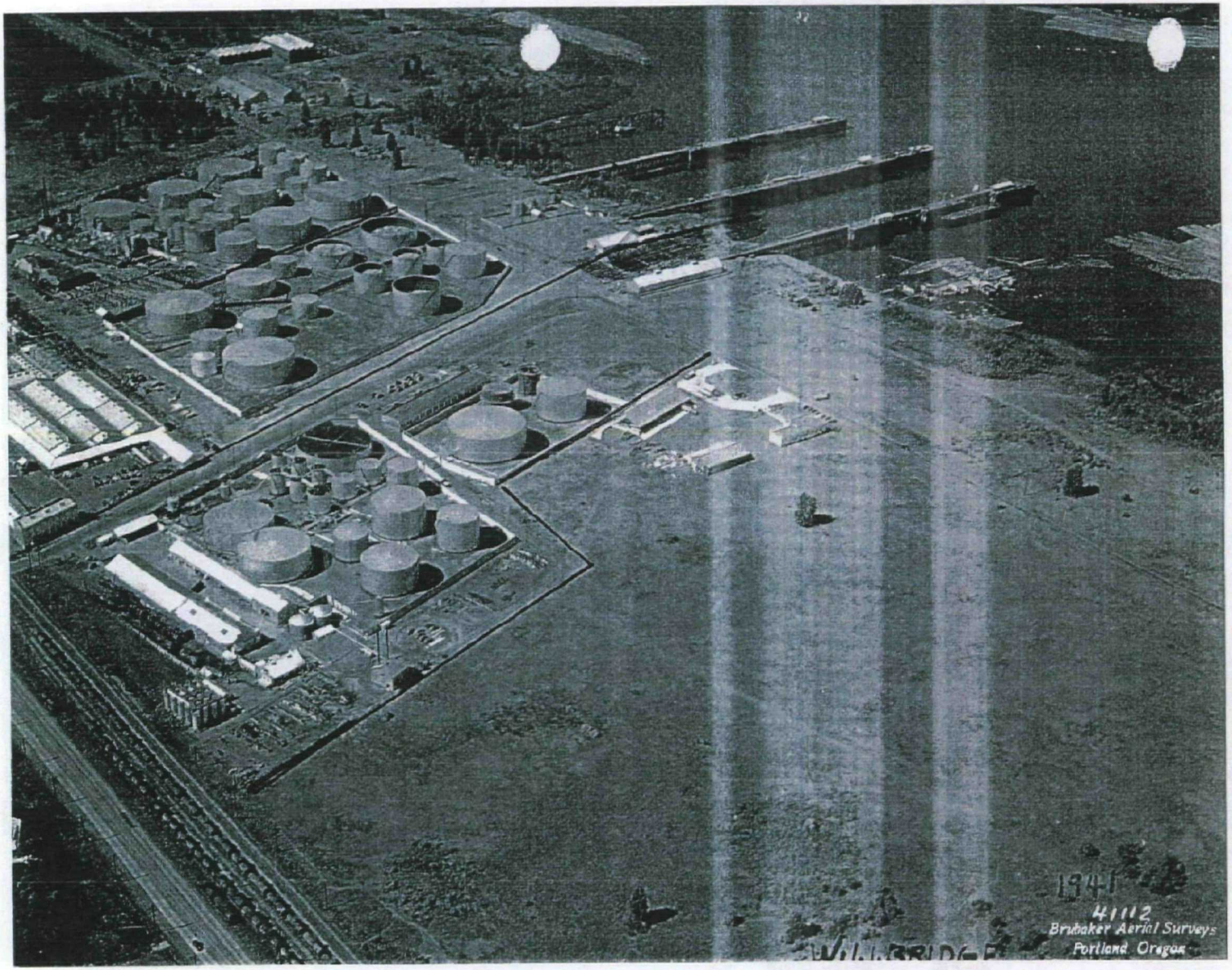

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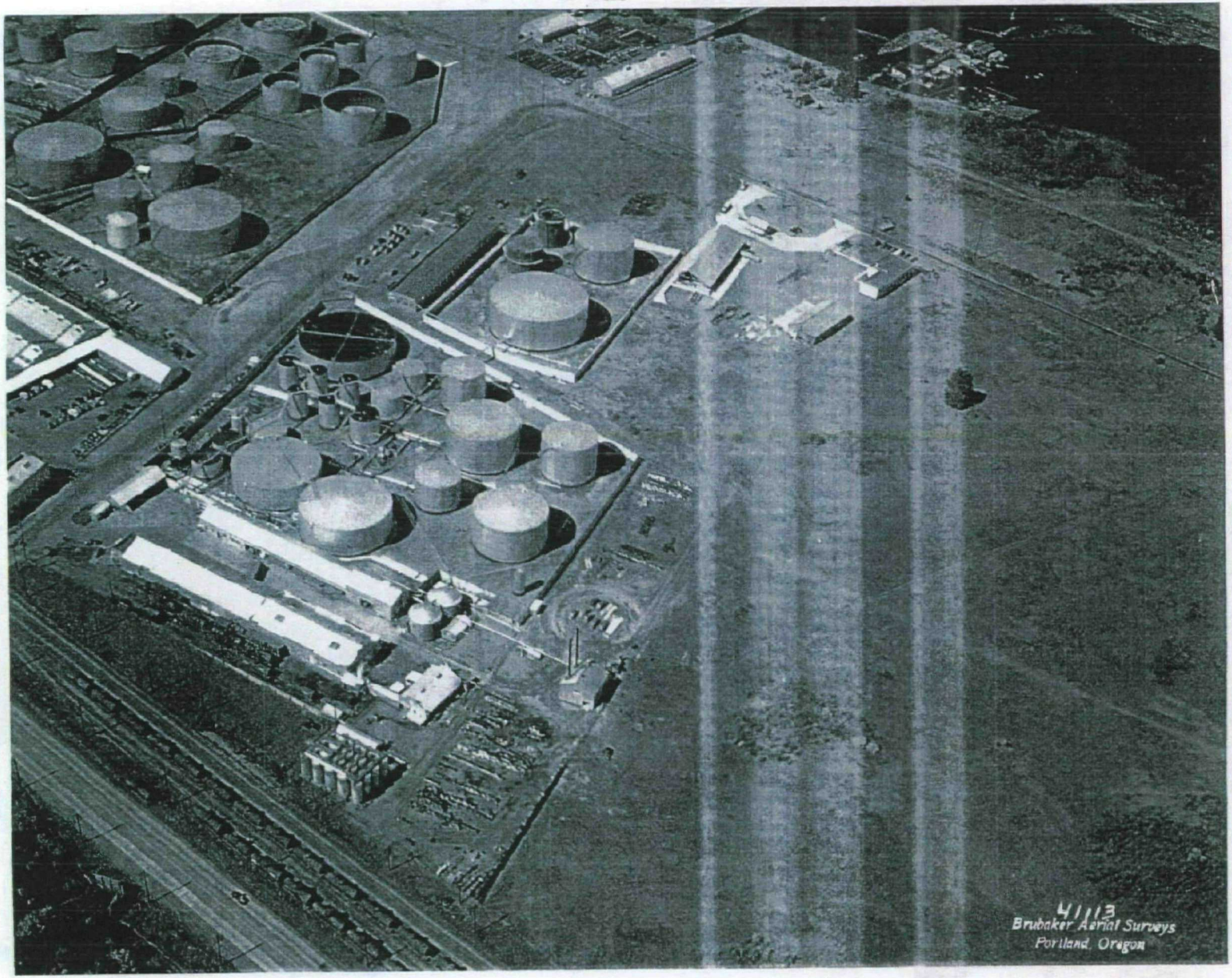
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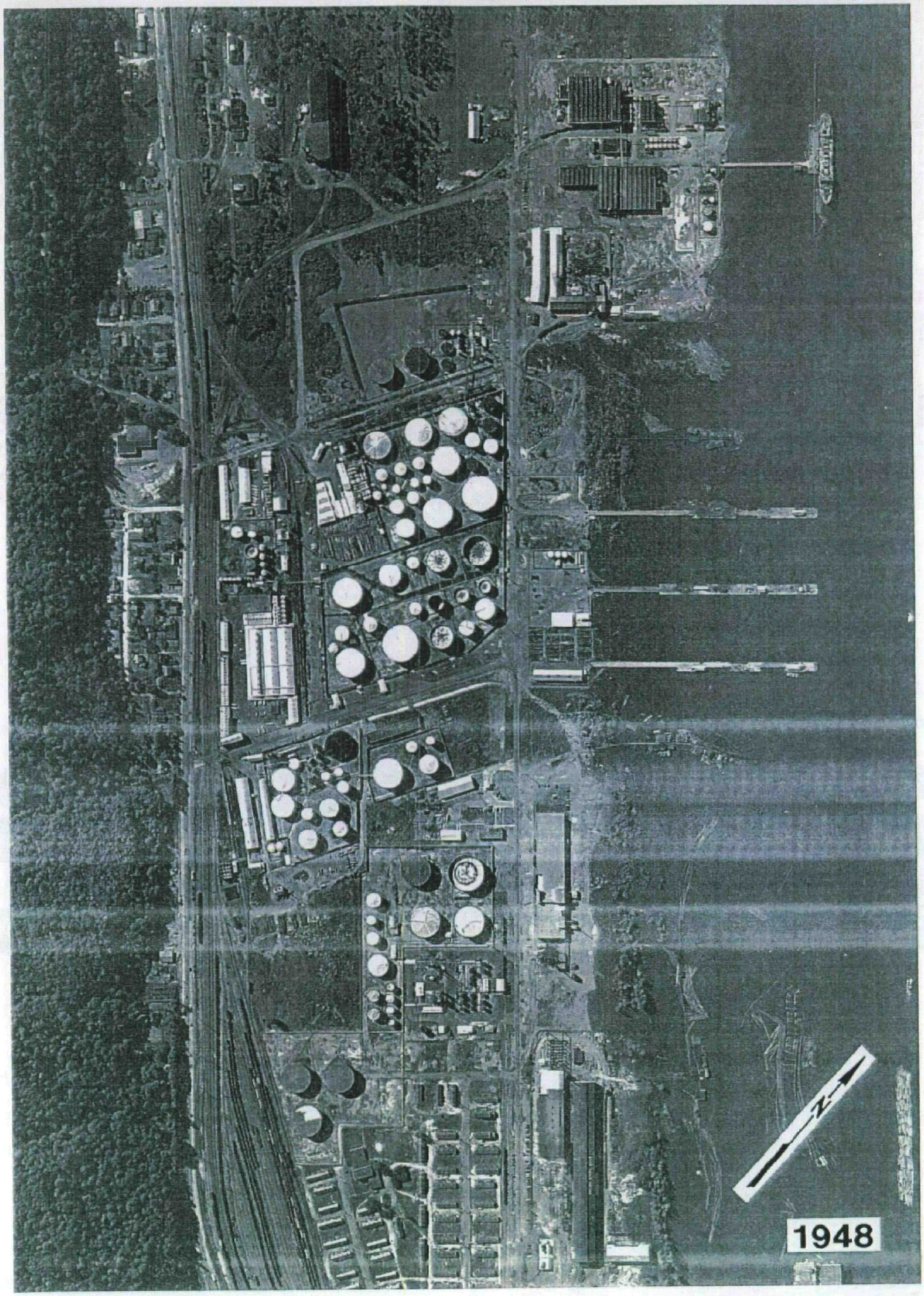
Brubaker Aerial Surveys
Portland, Oregon



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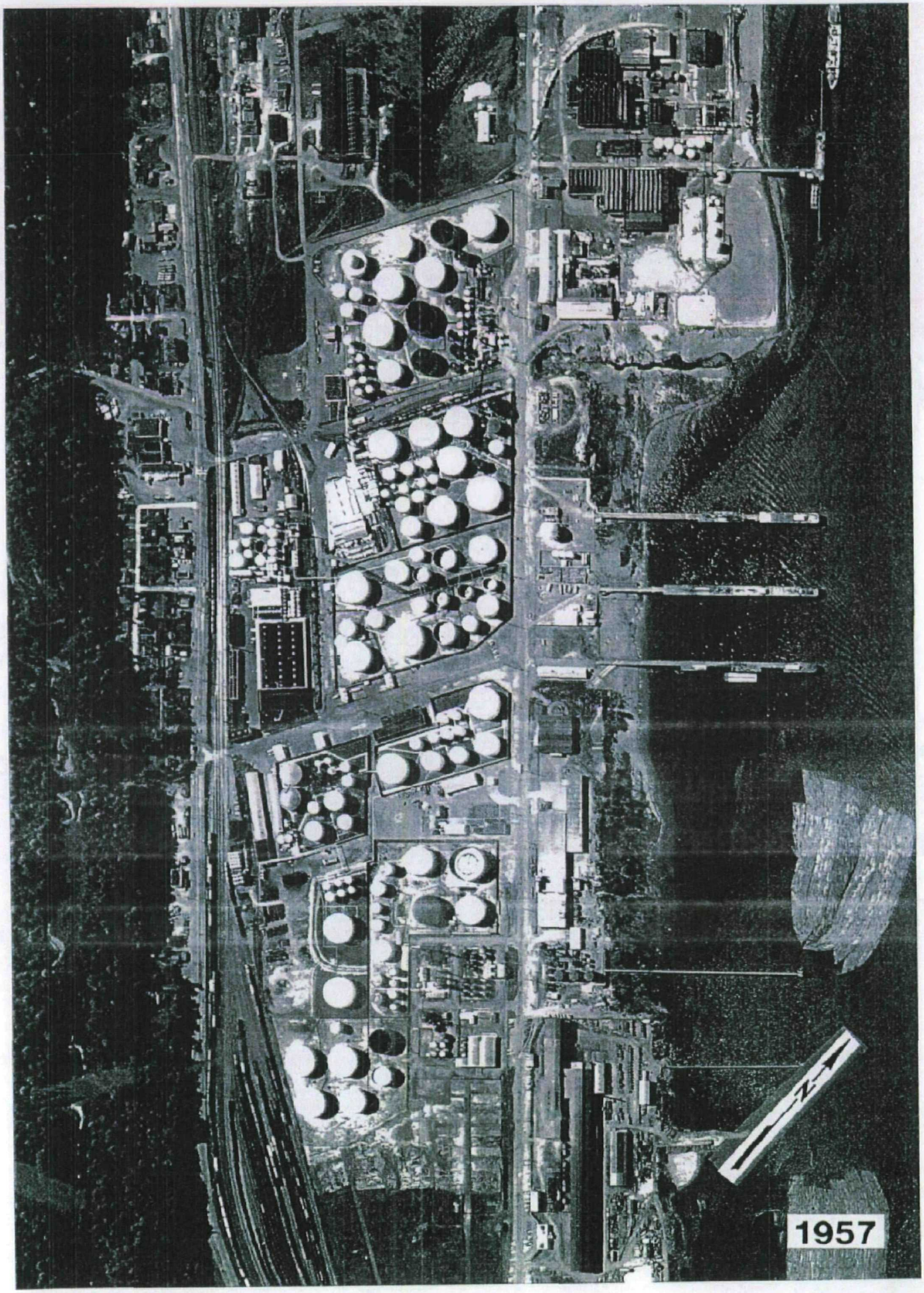
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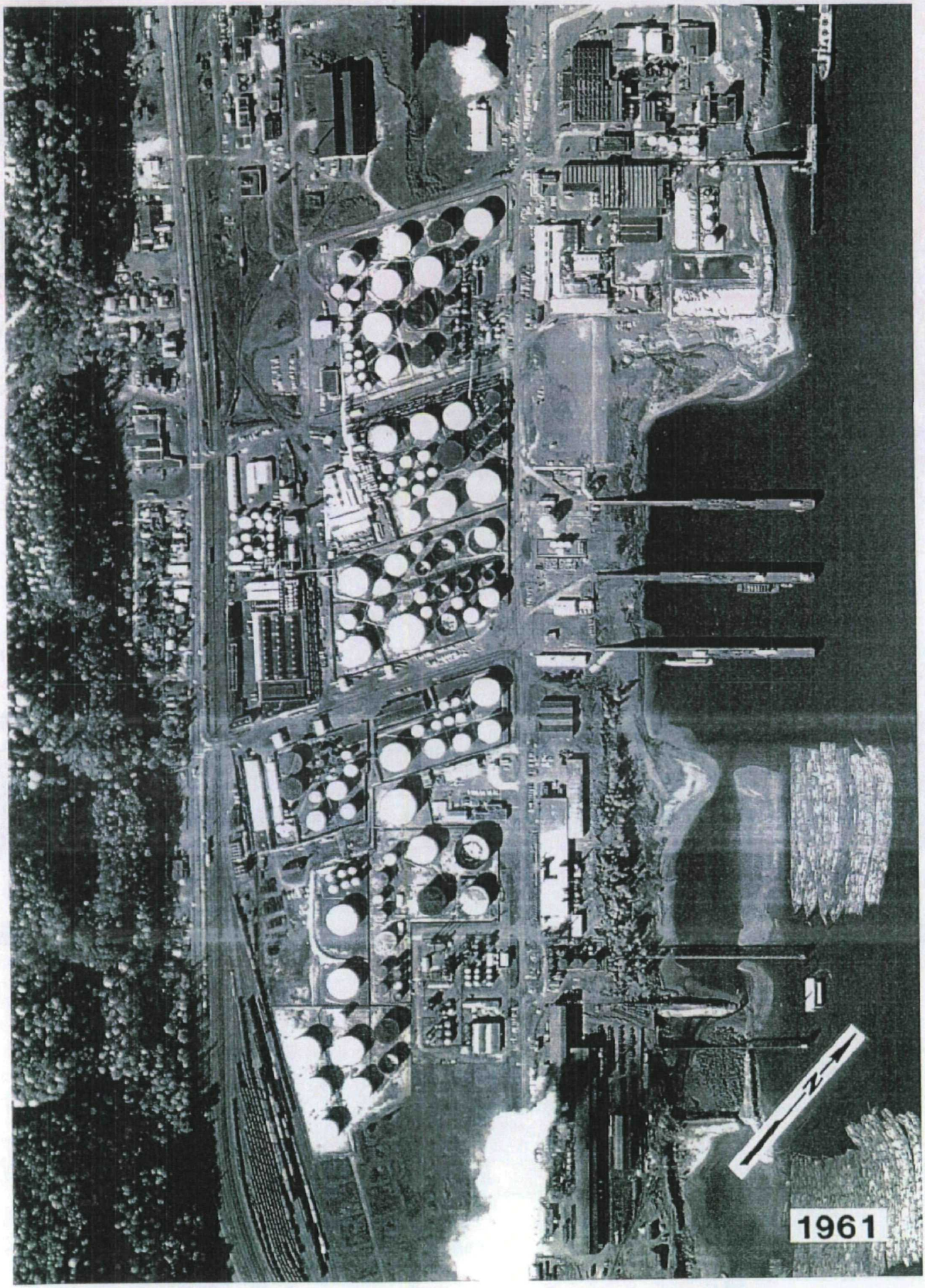
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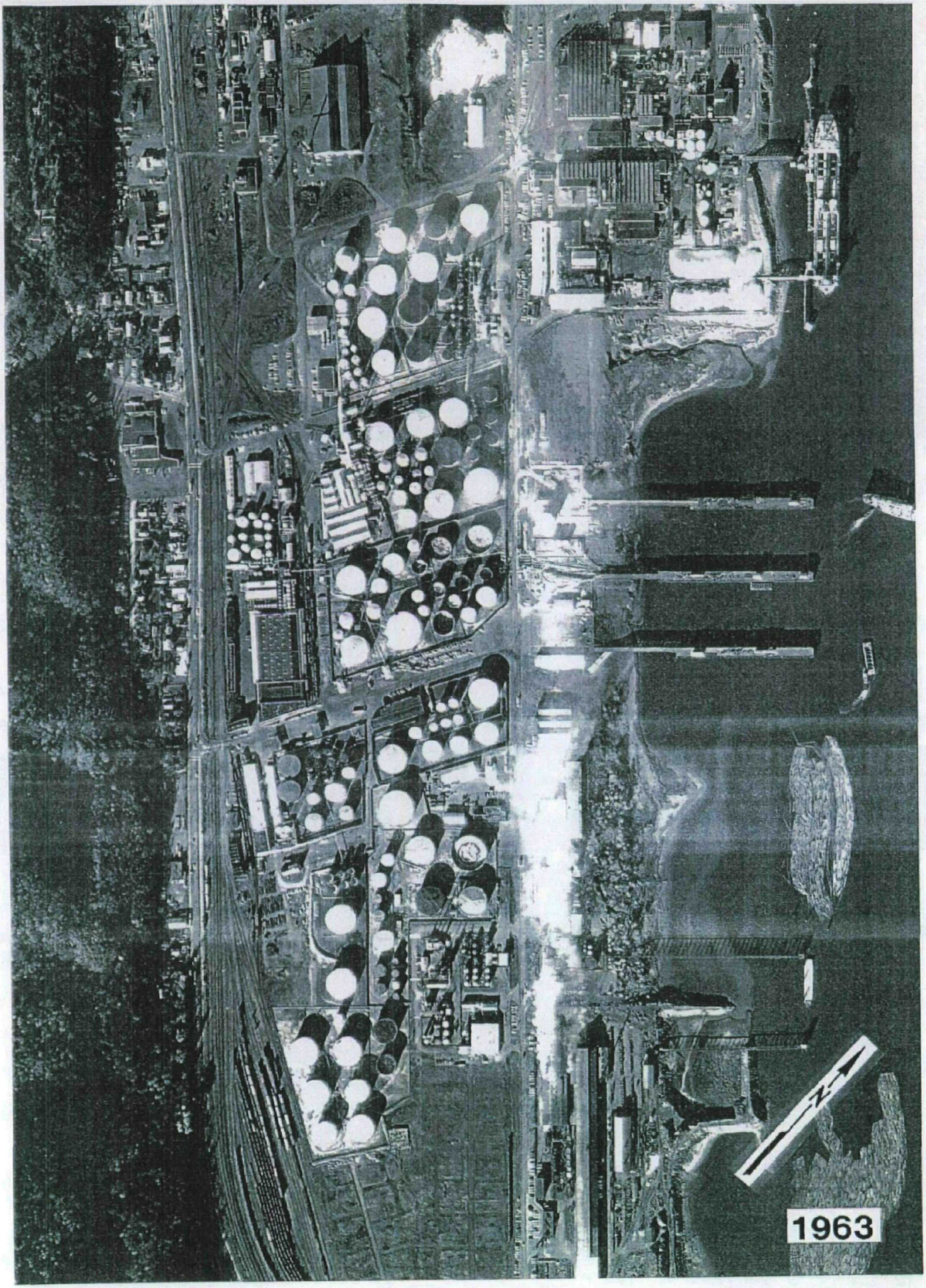
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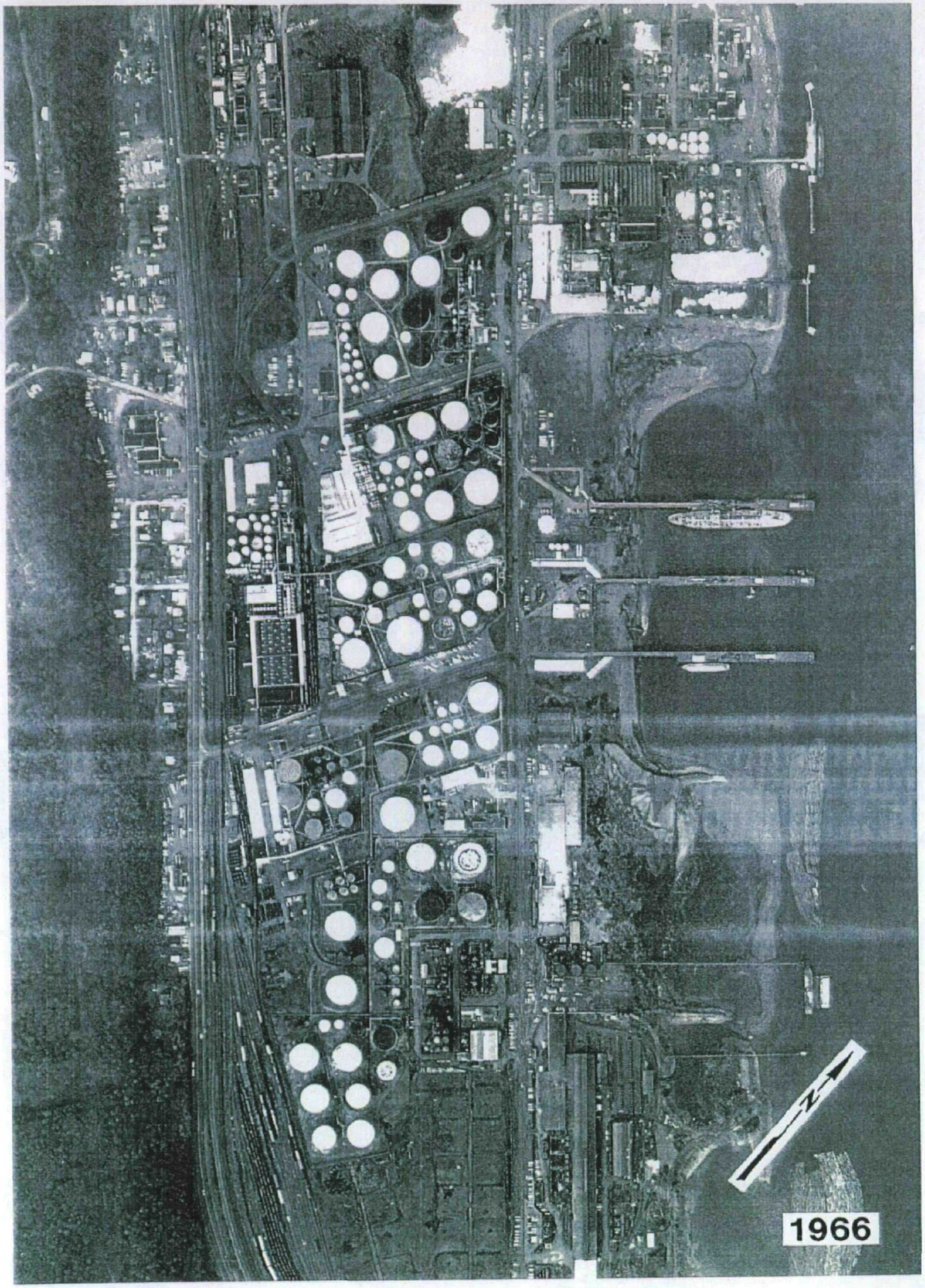
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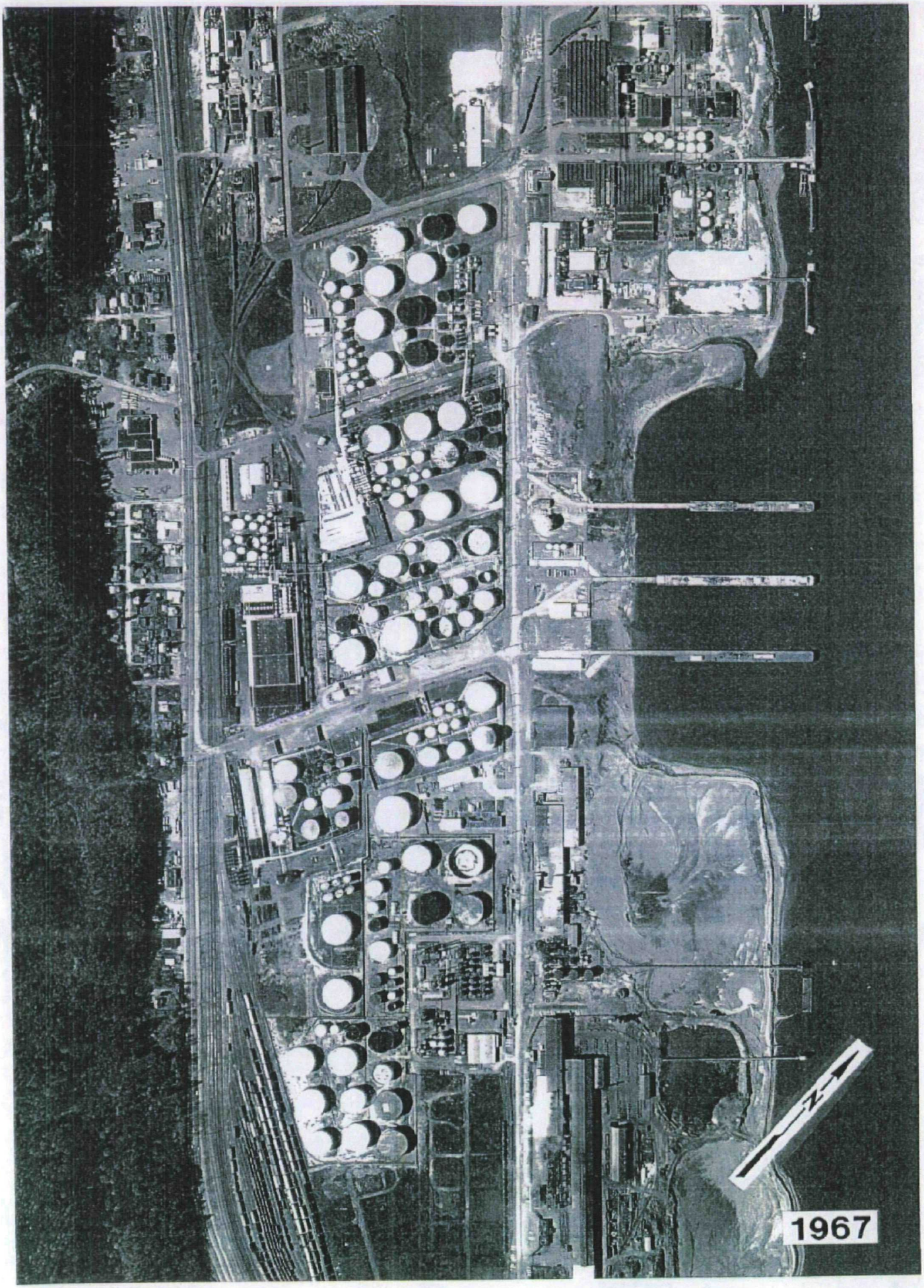

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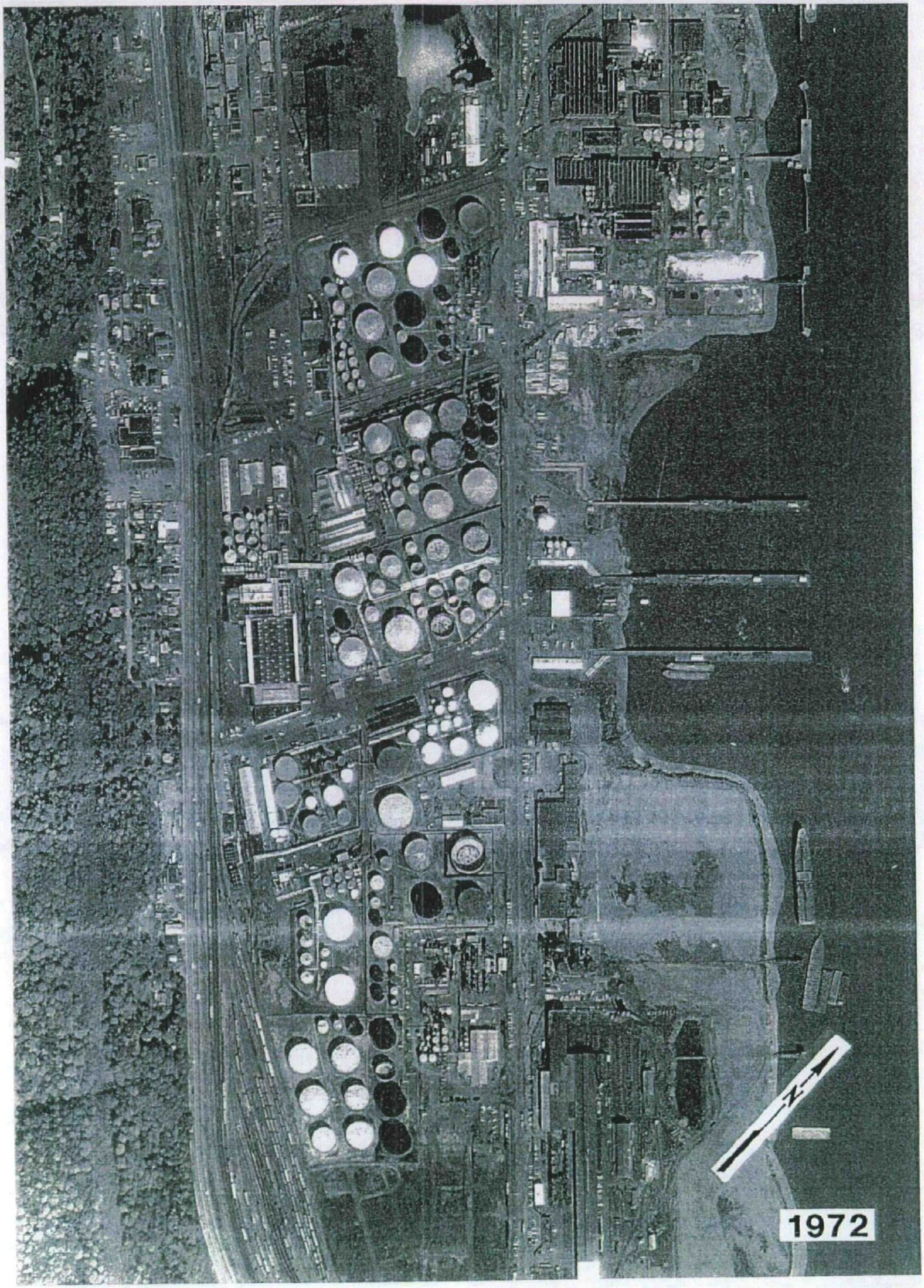

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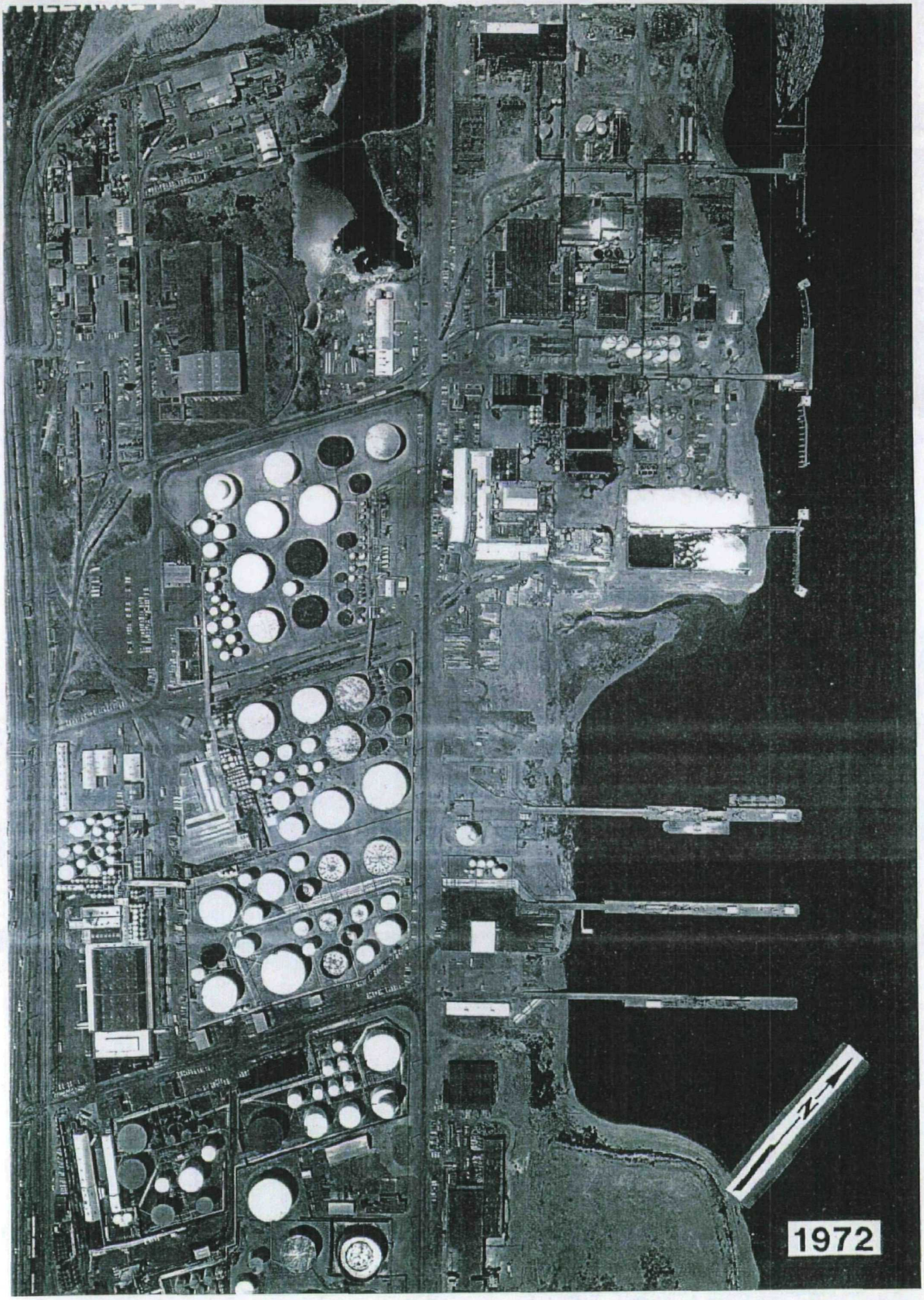
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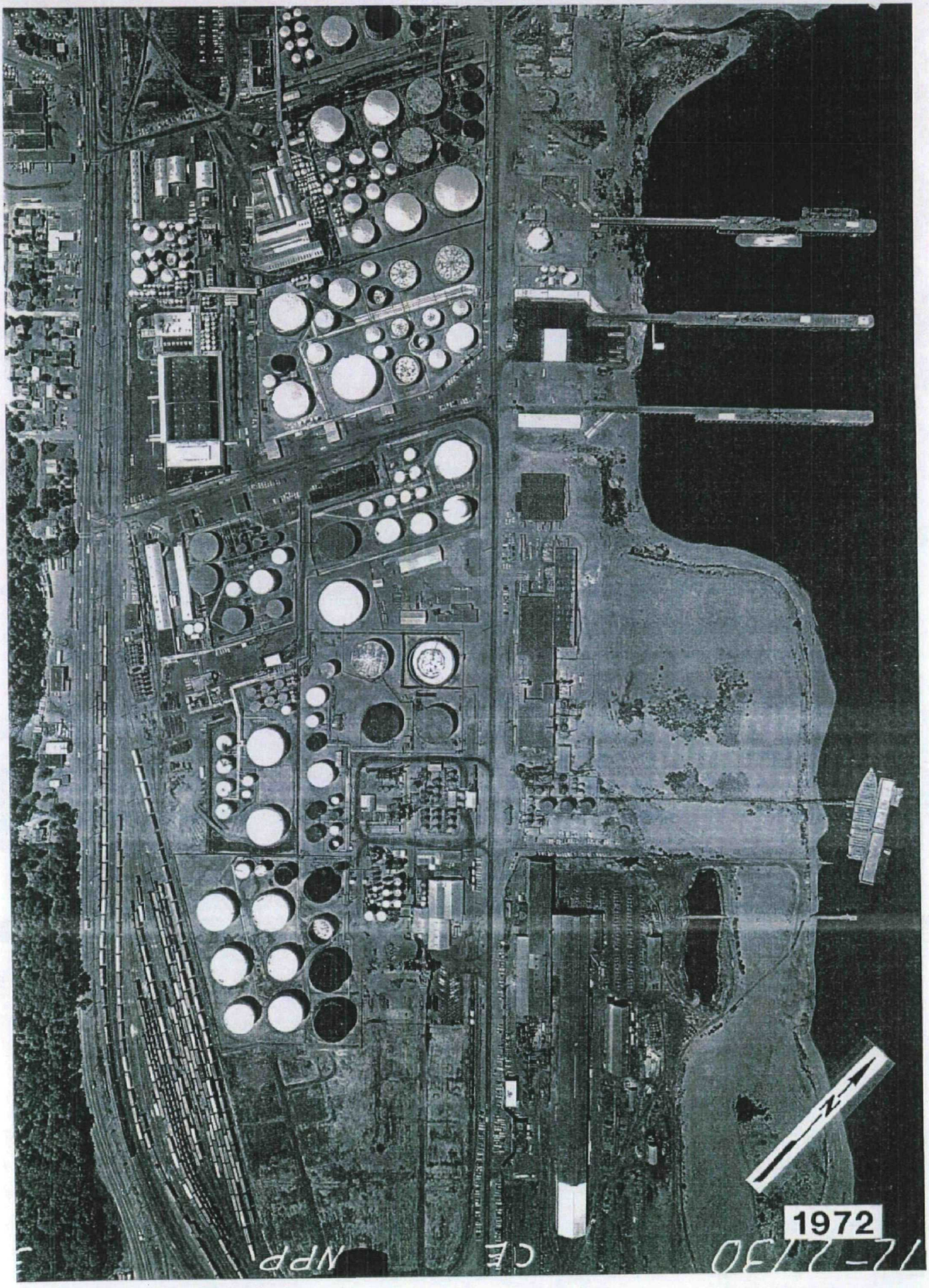
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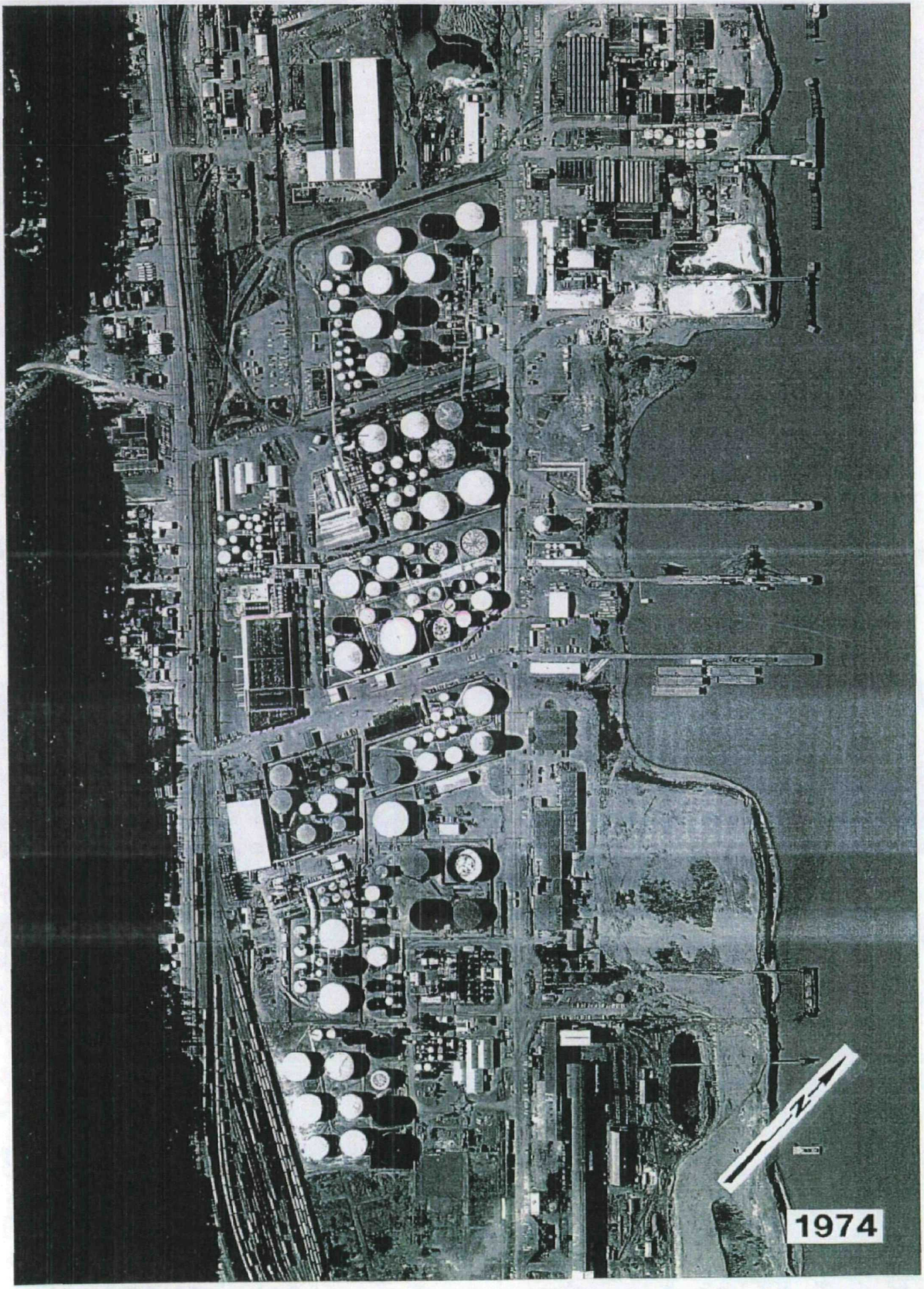
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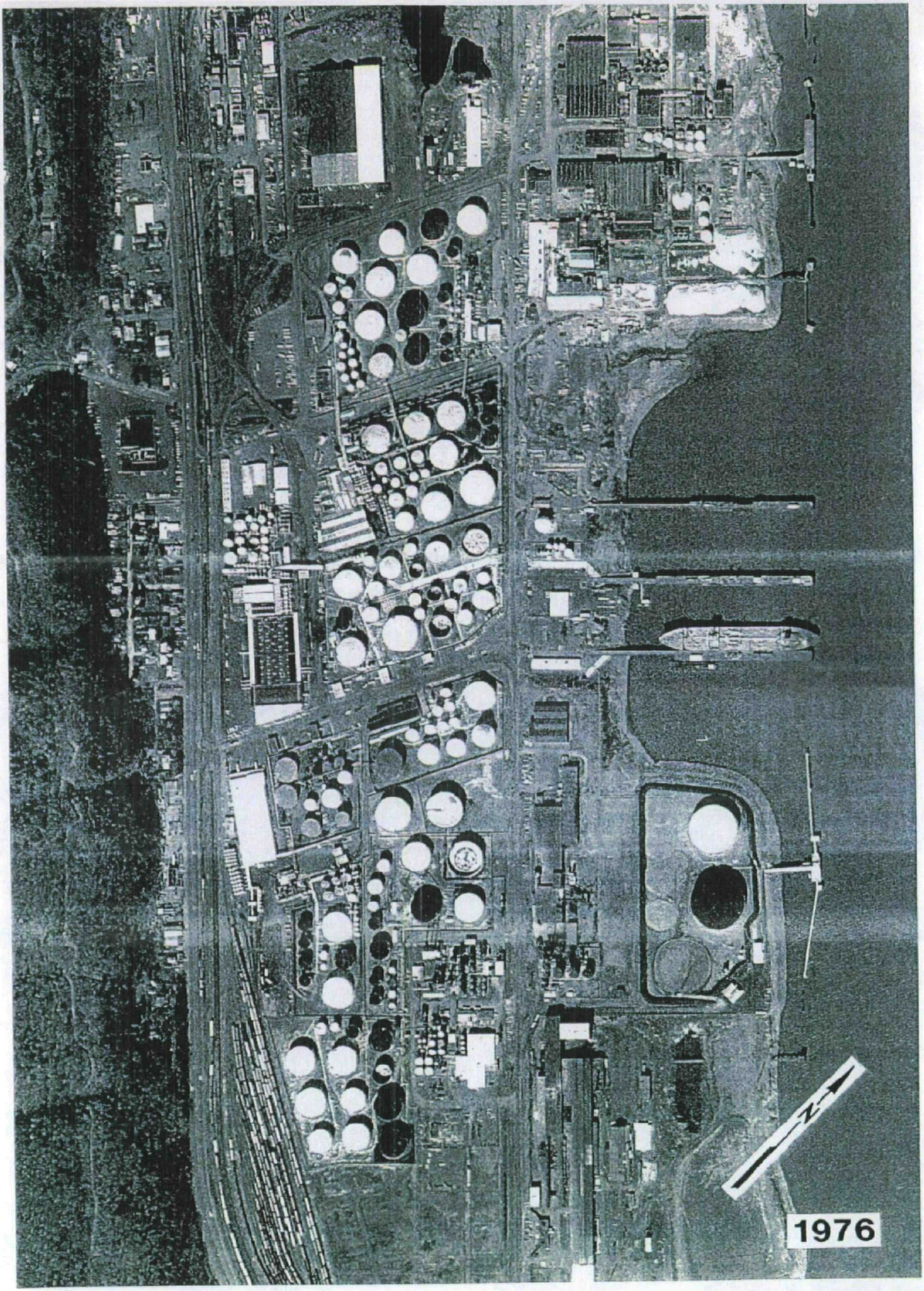

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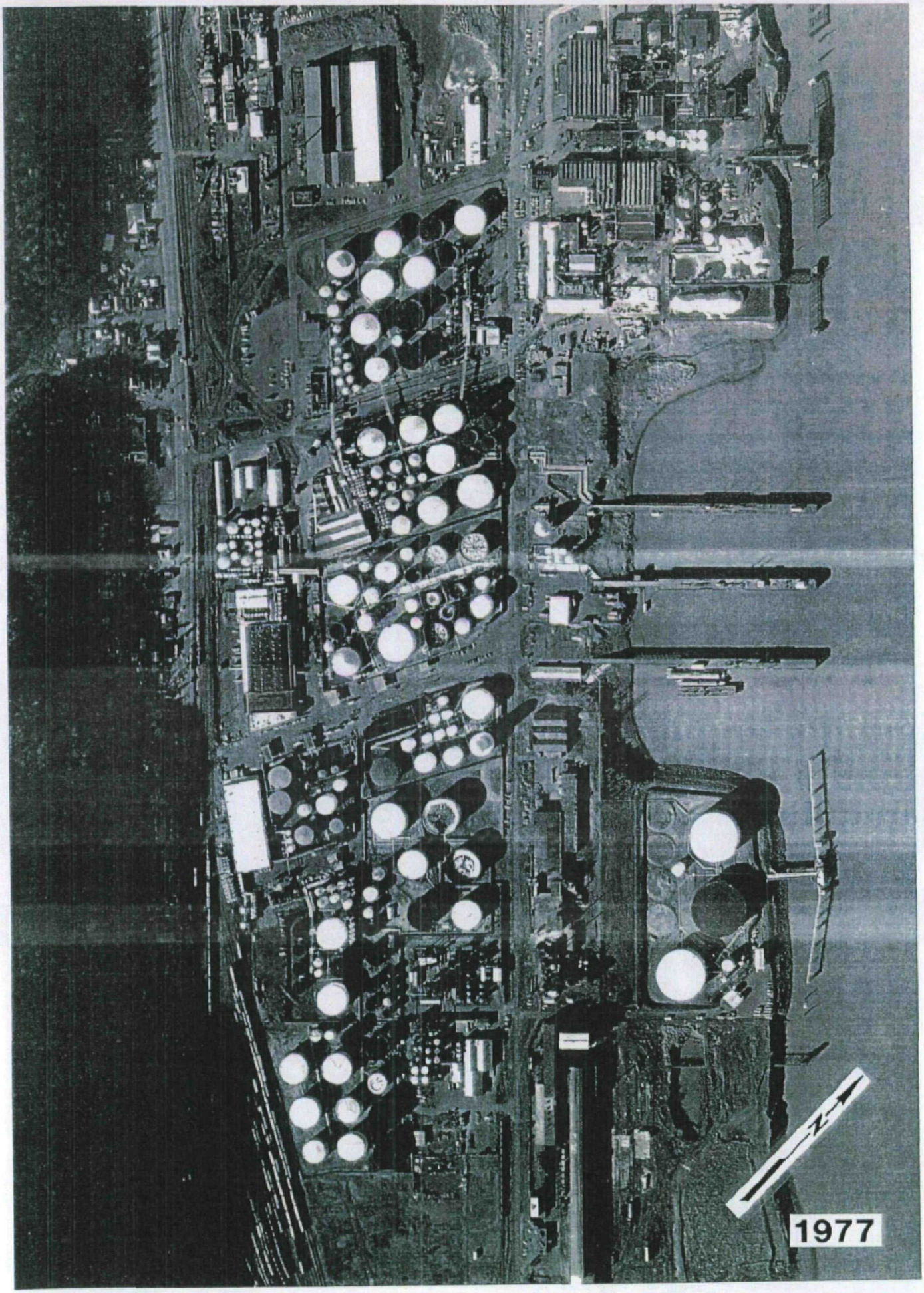
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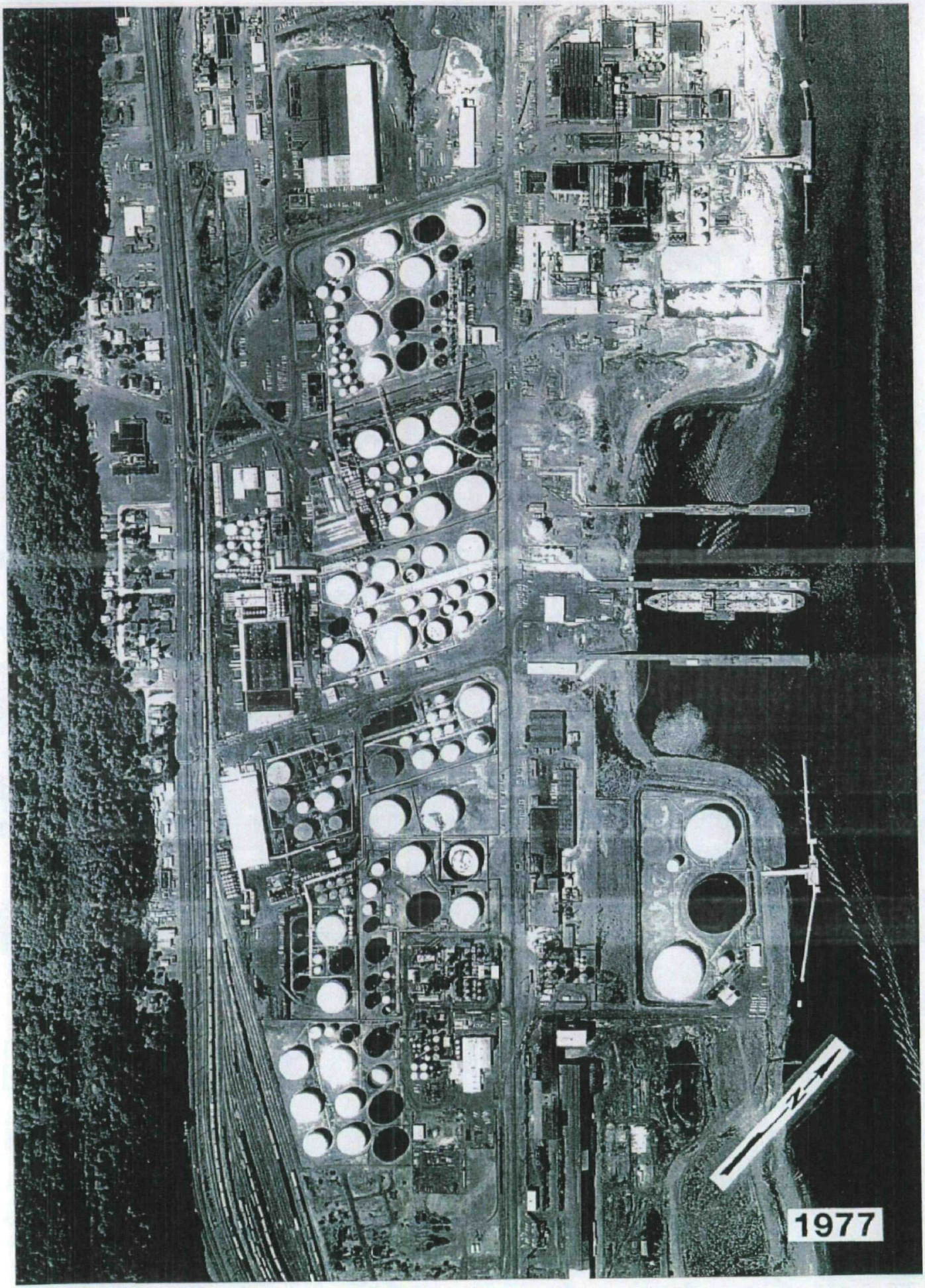
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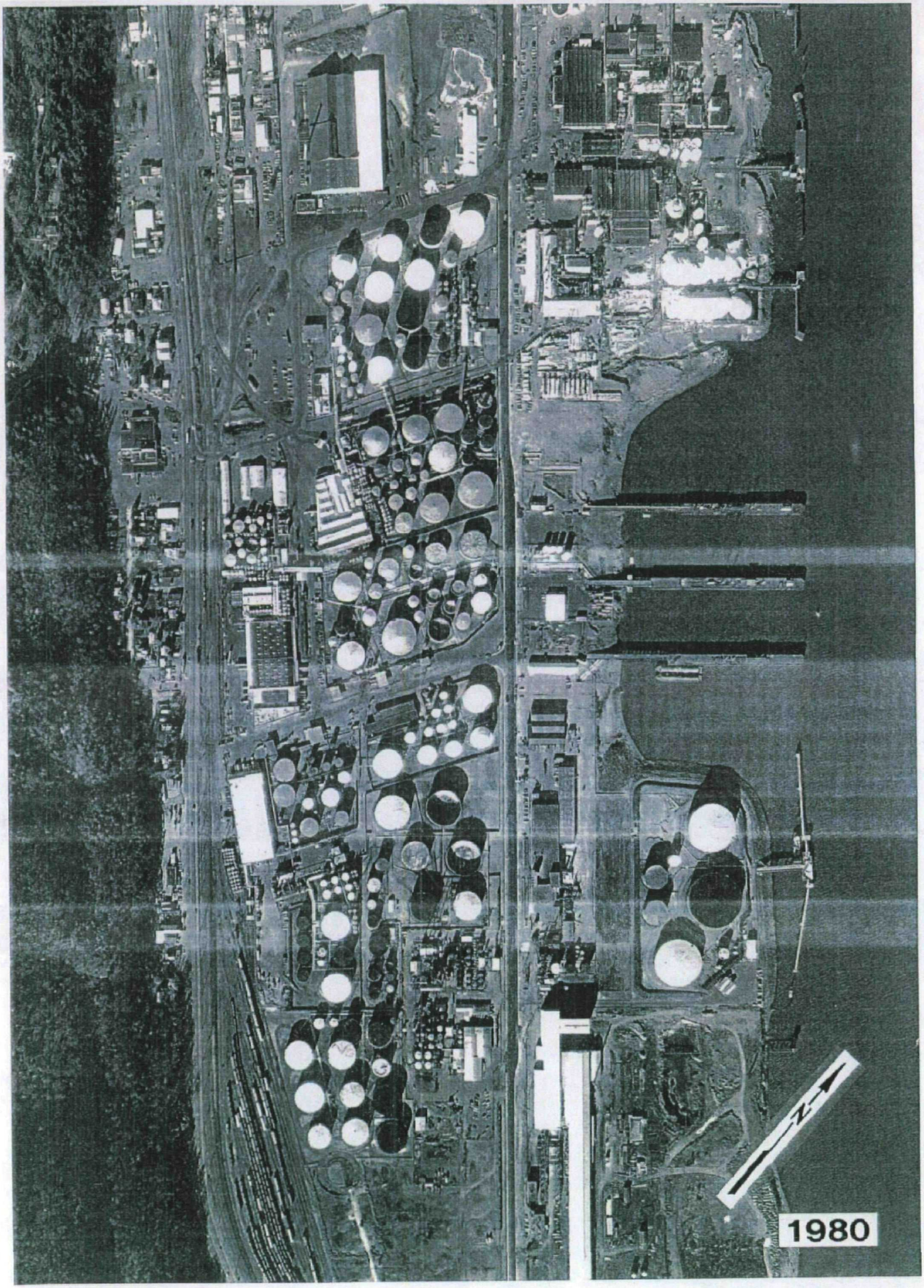
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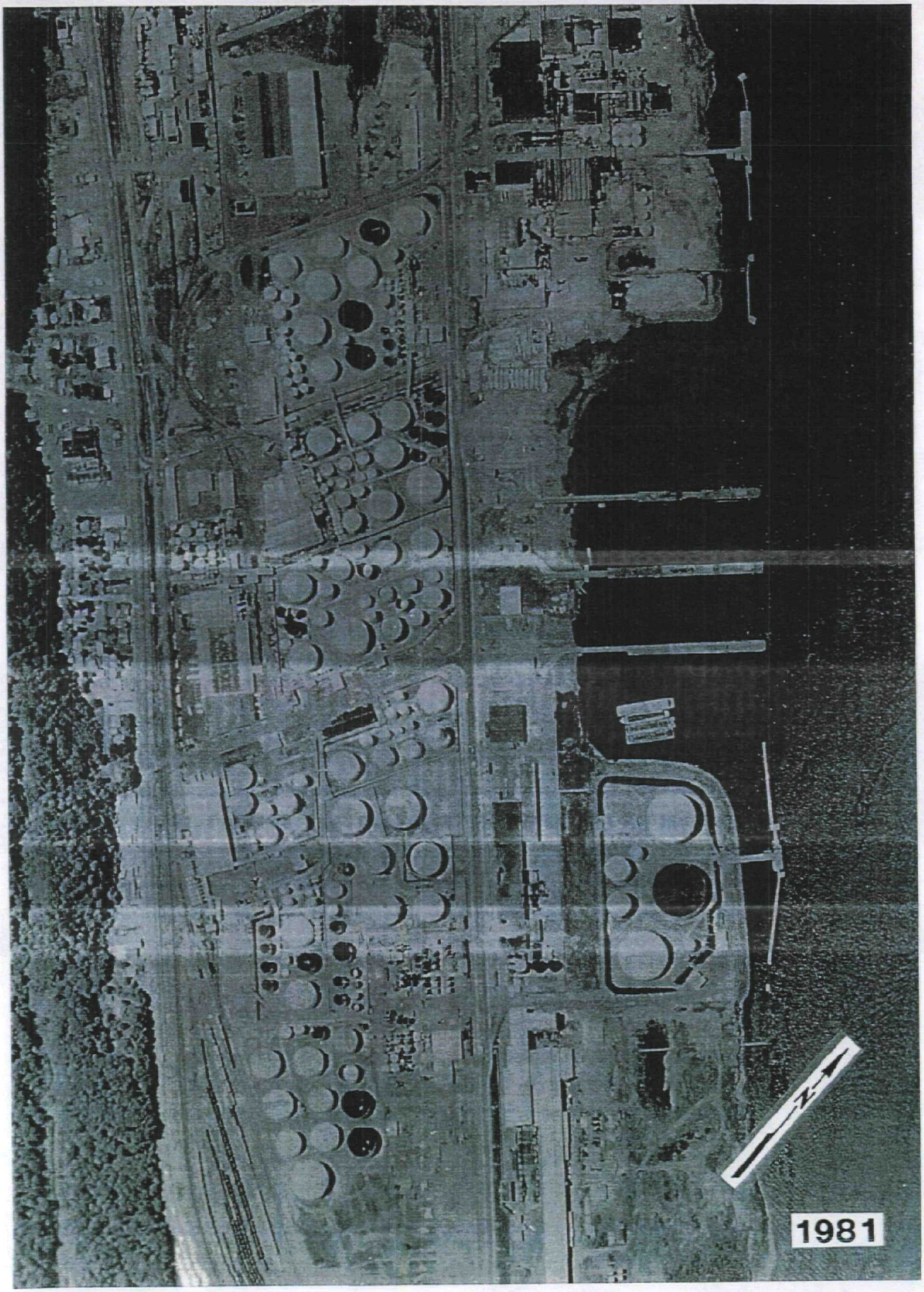
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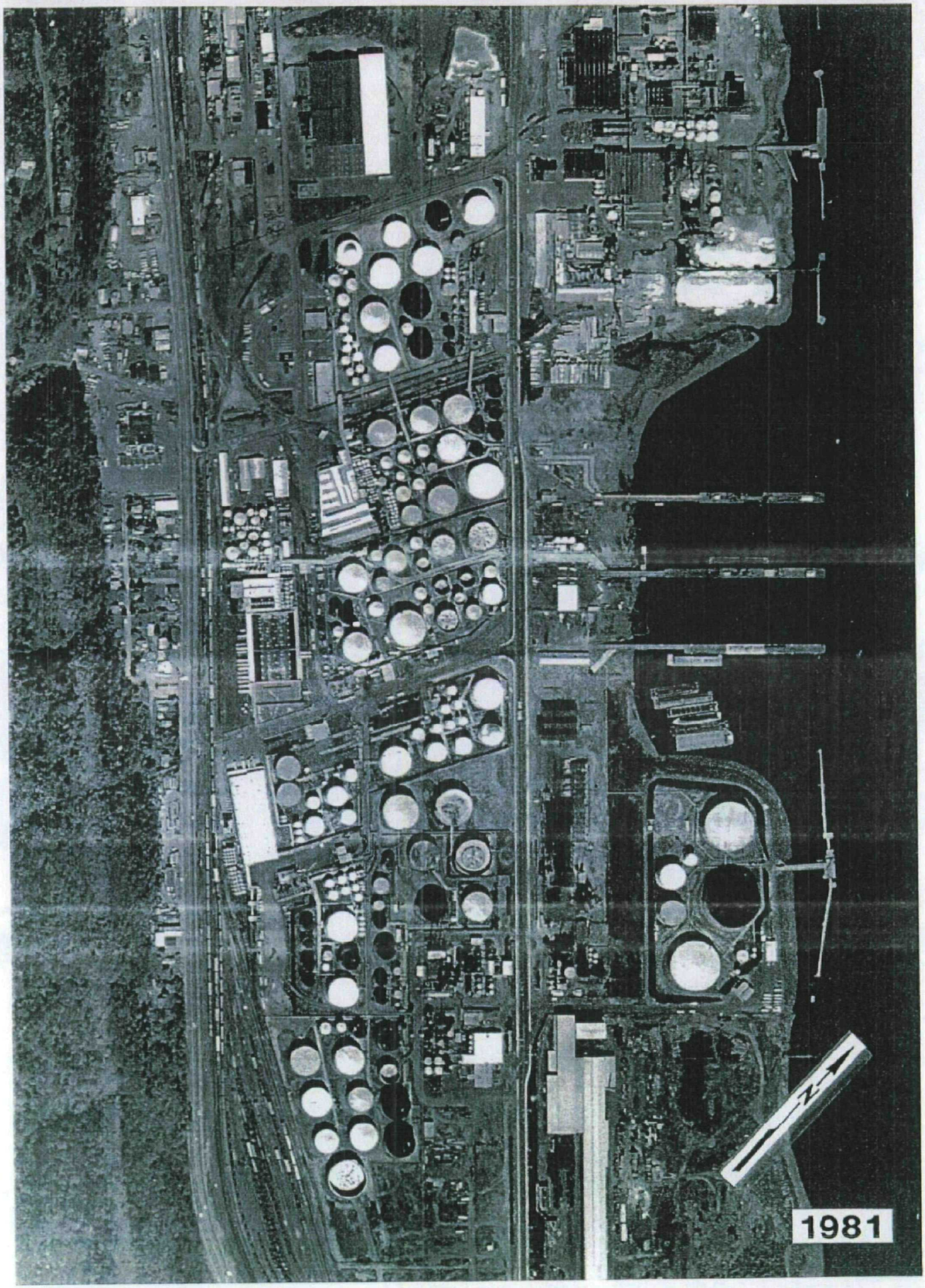
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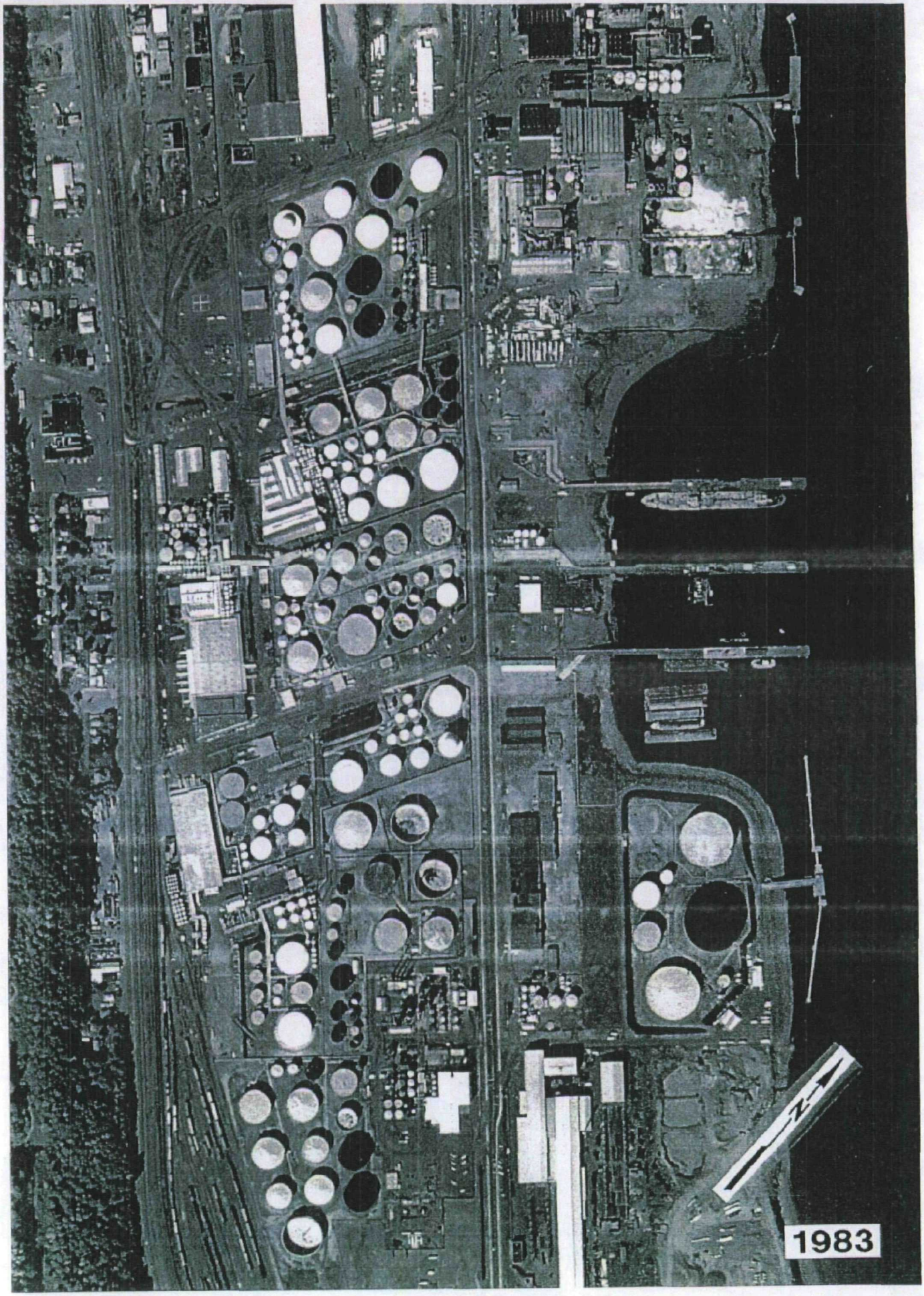
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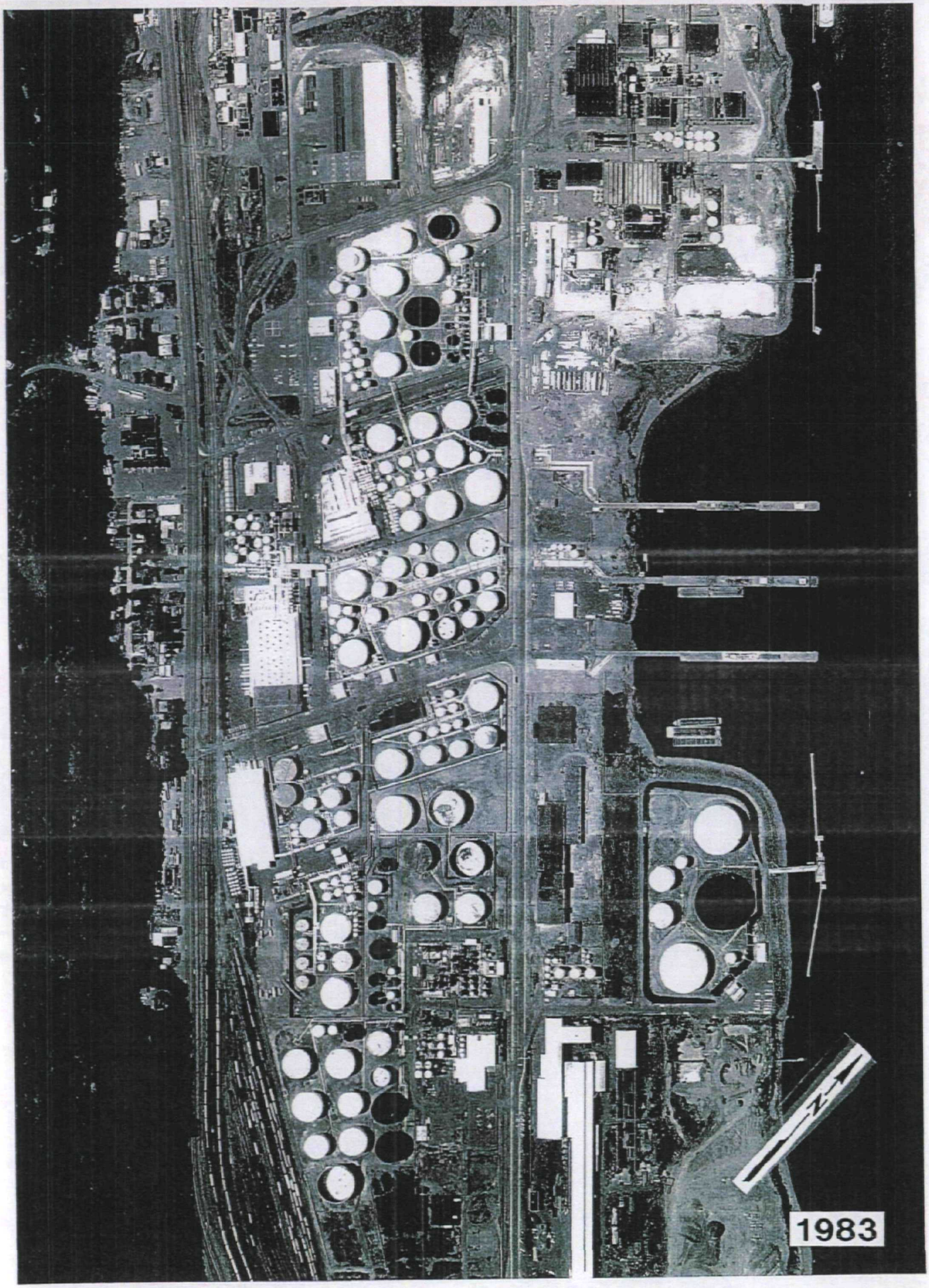
1983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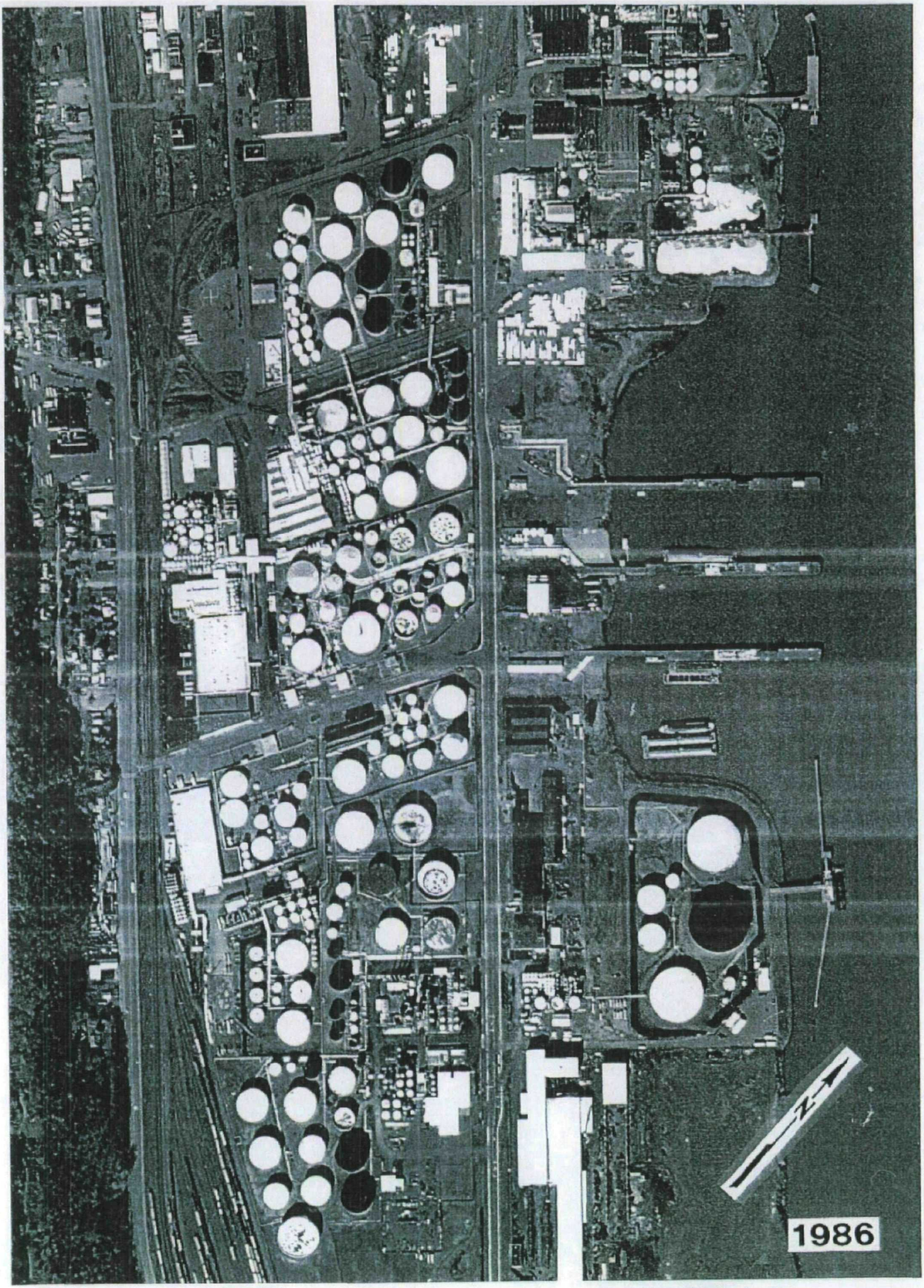
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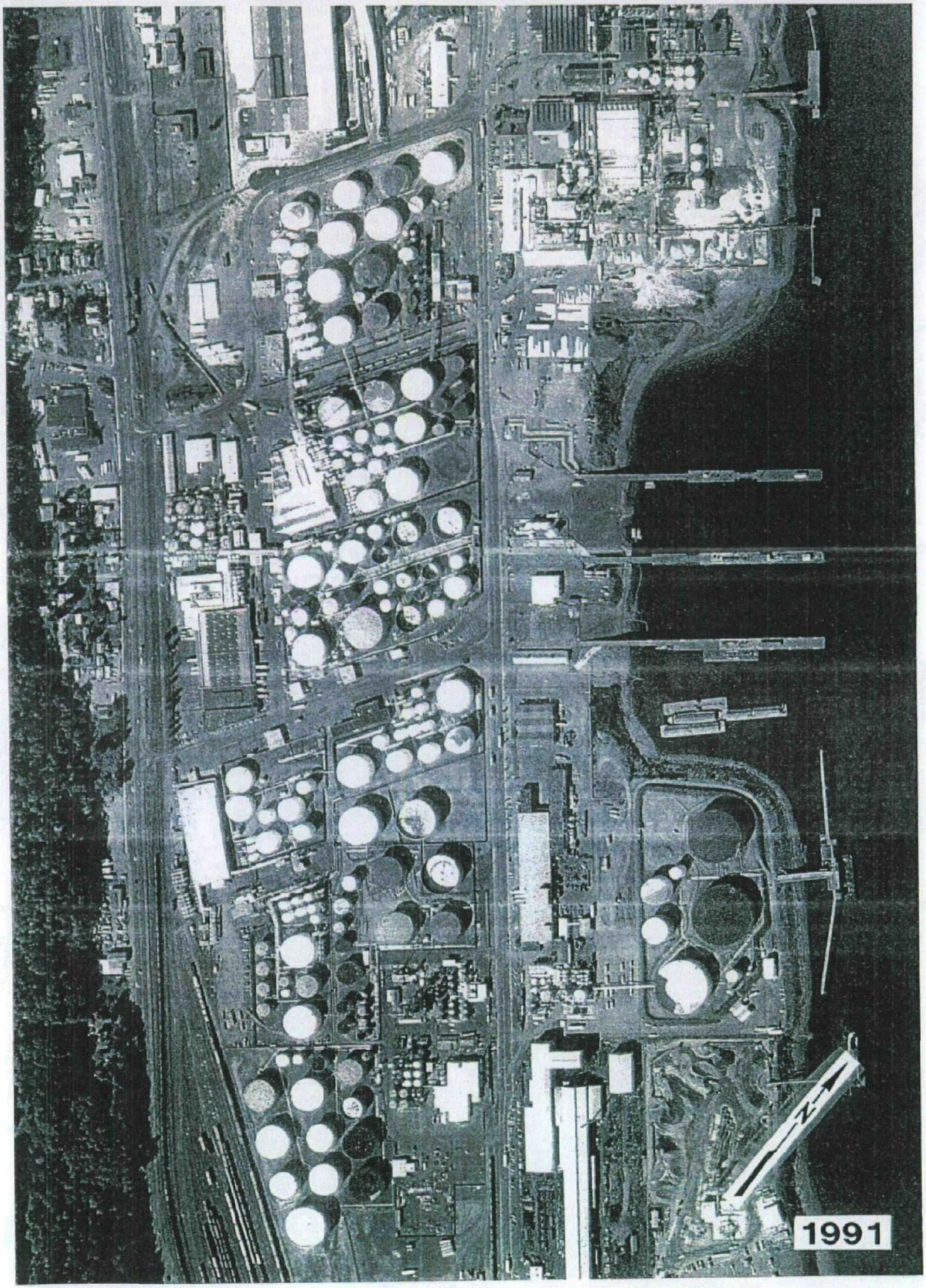
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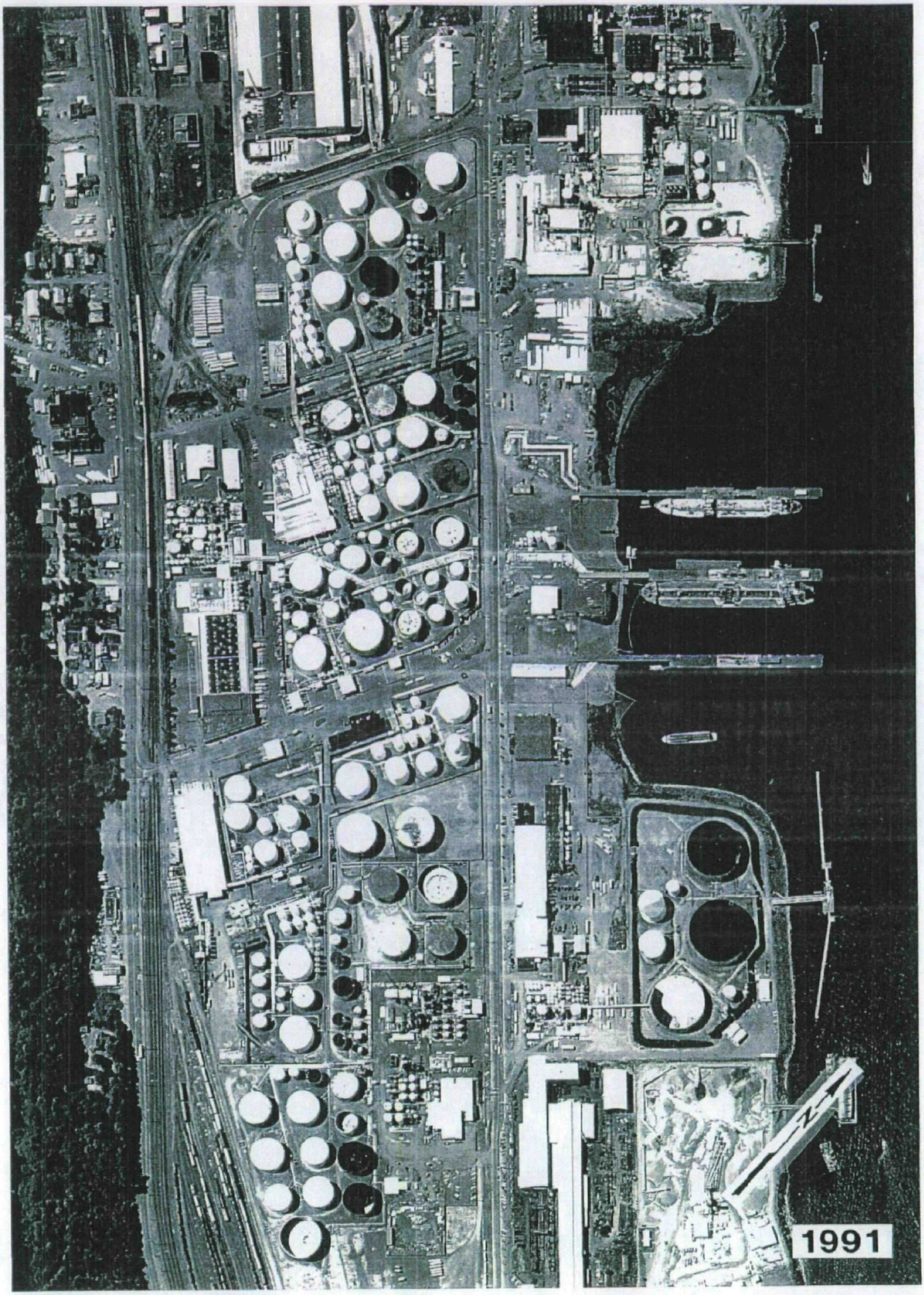

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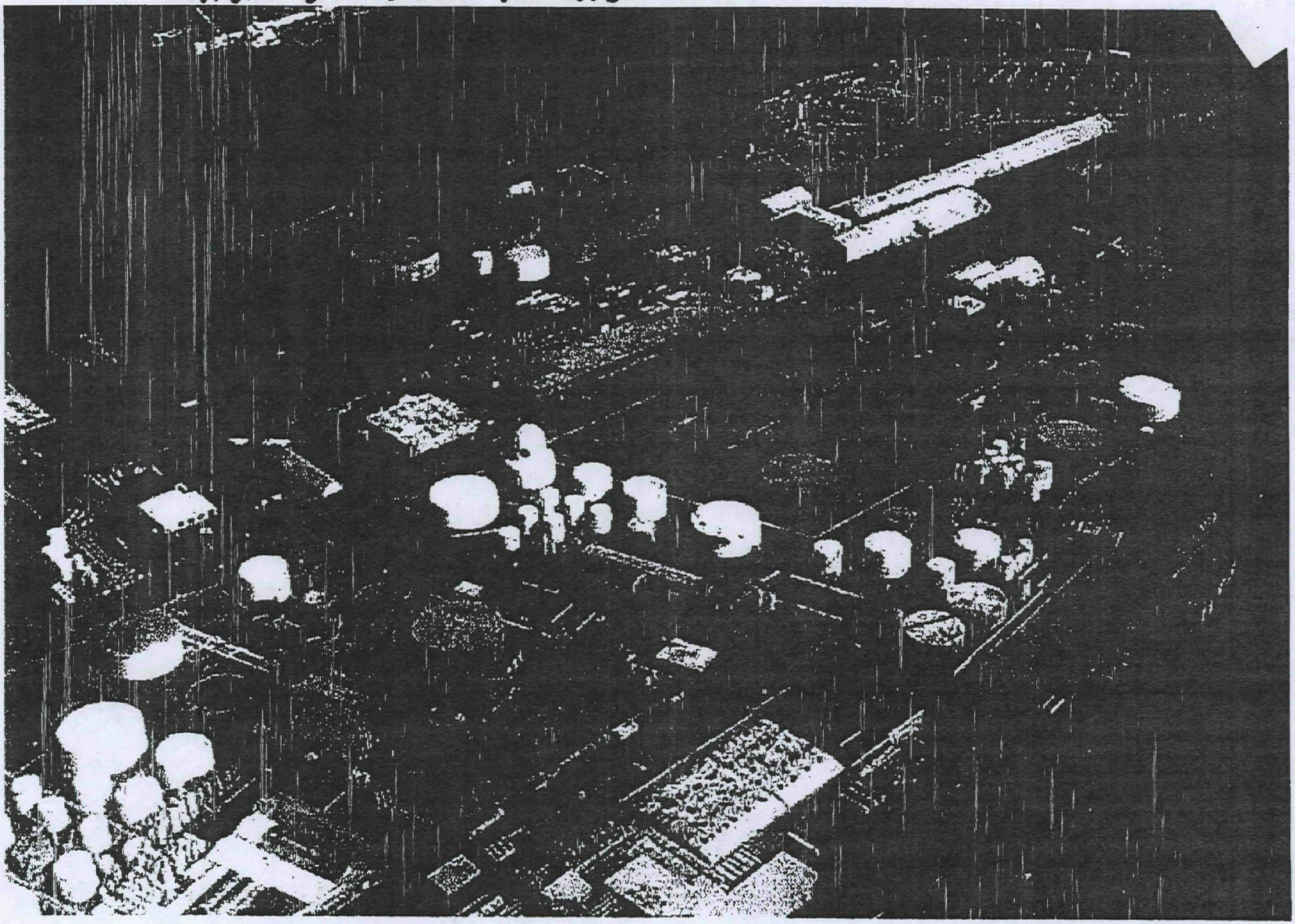
WASTE STORAGE AREAS



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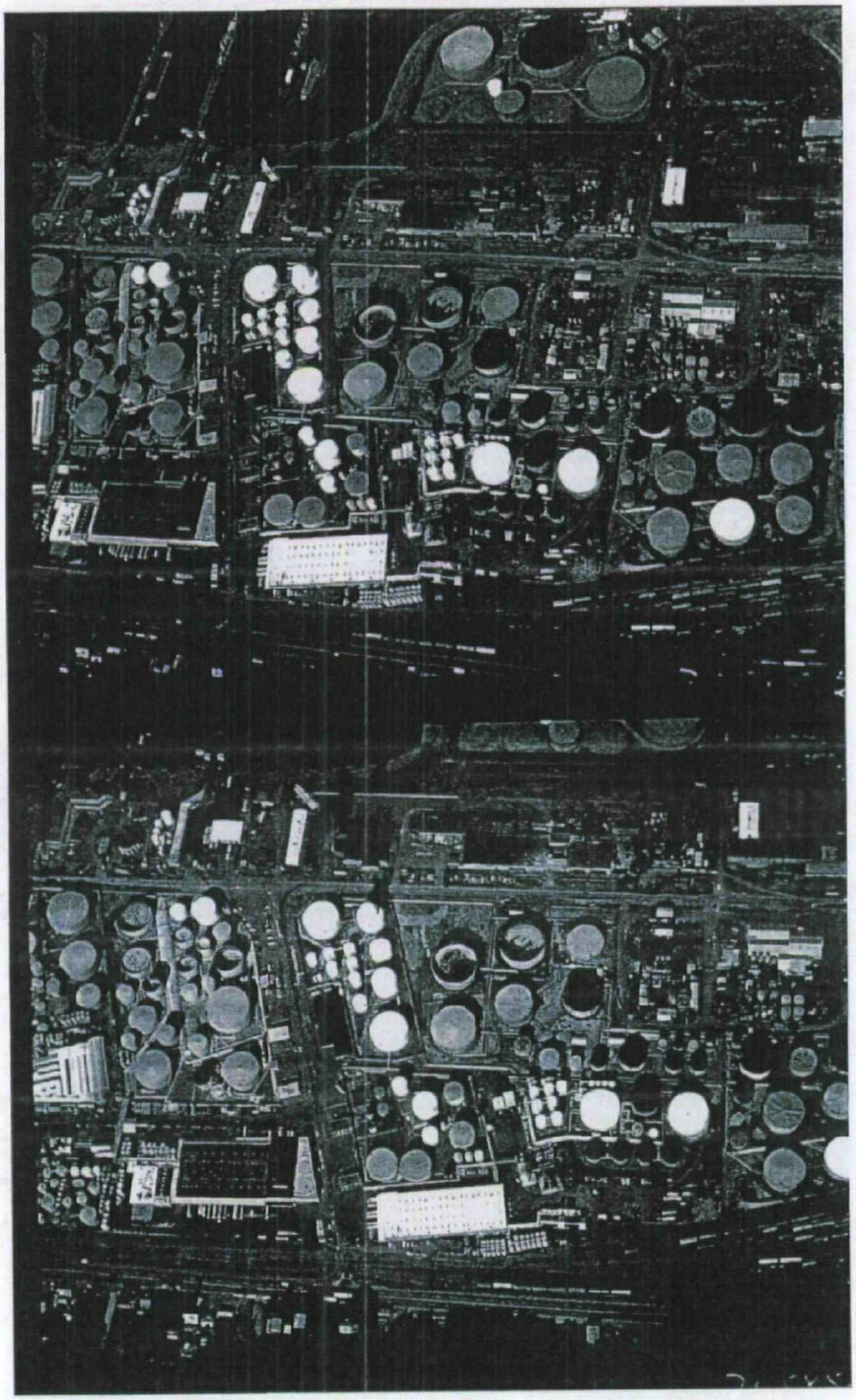

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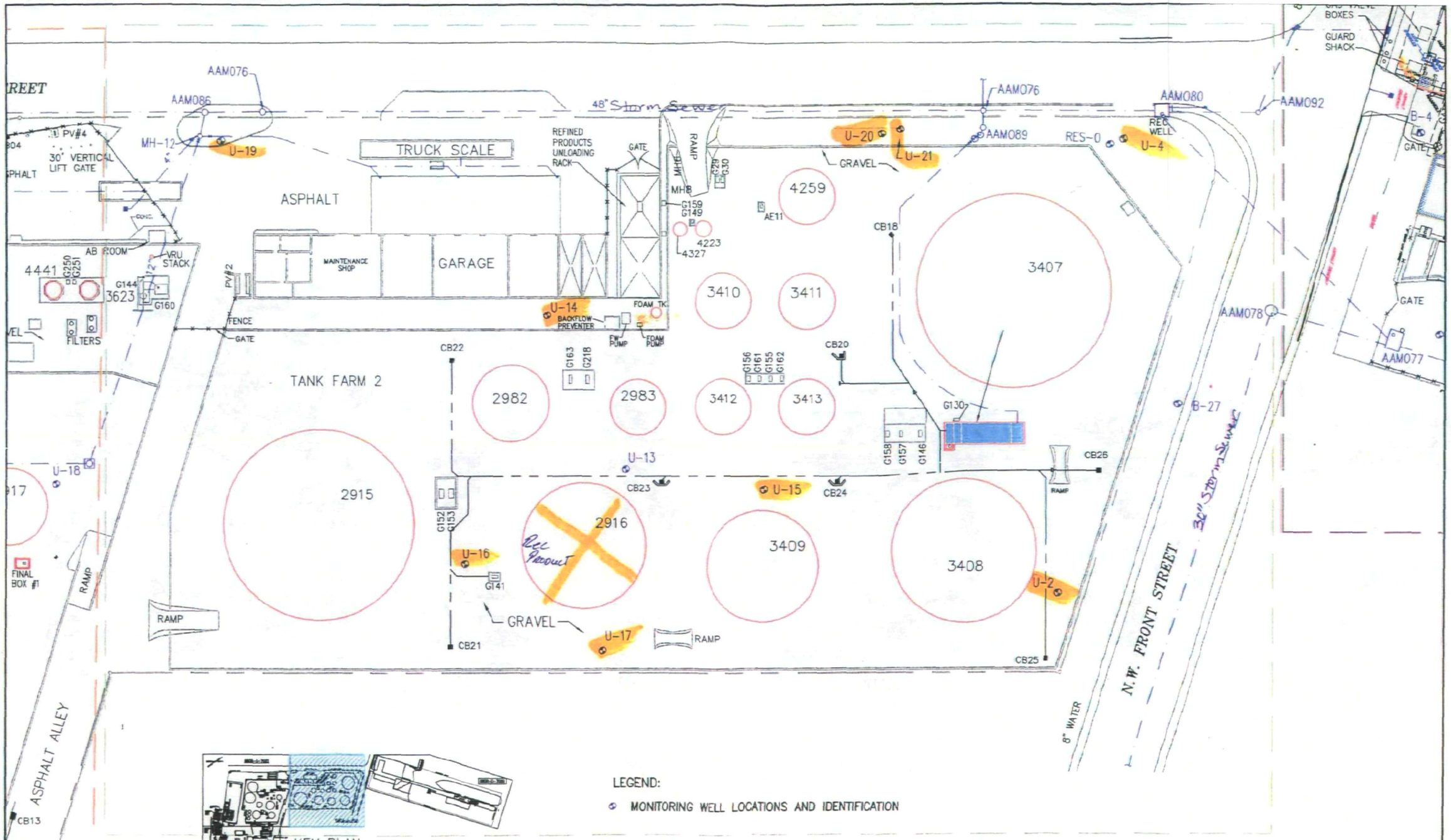


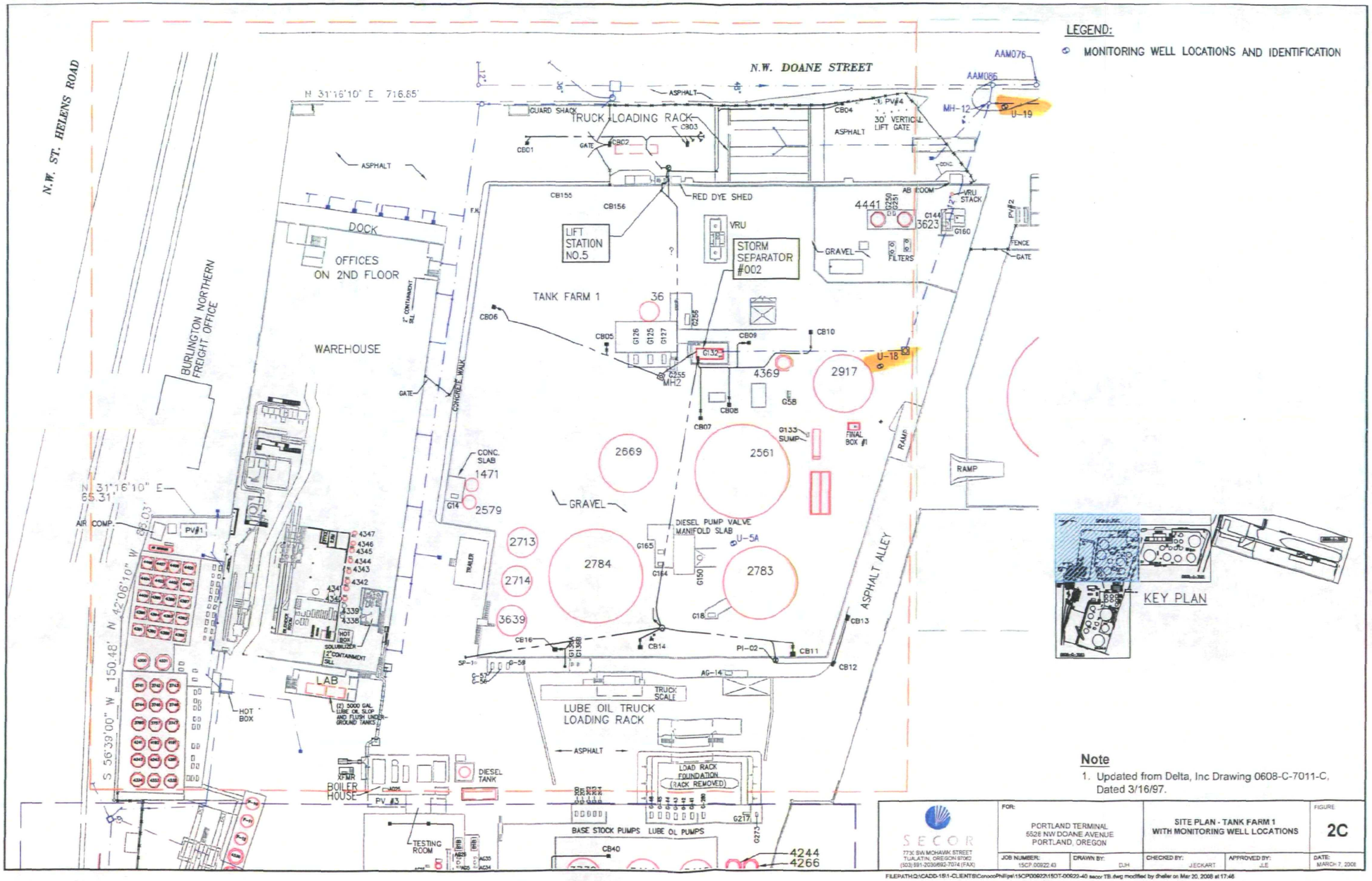
Note

1. Updated from Delta, Inc Drawing 0608-C-7011-C, Dated 3/16/97.

SECOR
7730 SW MOHAWK STREET
TUALATIN, OREGON 97062
(503) 691-2039/692-7074 (FAX)

FOR:			FIGURE
PORTLAND TERMINAL 5528 NW DOANE AVENUE PORTLAND, OREGON		SITE PLAN - TANK FARM 2 WITH MONITORING WELL LOCATIONS	2B
JOB NUMBER: 15CP.00922.43	DRAWN BY: DJH	CHECKED BY: J.ECKART	APPROVED BY: JLE	DATE: MARCH 7, 2008

FILEPATH:Q:\CAD0-15\1-CLIENTS\ConocoPhillips\15CP\00922\15OT-00922-40 secor TB.dwg modified by dhelfer on Mar 20, 2008 at 17:46



Note

1. Updated from Delta, Inc Drawing 0608-C-7011-C, Dated 3/16/97.

SECOR 773C SW MOHAWK STREET TUALATIN, OREGON 97062 (503) 691-2030/692-7074 (FAX)	FOR: PORTLAND TERMINAL 5526 NW DOANE AVENUE PORTLAND, OREGON		SITE PLAN - TANK FARM 1 WITH MONITORING WELL LOCATIONS	FIGURE 2C
	JOB NUMBER: 15CP.00922.43	DRAWN BY: DJH	CHECKED BY: JECKART	APPROVED BY: JLE	DATE: MARCH 7, 2008

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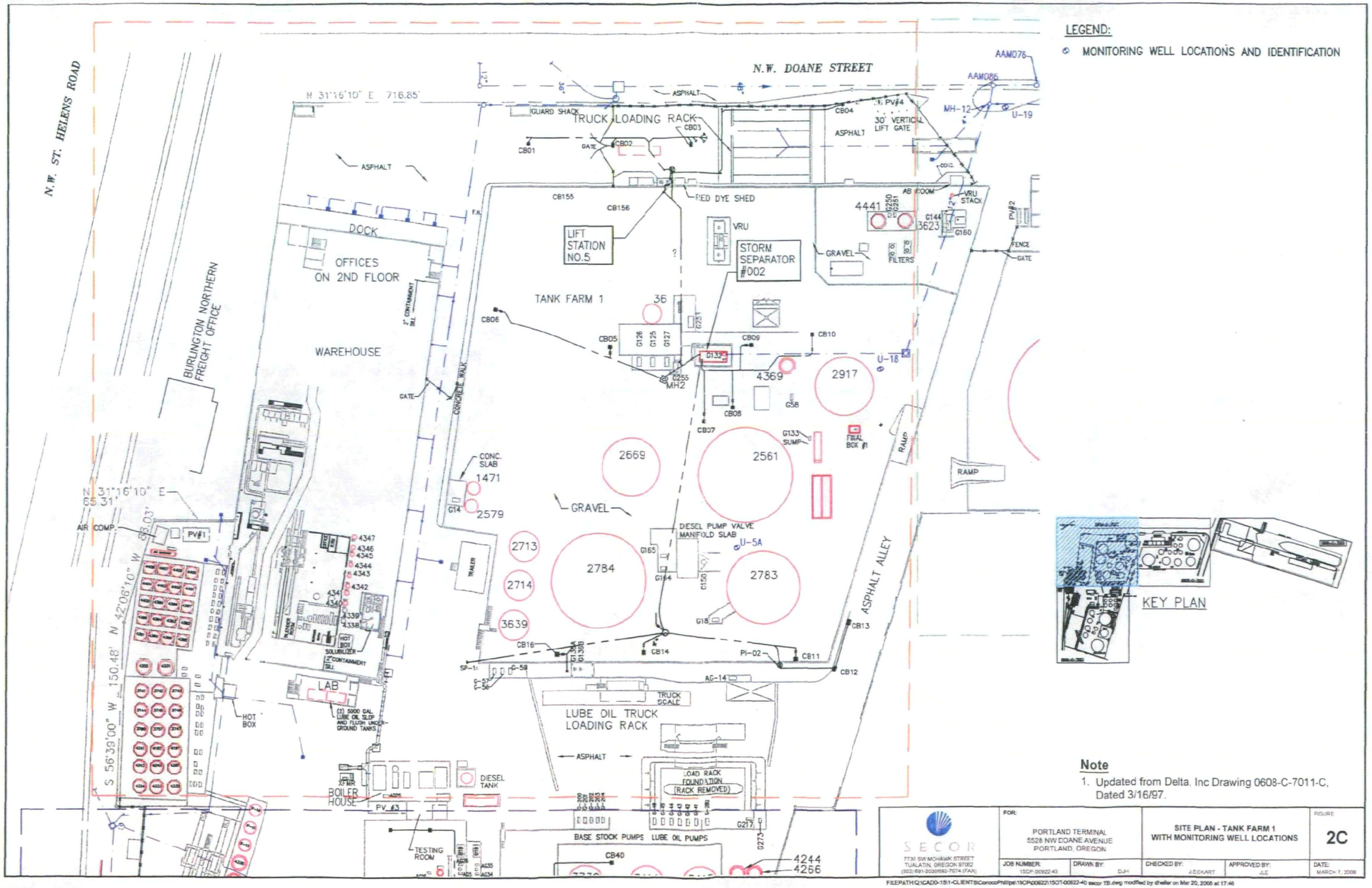

Note

1. Updated from Delta, Inc Drawing 0608-C-7011-C, Dated 3/16/97.

SECOR 7730 SW MOHAWK STREET TUALATIN, OREGON 97062 (503) 691-2020/692-7074 (FAX)	FOR: PORTLAND TERMINAL 5528 NW DOANE AVENUE PORTLAND, OREGON		SITE PLAN - TANK FARM 1 WITH MONITORING WELL LOCATIONS	FIGURE 2C
	JOB NUMBER: 15CP.00922.43	DRAWN BY: DJH	CHECKED BY: J.ECKART	APPROVED BY: JLE	DATE: MARCH 7, 2006

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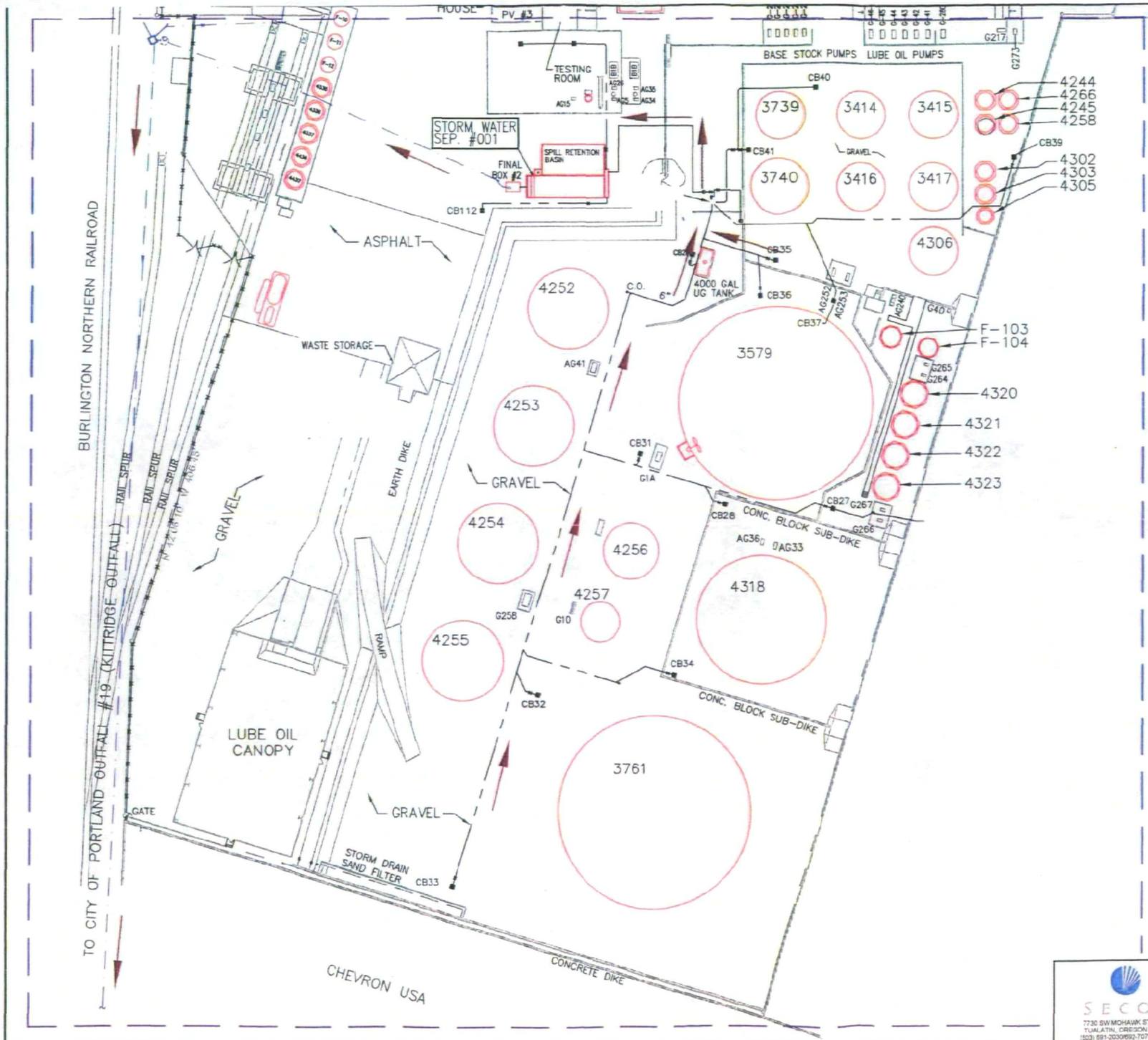
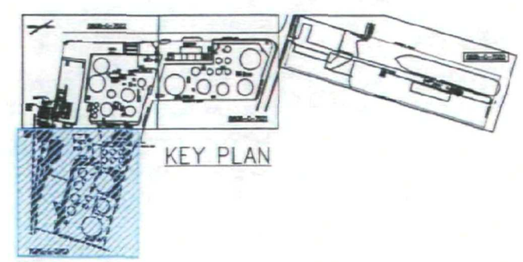


LEGEND:

MONITORING WELL LOCATIONS AND IDENTIFICATION



Note

1. Updated from Delta, Inc Drawing 0608-C-7011-C, Dated 3/16/97.

SECOR 7730 SW MOHAWK STREET TUALATIN, OREGON 97062 (503) 691-2020/692-7074 (FAX)	FOR: PORTLAND TERMINAL 5528 NW DOANE AVENUE PORTLAND, OREGON		SITE PLAN - TANK FARM 3 WITH MONITORING WELL LOCATIONS		FIGURE 2D
	JOB NUMBER: 15CP.00922.43	DRAWN BY: DJH	CHECKED BY: J.ECKART	APPROVED BY: JJE	DATE: MARCH 7, 2008

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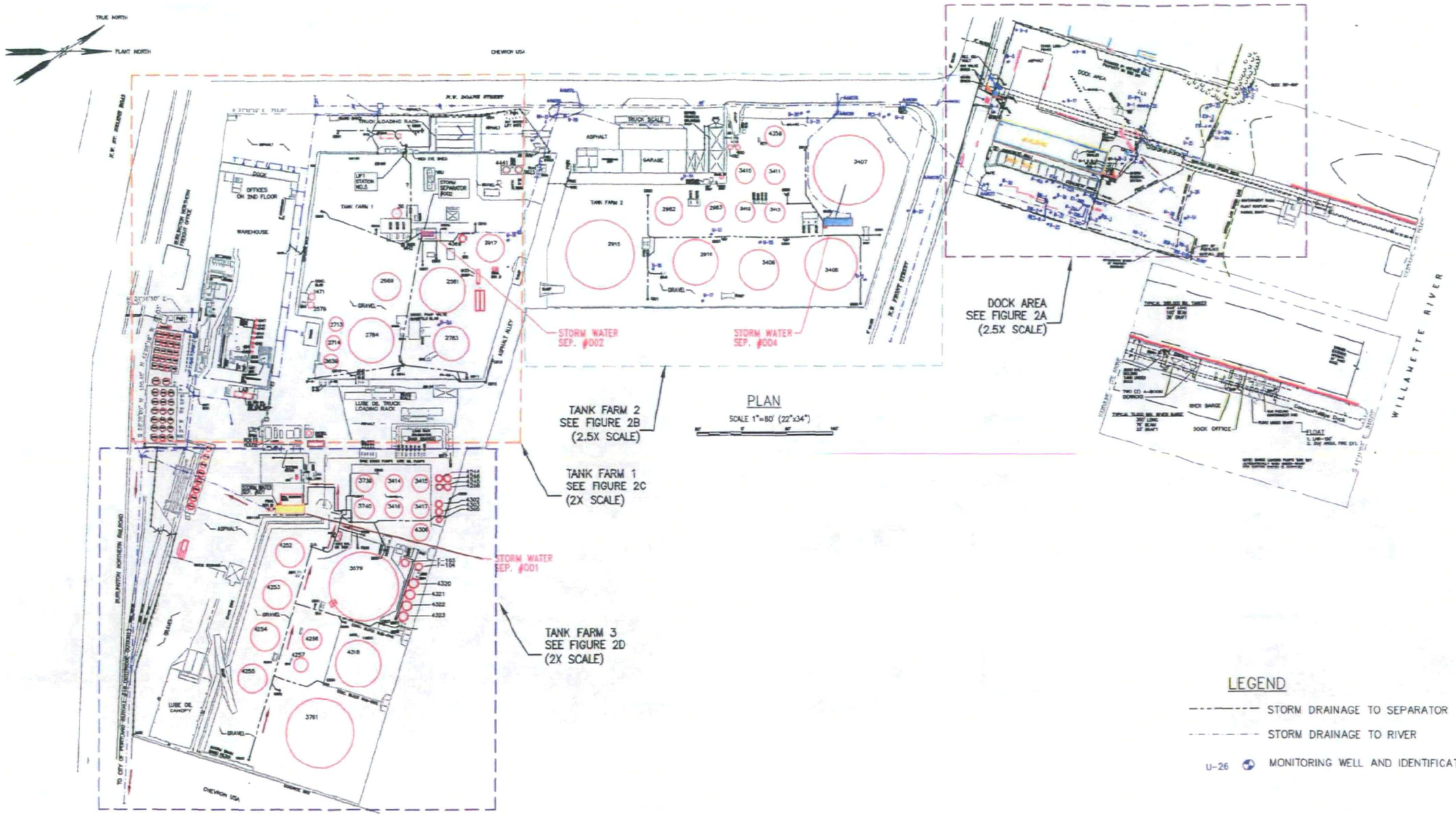

LEGEND

- STORM DRAINAGE TO SEPARATOR
- STORM DRAINAGE TO RIVER
- U-26 MONITORING WELL AND IDENTIFICATION

Note

1. Updated from Delta, Inc Drawing 0608-C-7011-C, Dated 3/16/97.

SECOR 7730 SW MOHAWK STREET TUALATIN, OREGON 97062 (503) 691-2030/692-7074 (FAX)	FOR: PORTLAND TERMINAL 5528 NW DOANE AVENUE PORTLAND, OREGON		SITE PLAN		FIGURE 2
	JOB NUMBER: 15CP.60922.43	DRAWN BY: DJH	CHECKED BY: J.ECKART	APPROVED BY: JLE	DATE: MARCH 7, 2008

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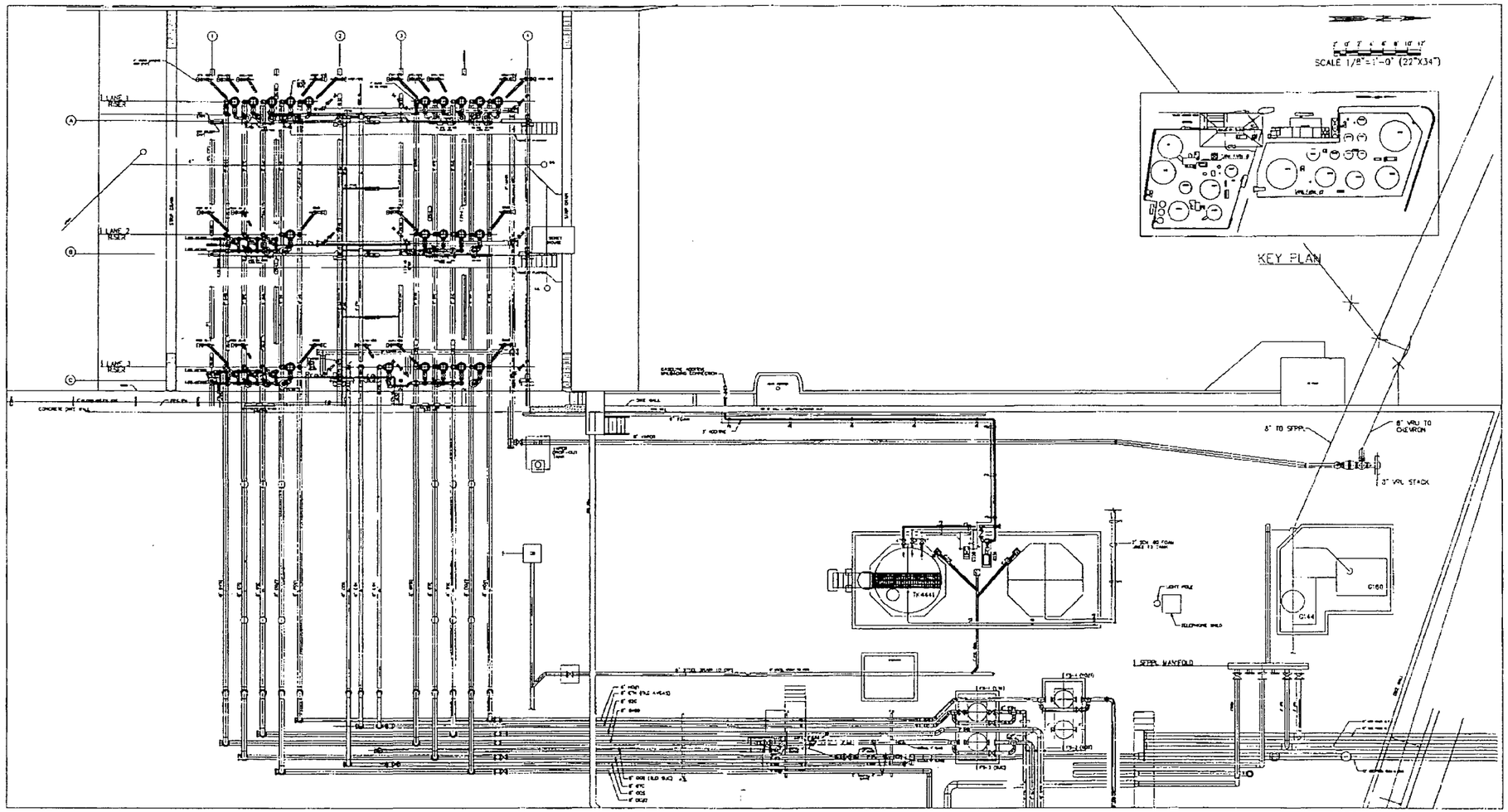


PLAN
SCALE 1/8"=1'-0"

NOTES:
1. DRAWING COMPILED FROM 1/4"=1'-0" PLANS FROM TRUCK LOAD UPGRADE PROJECT AND UNOCAL DWG. L2A12 SHT. 6

DRAWING NO.	REFERENCE DRAWINGS	REV. NO.	DATE	REVISED	DRAWN BY	CHKD. BY
		A	10/25/97	PRELIMINARY	DAB	

TOSCO
Tosco Northwest Company
A Division of Tosco Corporation
5528 NW Doane St.
Portland, Oregon 97210

ALPHA ENGINEERS and CONSTRUCTORS, INC.
15 NW 5th AVE, SUITE 204, PORTLAND, OR 97209 Tel (503)227-3317/Fax (503)227-5244

DRAWN BY	DAB
CHKD BY	
APPD BY	
SCALE	1/8"=1'-0"
DATE	10/25/97

PORTLAND TERMINAL
PORTLAND, OREGON
PIPING PLAN
TRUCK LOADING AND SFPPL YARD
AREA TANK FARM NO 1

DRAWING NO	SHEET	REV.
0608-P-5001	1 OF 1	A

COPPOR00000370

BORING NO. CHEV-1

*		DAMP MOIST	
		MOIST	SAND as above
*	15	MOIST	Grey sandy SILT; 10% very fine sand; non-plastic; no product odor
			Brown SILT; 10% fine sand; trace white and mottled; low plasticity
		WET	
			SILT brown SILT; 5% fine sand; low plasticity; slight black orange mottle
*	16	WET	
			SILT SILT with grey and orange mottle; no odor; no sheen
			BOTTOM OF BORING = 24.0 FEET

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON LUBRICANTS
PROJECT NO.: B15-300.1A

DRAWN BY: M.J.S. | CHECKED BY: | FILE NAME &:

H CORPORATION

COPPOR00000371

BORING NO. CHEV-HP-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-15-98

CHECKED BY N.W.H. DATE FINISHED 10-15-98

APPROVED BY ____ GROUND SURFACE, FT ____

TOTAL DEPTH 24.0

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
							gw		Roadbed GRAVEL, sand 2.5
	*			10	MOIST		sm		Brown poorly sorted SILTY SAND; 80% sand; 20% silt, no odor.
5									Brown SILTY SAND; same as above
					WET				
10					MOIST		ml		Brown SILT; 10% sand dense, dryer than above; root traces Dryer than below. 10.0'
	*			15					Stiff brown SILT with 10% fine sand, trace mica, grey mottle
15									
					SAT				
20									Stiff brown sandy SILT with 10% fine sand, trace mica, no odor.
									No recovery
25									BOTTOM OF BORING = 24.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON LUBRICANTS
PROJECT NO.: 815-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. CHEV-HP-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 20.0

DEPTH IN FEET	SAMPLE RETAINED (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT Deep/hard roadbed concrete Fill 0.5'
							gw		GRAVEL Roadbed, occasional sand and silt 3.0'
					DAMP WET				
					MOIST		ml		Brown sandy SILT; 10% sand orange mottle
5									Brown sandy SILT; 10% fine sand
	*			25					
					SAT				Still brown, mottled SILT; with 10% fine sand, trace gravel and organics, no odor.
10	*			9	WET				
15									SILT as above; no product odor
20									BOTTOM OF BORING = 20.0 FEET
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON LUBRICANTS N. OF TRUCK L. RACK
PROJECT NO.: 815-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. CHEV-LS-1

COORDINATES N _____ E _____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98

CHECKED BY N.W.H. DATE FINISHED 10-13-98

APPROVED BY _____ GROUND SURFACE EL _____

TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0					wt		gw		FILL: GRAVEL	1.25'
									Gravel and road bed mixed with brown SAND; poorly sorted; grey sand; poorly sorted; 5% non plastic; strong product odor	
5							sm			7.25'
									Dark grey SAND; grading to dark grey silt; low plasticity; product odor strong; 10% fine sand	8.0'
							ml		Silty SAND; 80% sand; 20% silt; poorly sorted	
							sm			10.0
10							ml		Dark grey SILT; moderate plasticity; 10% sand; product odor strong	
									BOTTOM OF BORING = 12.0 FEET	
15										
20										
25										
30										
35										

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: BEACH
PROJECT NO.: B15-200.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

BORING NO. CHEV-LS-2

COORDINATES N _____ E _____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98
CHECKED BY N.W.H. DATE FINISHED 10-13-98
APPROVED BY _____ GROUND SURFACE EL _____
TOTAL DEPTH 12.0

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Rock-Fill
					Mst				3.0' Grey SILT, 10% sand; low plasticity, slight product odor.
5					Mst				Grey SILT, 5% sand; low-moderate plasticity, sheen and odor
					Wt		ml		No Recovery
10									
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: BEACH
PROJECT NO.: B15-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	8-05-99	APPROVED BY		DESIGN NUMBER

IT CORPORATION

BORING NO. CHEV-LS-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-30-98

CHECKED BY N.W.H. DATE FINISHED 10-30-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0				0	Mst		sm		Rock/Road bed Brown silty SAND, 15% silt; 50% coarse sand; 15% medium; 20% fine sand 3.0'
5				4	Mst Wt		gw		Rock crushed basalt. Crushed rock. Crushed rock; free product in tube and clinging to ??? rock; strong product odor Crushed rock fill. Rock-hand probing 9.0'
10							ml		SILT, no recovery. Grey sandy SILT; 5% very fine sand, strong product odor.
15				16	Wt				Dense moist; same as above
20									BOTTOM OF BORING = 16.0 FEET
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: PRODUCT RECOVERY TRENCH; CHEVRON BEACH
PROJECT NO.: B15-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	8-06-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

COPPOR00000376

BORING NO. CHEV-LS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-30-98
CHECKED BY N.W.H. DATE FINISHED 10-30-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									Roadbed-rock. 0.5'
					Dry Mst		sm		SAND, brown silty, 15% silt 50% coarse sand; 25% medium 10% fine. 2.75'
				0					Drain rock green geotextile; impermeable
5					wi		gw	▽	7.0'
				4	Sat		ml		SILT 9.0'
							sm		Grey silty SAND, 5% silt 10.0'
10					Sat		ml		Grey sandy SILT; 5% fine sand; low plasticity, slight product odor
15									BOTTOM OF BORING = 12.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON BEACH RECOVERY TRENCH
PROJECT NO.: B15-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	8-06-99				

IT CORPORATION

BORING NO. CHEV-RF-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98
CHECKED BY N.W.H. DATE FINISHED 10-13-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE RETAINED PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		1.5 Feet gravel base (ballast), crushed rock. 1.5'
									Brown poorly sorted SAND; strong product odor. Gray black sand; 70% coarse sand, 15% fine; 5% silt.
	*			40	wet				
5					wet				▽
					Sat				▽
							sm		
10	*			13					Dark gray SAND, moderate product odor; 5-10% silt wet, saturated
									Dark gray SAND, slight product odor
									15.25'
15	*			5			mt		Gray SILT, slight product odor; no sand; below water table; feels dryish (moist) uniform.
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON BEACH SOUTHERN
PROJECT NO.: B15-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. CHEV-RF-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98

CHECKED BY N.W.H. DATE FINISHED 10-13-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 17.0

DEPTH IN FEET	SAMPLE RETAINED PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	*				Mxt		gw		GRAVEL rock fill 3.25'
5				5	wt			?	No recovery
	*			3	Sat				6" recovery, dark gray SILT, moderate product odor, no sand moderate plasticity
10							ml		Poor recovery.
15									No Recovery
20									BOTTOM OF BORING = 16.0 FEET
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON BEACH-MIDDLE
PROJECT NO.: 815-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. CHEV-RF-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-95

CHECKED BY N.W.H. DATE FINISHED 10-13-95

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 12.0

DEPTH IN FEET	SAMPLE RETAINED PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ROCK/GRAVEL CRUSHED ROCK, rootlets 2.0
							9"		Dense gray SILT, root traces
	*			7	Mst				Gray sandy SILT, 95% silt 5% fine sand, trace organics
5									
	*			24	Mst Wt		mt		Strong odor.
10									
	*			4	Mst				Brown sandy SILT; 10% sand, fine .
15									
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CHEVRON BEACH NORTH OF DOCK
PROJECT NO.: 815-200.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	8-10-99				

IT CORPORATION

BORING NO. CHEV-RF1-P2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-30-98
CHECKED BY N.W.H. DATE FINISHED 10-30-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 15.0'

DEPTH IN FEET	SAMPLE RETAINED PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ROOK 2.0'
									Brown SAND; slight product odor.
									Gray SAND, 50% coarse 30% medium 10% fine; 10% silt
5							sm		
									▽ 8.0'
									SILT, slight product odor.
10							ml		
									SILT 10-15% fine sand; slight product odor.
15									BOTTOM OF BORING = 15 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: 10" HSA
SAMPLING METHOD: CUTTINGS
PROJECT NAME:
LOCATION: 27" STORM AT OHWL
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	8-10-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

COPPOR00000381

BORING NO. GATX-RF-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN ____

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 16.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									Rock base
				6	Mst		gw		Rock fill; with brown SAND
			SS						4.75'
5									Dark grey SAND; quartz grains 10%; poorly graded; saturated; 10% silt; 20% fine sand 70% coarse sand
					Sat		sm	▽	7.25'
	*								Dark grey sandy SILT; 10% fine sand; low plasticity; no product odor
10									No recovery very wet
	*						ml		No recovery ballast rock coving.
15									
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX DOCK
PROJECT NO.: 815-100.1A

DRAWN BY N.J.S. | CHECKED BY | FILE NAME A

IT CORPORATION

COPPOR00000382

BORING NO. GATX-RF-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-96
CHECKED BY N.W.H. DATE FINISHED 10-29-96
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									SAND/Beach, 70% medium, 10% coarse, 15% medium, 5% fine 1.0'
							sw		Brown SILT: high in roots and organics no product odor Moderate plasticity; red/brown mottle Brown silt same as above
				6	Mst				
				59					Grey SILT; 25-30% fine sand no product odor root traces
5					Sat				
	*								Grey sandy SILT; few roots ~10% fine sand, mica flakes
							ml		Fewer root traces/organics
10									SILT; dense and dry, moist
	*								
15									Grey sandy SILT; same as above; no organics
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: DIRECT PUSH
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX DOCK
PROJECT NO.: B15-100.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

COPPOR00000383

BORING NO. GATX--RF-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED 10-25-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 14.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	*			6	Mst		sw		SAND beach
									2.0
							sm		Brown silty SAND; 5% silt; no product odor.
5					Mst				5.0
									SILT, brown, sandy, 10% medium sand root traces
									Brown sandy SILT, root traces slight black orange gray mottle 10% fine sand
	*			9	Mst				
10					Wt		ml		Grey sandy SILT; 10% fine sand, gray with brown/orange mottle
	*			6					Grey sandy SILT, 10% fine root traces
15									BOTTOM OF BORING = 14.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX BEACH
PROJECT NO: 815-100.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

COPPOR00000384

BORING NO. GATX-RF-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98

CHECKED BY N.W.H. DATE FINISHED 10-29-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 16.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	*			5	Mst		ml		Light brown sandy SILT, mica flakes; grey and brown variations roots and organics 2.5'
5					Mst		sm		Brown SILT, coarse sand, poorly sorted; 30% coarse; 40% medium; 20% fine; 10% silt.
	*			9	Wt				▽ SAND; same as above; saturated; wet; no product odor. 9.5'
10							ml		Grey; fine sandy SILT; low plasticity
					Wt				Dense; fine grey SILT; low plasticity; no product odor.
15	*			6	Sat				
20									TOTAL DEPTH = 16.0 FEET
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX BEACH
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. GATX-LS-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-15-98

CHECKED BY N.W.H. DATE FINISHED 10-15-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 16.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ROCK 1.5'
				5					
	*								SAND, reddish brown; poorly graded; 10% silt; no product odor
5					Msl				Brown SAND; same as above
									Grey SAND; same as above; product odor.
				9			sm	▽	
10									Grey SAND; strong odor as above
									No Recovery.
15				6					
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX BEACH S. OF PIER
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000386

BORING NO. GATX-UB-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					Dp				ASPHALT 1.0'
					Wt/Mst		gm		Rock and sand roadbed; large round rock with sand matrix 2.0
					Mst				Very fine SAND with 10-15% silt; brown
	*			0.5					Very fine sand as above
5					Mst				Very fine sand; grading coarser; brown; no product odor.
	*			0	Wt		sp		
					Wt				Brown sand; medium grained
									Dark grey, black sand with 5% silt; trace gravel; heavy sheen; diesel odor; (no gravel) same as above; slight product odor. Depth to water 9.1' below ground surface after sampling. 11.0
10					Sat				
	*			100	Sat		ml		Stiff; dark brown; grey SILT, low plasticity, occasional rootlets
									BOTTOM OF BORING = 12.0 FEET
									Water at 12.45 feet
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE. STORM SEWER
PROJECT NO.: 815-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. GATX-UB-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0
							gw		GRAVEL; graded river rock 2.0
					Mst				SAND; clean, coarse grey with red and clear quartz grains; 20% quartz coarse
					Wt		sw	▽	
5	*			0	Wt				Sand as above 7.0'
							ml		Silt lense; 2" thick. 7.5'
							sw		9.0'
	*			0			ml		Brown silt with 5-10% fine sand. 10.0'
10					Sat		sm		Black SAND, strong product odor (diesel) many wood fragments and trace gravel
	*			145	Sat				
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE. STORM SEWER
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. GATX-UB-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							ml		ASPHALT	1.0'
							gw		ROCK (roadbed)	2.0'
					Dry				Brown silty SAND; 20% silt; no product odor.	
							sm			
					Mst				▽	4.5
5	*			140					Grey green sandy SILT; very fine sand; faint product odor	
					Mst					
	*			185			ml		SILT (as above)	
					Wt					
10					Wt					
									Rootlets, wood organics, no sheen, moderate product odor.	
	*			177	Wt					
									BOTTOM OF BORING = 12.0 FEET	
15										
20										
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: HAND AUGER
SAMPLING METHOD: BRASS TUBE
PROJECT NAME:
LOCATION: 10" WOOD VSP ABANDONED STORM SEWER
PROJECT NO.: 815-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME A

BORING NO. GATX-UB-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							ml		ASPHALT 12" 1.0
					Dp		gw		Coarse clean dark grey SAND with rock (roadbed) 7.5
					Dp				
					Msl				Brown to grey SAND; 10% coarse; 60% medium; 25% fine; trace silt
5	*			0	Msl		sw		SAND as above
	*				Wt				10.0
10	*			0	Wt		gw		SAND with fine to coarse gravel (fill) GRAVEL fine, no product odor Hard object at 11.8 feet
15									BOTTOM OF BORING = 12 FEET
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: STORM IN N BOUND FRONT
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY M.J.S. CHECKED BY FILE NAME

COPPOR00000390

BORING NO. GATX-UB-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT Gray	1.0'
					Dp		sm		Brown SAND with silt; 85% fine to medium sand with 15% silt no product odor	
5					Mst				Very fine brown SAND WITH SILT; 80% sand; 20% silt; no product odor.	7.5
	*			0	Wt		ml		SILT WITH SAND; brown, low plasticity silt, with 15% fine sand; no product odor.	9.5'
10	*			1	Wt		sm		Grading to SILTY SAND. SAND WITH SILT; brown.	11.0
							ml		Sandy SILT; 60% silt; 40% fine sand; brown, non-plastic; no product odor.	13.0
15	*			15	Wt		sm		Silty SAND; 5% silt SAND; black; 15% silt; fine gravel; no product odor. FILL Black SAND; 10% coarse; 35% medium; 55% fine; trace fine gravel; faint product odor or organics.	
20									TOTAL DEPTH = 20.0 FEET	
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 60" SANITARY IN GS ROOFING PARKING LOT
PROJECT NO.: B15-100.1A

DRAWN BY ____ CHECKED BY ____ FILE NAME ____

IT CORPORATION

BORING NO. GATX-UB-8

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
									Brown medium to fine SAND; no product odor
					Mst				
5									
					Mst				Brown SAND; 80% fine sand; 15% very fine sand; 5% silt; no product odor.
	*			0	Mst		sm		
					Wt				
10									Brown SAND; as above, no product odor.
	*			0.5					
					Sat				Brown SAND; as above.
15									Dark brown SAND as above; no product odor.
	*			0	Sat				
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 60" SANITARY NEAR ELF ATOCHEM
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. GATX-HP-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-05-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 24.0'

DEPTH IN FEET	SAMPLE RETAINED* PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							gw		ROCK	0.5'
							sm		Brown silty SAND, 5% coarse; 15% medium; 50% fine 30% silt	2.5'
					Mst		ml		Brown SANDY SILT: 40% sand; 60% silt.	3.0'
5					Mst		sm		Brown SILTY SAND; as above. Brown SILTY SAND; some as above.	
	*			31					Grey SILTY SAND; some as above.	8.50'
					Wt		ol		Organic roots	8.75'
10	*			47			ml		Grey sandy SILT; 20% fine sand. SAND (organics 5% locally dense) 75% silt no product odor.	10.75'
							ol		Organic roots	11.0'
					Wt		ml		Grey SANDY SILT	13.0'
	*			218	Sat				Grey SILTY SAND: 20% coarse , 50% medium; 15% fine, 15% silt, strong product odor	
15					Wt		sm		Grey SILTY SAND: some as above; moderate product odor.	18.5'
							ol		Organics, (wood and rootlets).	19.0'
20							ml		Grey SILT, moderate product odor, 10% fine sand; 5% organics. Grey SANDY SILT moderate product odor no organics. no mica. Grey SANDY SILT; some as above.	
25									BOTTOM OF BORING = 24.0 FEET	
30										
35										

DRILLING CO.:
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: OLD LOADING RACK
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY			

IT CORPORATION

COPPOR00000393

BORING NO. GATX-HP-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-05-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 24.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT	.25'
					Mst		gw		Rock/Soil (Roadbed)	2.0'
					Mst		sm		Brown silty SAND; 40% medium sand; 20% fine sand; 30% silt	3.5'
					Mst		ml		Brown SILT with sand, non plastic, 20% fine sand; no product odor	4.0'
5					Mst		sm		Brown SAND with silt; same as 2.5-3.5'; no product odor.	8.5'
	*			17						
10	*			11	Wt		ml		Brown SILT; non plastic; slight product odor. 10% very fine sand. liquifies. Grey SANDY SILT loose; non plastic 15% fine sand; slight product odor.	11.5'
					Wt					
15					Wt		sm		Grey SAND, 20% coarse, 40% medium, 30% fine, 10% silt slight product odor. Grey SAND, same as above	
									Grey SAND, same as above.	
20	*			23	Wt				Grey SAND, slight product odor.	20.5'
					Wt		ml		Grey SILT; 10% fine sand, firm, low plasticity Grey SILT, non plastic, same as above; no product odor.	
25									BOTTOM OF BORING = 24.0 FEET	
30										
35										

DRILLING CO.: G. TECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DWG NUMBER	

BORING NO. GATX-HP-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-05-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ROCK	.5'
							ml		Brown SANDY SILT, 20% medium sand, 10% fine sand.	1.5'
							sm		Brown silty SAND: 20% coarse; 50% medium; 20% fine; 10% silt no product odor.	3.0'
							ml		Brown sandy SILT, non plastic no product odor, 10% very fine sand, trace mica	
5									Same as above. Slight product odor.	6.5'
				9			sm		Brown SAND: 10% coarse, 20% medium; 60% fine; 10% silt	
	*									
10				13	Mst				Same as above. Slight product odor.	
	*			8	Wt					12.5'
							ml		Grey SANDY SILT; 15% very fine sand.	13.0'
				13	Wt		sm		Grey SAND: 30% coarse; 35% medium; 30% fine; 5% silt; moderate product odor	
15	*									
					Wt				Grey SAND; same as above: slight product odor.	
20						Wt				
						Wt			Grey SAND: with organics; 20% coarse; 50% medium; 20% fine; 5% silt, 5% fine gravel, wood, organic debris. Black silty SAND; same as above.	22.5'
							ml		Grey sandy SILT, 15% fine sand, non plastic, no product odor.	
						Wt			Grey sandy SILT. Grading (color).	25.5'±
25							ml		Brown SANDY SILT: 5% fine; orange, mottled; low plasticity; no product odor; no mica; firm; dry.	
						Mst				
30									BOTTOM OF BORING = 28.0 FEET	
35										

DRILLING CO.: G. TECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 815-100.1A

II CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY			

BORING NO. GATX-HP-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0						Msl	gw		ROCK 1.5'
							gm		Rock/Sand fill; mica laminae. 2.0'
						Msl	sm		Brown silty SAND; 5% silt; 40% coarse; 40% medium; 15% fine
5									▽
	*			8		Msl	sm		Fine silty brown SAND; 50% fine sand; 5% medium sand; 40% silt; micaceous
						Msl			Brown silty SAND; same as above.
10	*			1		Wt			11.5
							ml		Grey sandy SILT. Grey sandy SILT; 15% fine sand; low plasticity, no product odor. 14.0'
15							sm		Grey silty SAND; 30% coarse; 25% medium; 40% fine; 5% silt 16.0'
							ml		Grey sandy SILT; 15% fine sand; low plasticity no product odor 18.0'
20						Wt	sm		Grey silty SAND; (slight product odor); 30% coarse; 25% medium; 40% fine; 5% silt
	*			4					Grey silty SAND; 10% silt; 40% medium 30% coarse; 20% fine 23.5
25						Wt	ml		Grey sandy SILT. Grey sandy SILT; 5% fine sand Non plastic; root traces; organics; no product odor; with mica
						Wt			
30									BOTTOM OF BORING = 28.0 FEET
35									

DRILLING CO.: G. TECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE. (NEAR SCALE)
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-98				

TI CORPORATION

COPPOR00000396

BORING NO. GATX-HP-5

COORDINATES N/A

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-02-98
CHECKED BY N.W.H. DATE FINISHED 11-02-98
APPROVED BY GROUND SURFACE EL
TOTAL DEPTH 32.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0
					DRY		gw		Crushed ROCK roadbed 2.5
					MOIST				
5							sm		Coarse brown SILTY SAND; poorly sorted; 10% silt 6.5
	*			9	MOIST				
					MOIST				
10							ml		Stiff brown SANDY SILT; 5% fine sand; grey mottle; no organics; no odor.
	*			9	WET				SILT; as above; no odor.
15									Brown SANDY SILT; 20% fine sand.
									Brown SILTY SAND; 15% fine sand; slight orange mottle; trace organics; no product odor
20					WET				
				9					Brown SANDY SILT; 10% fine sand; trace mica; no product odor.
25									Brown SILT; as above.
									Sandy brown SILT; 10% fine sand.
30									SANDY SILT; 20% fine sand; coarser than above
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 61ST AVE. (GATX SIDE)
PROJECT NO.: 815-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME & DISK NUMBER	
DATE	10-05-99	APPROVED BY			

BORING NO. GATX-HP-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-02-98

CHECKED BY N.W.H. DATE FINISHED 11-02-98

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 36.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					DRY				ASPHALT 1.0
							gw		ROCK roadbed 2.5
					MOIST				Brown SANDY SILT; 10% fine sand; trace charcoal and rootlets
	*			220					
5					MOIST				As above no organics
	*			48					Brown SANDY SILT; as above; no product odor
10							ml		Stiff; brown; SANDY SILT; 20% fine sand; (trace mica flakes)
	*			49	WET				
15									Loose brown SANDY SILT; as above
									Grading less sand
20					WET				Grading more sand. Brown SILTY SAND; 20% silt
									Brown SANDY SILT; 10% fine sand; non-plastic; no product odors
					WET				
25					WET				Brown sandy SILT; loose; non plastic; 10% fine sand; no product odor.
					WET				Grading more fine sand.
30									35% very fine SAND; mica flakes
					WET				Grading less SAND.
									Stiff brown SANDY SILT. 35.0'
35							sm		Brown SILTY SAND; 15% silt; no product odor.

BOTTOM OF BORING = 36.0 FEET

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO

PROJECT NAME:
LOCATION: 61ST AVE.
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	10-05-99	APPROVED BY		DESIGN NUMBER

IT CORPORATION

COPPOR00000398

BORING NO. GATX-HP-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98
CHECKED BY N.W.H. DATE FINISHED 11-04-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 32.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5
									Roadbed ROCK/SILT/SAND 2.0
					MOIST				Brown SANDY SILT; 95% silt 5% sand with rootlets; organics and trace charcoal; non plastic; no product odor.
5	*			45	MOIST				Coarse brown SANDY SILT; 15% very fine sand; slight grey and orange mottle trace mica and organics
					MOIST WET				▽
	*			82					Brown SANDY SILT; mica flakes 10% fine sand; 10% silt; non plastic; no product odor.
10							ml		
15					WET				
	*			80					Brown SANDY SILT; as above.
20									Loose
					WET				
					WET				
25					WET				
									Brown SANDY SILT 20% fine sand; non-plastic; no product odor.
30					WET				Brown SANDY SILT; 5% fine sand; trace mica flakes; non-plastic; no product odor.
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 61ST AVE. & CULEBRA ST
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	10-05-99	APPROVED BY			

BORING NO. GATX-HP-8

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98
CHECKED BY N.W.H. DATE FINISHED 11-04-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					MOIST		gw		GRAVEL roadbed with silt and sand — 2.0'
					MOIST		sm		Brown silty SAND; 10% silt; poorly sorted. — 3.5'
5	*			9	MOIST				Dark brown SANDY SILT with 15% medium fine sand; with grey and orange mottle; non-plastic; trace organics
					WET				Brown SILT with 10% fine sand; non plastic; no product odor.
10	*			34	WET		ml		Loose brown SANDY SILT; 15% fine sand; non plastic; trace mica
15	*			8	SAT				Trace organics; root traces
20					WET				
25									Brown SANDY SILT as above
30					WET				Brown SANDY SILT; 10% fine SAND; non plastic; no product odor.
									Stiff grey SILT; 10% fine sand; non plastic; no product odor.
35									BOTTOM OF BORING = 32.0 FEET

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 61ST AVE. & CULEBRA
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000400

BORING NO. GATX-HP-9

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98

CHECKED BY N.W.H. DATE FINISHED 11-03-98

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gr		1.25'
					MOIST				Dark brown SANDY SILT; 20% sand; with gravel and organics; non plastic no product odor
5					MOIST				Brown SANDY SILT; 5-10% fine sand; low plasticity; grey and orange mottle; no product odor.
	*			80	MOIST				
10					WET		ml		Brown SANDY SILT; as above
	*			350					Loose; brown SANDY SILT; 10% very fine sand; 90% silt.
					SAT				
15									Stiffer, moderate plastic; 5% sand (fine).
20									SILT; as above
					WET				Brown SANDY SILT; 10% fine sand; trace mica flakes; non plastic no product odor.
25	*			320					
					WET				Brown SANDY SILT; as above
30					WET				Grades more sand.
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CULEBRA AVE.
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

II CORPORATION

COPPOR00000401

BORING NO. GATX-HP-10

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98
CHECKED BY N.W.H. DATE FINISHED 11-04-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 32.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Crushed ROCK roadbed. ROCK mixed with silt and sand. 1.5'
					WOIST		ml		Dark brown sandy SILT with charcoal; rootlets and 10% fine to medium sand
	*			6					Non plastic, no odor
5									Brown SILT with fewer organics 7.0'
					WET		gw		Crushed drain ROCK with 20% brown silt and 10% sand; moderate product odor.
10	*								Strong product odor, sheen on water.
				13	WET				12.0'
							ml		Stiff brown SANDY SILT; 15% fine sand; orange mottle; trace mica; faint product odor.
15									
									Grey SILT with trace sand; non plastic; moderate product odor.
	*			5	WET				
20									
					WET				SILT; as above.
									Grey SANDY SILT; as above
25									Coarse brown SANDY SILT; loose; non-plastic; no product odor.
									Grey SANDY SILT; 20% fine sand; faint product odor.
30									
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: CULEBRA AVE.
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000402

BORING NO. GATX-HP-11

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-15-98
CHECKED BY N.W.H. DATE FINISHED 10-15-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 17.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					DRY		gm		GRAVEL roadbed and fill material; brick; sand; silt. 2.5'
							ml		Brown SANDY SILT; 15% fine sand; black and orange mottle; non plastic; no product odor.
				6	MOIST				Brown SILT; 5% fine sand; trace organics; low plasticity; no product odor.
5									
				7	WET				Grey SANDY SILT; 5% fine sand; trace mica; moderate plasticity
10									Grey SILT; as above
15									Stiff grey SILT; as above; 10% fine sand; low plasticity; no product odor.
									Refusal at 17.0 feet.
									BOTTOM OF BORING = 17.0 FEET
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GATX MAINTENANCE AREA
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. GATX-HP-12

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
							gw		GRAVEL 1.0'
									Brown silty SAND; 70% medium; 25% fine; 5% silt; no product odor.
					Dp				
5	*				Dp				Brown SILTY SAND; as above; no product odor.
				0	Msl				
							sm		
					Msl				Brown SAND; as above; no product odor.
10									
				0.5	Wt				
									14.0'
15				1.3	Sat			VOID	Slough; brown SAND Black SAND in shoe; faint organic odor; no product odor.
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: GS by 60' Sanitary and fence
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &

COPPOR00000404

BORING NO. GATX-HP-13

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							gw		ASPHALT SAND AND ROCK (roadbed).	1.0'
					Dp Dp		sw		Clean SAND; brown. 5% silt; no product odor.	4.0'
5	*			0	Mst		sm		Fine brown SILTY SAND 15% silt; non-plastic; no product odor GRAVELLY SILT. 15% gravel; brown; no product odor. Brown SAND; as above.	
	*			0	Wt Mst				Brown SAND. very fine 40% silt	9.0'
10					Sat Sat		ml		Brown silt 20% fine sand Grey SILT; as above; no product odor	12.0'
							sm		Very fine SAND with 20% silt.	13.0
15					Wt Wt		sw		Brown SAND; medium grained. GRAVEL fine Black SAND, medium to fine; no product odor	
	*			45	Wt				Trace fine GRAVEL.	
20									BOTTOM OF BORING = 20.0 FEET	
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: By GS ROOFING
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. GATX-HS-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-26-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		ROCK, no product odor. 0.5'
					Msl				Silty SAND, brown; 50% coarse, 20% fine; 20% medium, 10% silt
	*				Msl				Dark brown and black, poorly graded SAND, 15% fine sand, 75% medium sand, 50% coarse sand 10% silt; slight product odor.
					Wl		sm		▽
5	*								Sand as above. 6.5'
									Grey sandy SILT; 15% fine sand low plasticity, stiff, slight product odor.
							ml		
10									Some grey sandy SILT.
					Msl				Slight product odor at 12 feet, low plasticity
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CROSSMAN
DRILLING METHOD: DIRECT PUSH
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TK 2/52 GATX SOUTH YARD
PROJECT NO.: B15-100.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

COPPOR00000406

BORING NO. GATX-HS-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-26-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 8.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		ROCK 0.5'
	*			329	Mst		sw		SAND: dark brown; grading downward to black; poorly sorted; 50% coarse; 30% medium to fine; 20% silt
				244	Wt				▽ Black SAND, strong odor.
	*				Wt				
5									BOTTOM OF BORING = 4.0 FEET
10									
15									
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: DIRECT PUSH
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TK 2/52 GATX SOUTH YARD
PROJECT NO.: B15-100.1A

DRAWN BY M.J.S. | CHECKED BY | FILE NAME &

IT CORPORATION

COPPOR00000407

BORING NO. GATX-HS-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-26-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 8.0'

DEPTH IN FEET	SAMPLE NUMBER *PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gr		ROCK 0.5'
	*			59	Mst		sm		Dark brown SAND; poorly sorted; 40% coarse; 30% medium; 20% fine; 10% silt
									Black SAND; few quartz grains (white); 50% coarse; 20% medium 15% fine; 15% silt
	*			141	Wt				▽ Strong product odor
5									6.5'
					Mst		ml		Grey SILT; 90% silt; 10% fine sand; no mottling or root traces; stiff; low plasticity
									BOTTOM OF BORING = 8.0 FEET
10									
15									
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TK 2/52 GATX SOUTH YARD
PROJECT NO.: 815-100 1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	8-02-99	APPROVED BY		DISK NUMBER	

BORING NO. GATX-HS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-26-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 8.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		GRAVEL 0.5'
	*			6	Msl				Brown, poorly graded SAND; 50% coarse; 25% medium; 15% fine sand; 10% silt; no product odor.
									Faint product odor.
					Wl				SAND; 50% coarse; 25% medium; 15% fine; 10% silt
	*			59			sp		
5									Free product; thin consistency; filling 10-20% of pores; grey SILT, 10% fine sand; low plasticity; petroleum hydrocarbons
					Msl				
10									BOTTOM OF BORING = 8.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TK 2/52 GATX SOUTH YARD
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-HP-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0
							gr		Road gravel. 1.5'
									Fine grey silty SAND; 10% coarse; 30% medium; 50% fine; 10% silt; no product odor
5					Dry Mst				
							sm		Grey silty SAND; 20% coarse, 40% medium; 35% fine; 5% silt; no product odor
10	*			25	Mst				Grey silty SAND; fine to medium; 20% coarse; 5% silt; faint product odor.
15									Grey silty SAND; 20% coarse 40% medium; 35% fine; 5% silt Same as above; strong product odor.
									▽ Strong product odor.
20	*			40	Wt Sat				Grey silty SAND; 20% coarse; 30% medium 40% fine; 10% silt; strong product odor. Same as above; moderate product odor.
				15					Grey silty SAND; 30% coarse; 40% medium; 20% fine; 10% silt.
25					Wt Wt				26.5
							ml		Grey sandy SILT; 90% silt; 10% fine sand; and organics (root traces); non-plastic slight product odor.
									BOTTOM OF BORING = 28.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-HP-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	
0									Asphalt
									Road gravel. 2.0'
							ml		Grey SILT, low plasticity, no sand, no product odor. 2.75'
					Dry				Grey SAND; 20% fine 50% medium 25% coarse 5% silt
5					Mst				
					Mst				Grey SAND; same as above
									No sheen on water; no product odor.
10									
	*			163	Mst				SAND; grey, silty, 5% silt; slight product odor; 20% fine 50% medium, 25% coarse No sheen on water.
15									Moderate product odor. SAND, grey, same as above Sheen on water.
					Mst		sm		
					Mst				Grey SAND; same as above.
20				253	Wt				
				12	Wt				Grey brown SAND; 20% coarse; 50% medium; 75% fine; 5% silt
				48	Sat				SAND; same as above.
25									No product odor; no sheen on water. 28.5'
30					Sat/Mst				Grey sandy SILT; non-plastic; 5% very fine sand; no product odor. Harder.
							ml		Brown silt; 5% fine sand dense
					Sat/Mst				Grey SILT; non-plastic; 5% fine sand; no product odor.
35									As above with grey brown mottling

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 815-300.1A

BOTTOM OF BORING = 36.0 FEET

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY			

IT CORPORATION

BORING NO. TOS-HP-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-04-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT
									Road gravel
					Mst				Brown silty SAND; 50% fine sand; 20% medium sand; 10% coarse sand; 20% silt; sheen on water, no product odor.
					Dry				
					Mst				
5									Brown silty SAND; 30% coarse; 55% fine to medium 15% silt; sheen on water; no product odor.
							sm		
				105					
					Mst				
10									No sheen on water; no product odor.
					Mst				Grey silty SAND; 20% coarse; 40% medium; 25% fine; 15% silt
	*			138					
15							sm		Sheen on water; strong product odor.
									Grey silty SAND; 15% coarse; 20% medium; 45% fine; 20% silt, silt lenses 1/4"; strong product odor.
20	*			395	Wt				
					Wt				
									Grey silty SAND; 20% coarse; 40% medium; 25% fine; 5% silt; no sheen; no product odor.
									Grey silty SAND; same as above.
	*			27					
25									Slight product odor, slight sheen; grey silty SAND; same as above
					Wt				
									Grey silty SAND; 30% silt.
									Grey silty SAND; same as above.
									28.5'
									Grey sandy SILT; 20% fine sand; non-plastic.
30							ml		
									Grey sandy SILT; 10% fine sand; no product odor; no sheen; low plasticity; root traces/organics; no mica.
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: G. TECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. TOS-HP-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-03-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
									Rock/soil roadbed. 1.5'
					Dry/Mst				Brown silty SAND: 60% fine sand; 10% medium sand; 30% silt
5									Brown silty SAND; 20% coarse; 50% medium; 20% fine; 10% silt; no product odor.
	*						sm		
				25	Dry				Brown silty SAND; 20% coarse; 15% fine; 30% medium; 15% silt; no product odor.
10									
					Mst				Brown silty SAND; 50% fine; 15% medium 15% coarse; 20% silt. 14.0'
				138	Wt		ml		3" grey SILT; no sand; moderately plastic; wet; no product odor. 15.0'
15									Brown silty SAND; 40% coarse; 30% medium; 20% fine; 10% silt
									Depth to water approximately 18.4 ft
									▽ Brown SAND; 20% coarse; 60% medium; 15% fine; 5% silt. Gravel .25" Brown sand; 5% silt.
					Wt				
20	*			2					
					Wt				
							sm		
					Wt Sat				Same as above; no product odor.
									Grey SAND; 30% coarse; 50% medium; 20% fine; trace silt
25									
	*			3					Grey SAND; same as above
30									30.0
							ml		Strong contact with grey SILT; some organics (wood)
									BOTTOM OF BORING = 32.0 FEET
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-HP-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									Crushed ROCK roadbed 2.0'
							gm		Brown SILTY SAND; medium; grain size with 20% silt.
	*			700	MOIST		sm		Grey SILTY SAND (stained) 20% silt; grading finer; strong product odor. 5.75'
5							ml		Grey SILT; with 20% fine sand. 6.5'
					MOIST SAT		ml		▽ Brown SANDY SILT with 15% fine sand; non-plastic; no product odor.
10	*			5.0					Stiff; grey-brown SILT; 10% fine sand; no product odor.
15	*			5.5	SAT				Stiff; grey SILT; with 10% fine sand with grey and orange mottle; low plasticity.
20									Grey SANDY SILT; as above.
					SAT				
					SAT				No recovery
25									Grey SANDY SILT; as above.
									Tan SILT; 10% fine sand.
									BOTTOM OF BORING = 28.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: NEAR BNSF RAIL
PROJECT NO.: 515-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	10-05-99	APPROVED BY		PLOT NUMBER

IT CORPORATION

BORING NO. TOS-HP-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 28.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
							gw		GRAVEL roadbed with sand and silt 2.5'
	*			6	MOIST		sm		Brown SILTY SAND with 10% silt angular fill; sand; no product odor.
5									
					MOIST				
10									SAND as above. 12.0'
	*			35					
					WET		ml		Light grey CLAYEY SILT with 10% fine sand; black and orange mottle; moderate plasticity; no product odor.
15									
20									Loose; coarse brown SILT to very fine sand; 15% fine sand; non plastic
									Stiff grey SANDY SILT.
25									Stiff; tan SILT; with 10% fine sand; low plasticity; no product odor
	*			19	SAT				
									BOTTOM OF BORING = 28.0 FEET
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: BEHIND TOSCO WAREHOUSE
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-HP-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-14-98
CHECKED BY N.W.H. DATE FINISHED 10-14-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 24.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT	0.5'
							gw		Brown SILTY SAND; 20% sand, grading less sand; non-plastic; no product odor.	1.0'
							sm			2.0
	*			7.5	MOIST				Brown SANDY SILT; with high organic content; roots and organic debris; grey and black mottle	
5									Brown SANDY SILT; as above; fewer organics	
					MOIST				Grey SANDY SILT with mica; trace organics; 5% fine sands	
10	*			15.5	WET		ml		Brown SANDY SILT; 5% fine sand; low plasticity.	
					SAT				▽ Grey SANDY SILT; 10% fine sand; no odor or sheen. Brown SANDY SILT; 01-15% fine sand Grading coarser.	
15	*									
20									Stiff grey SANDY SILT; no product odor.	
									Stiff gray SILT; 10% fine sand; low plasticity; no odor.	
25									BOTTOM OF BORING = 24.0 FEET	
30										
35										

DRILLING CO.: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TRUCK LOADING/DOANE AVE.
PROJECT NO: 815-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000416

BORING NO. TOS-HS-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98
CHECKED BY N.W.H. DATE FINISHED 10-27-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Crushed ROCK =ith sand. 0.5'
									Brown SILTY SAND; 50% coarse; 10% medium; 10% fine sand; 20% silt; no product odor
	*			3	MOIST				Some brown SAND; no product odor
5									
	*			18	MOIST		sm		SAND as above; less silt; moderate product odor.
10									Grading darker
				78	MOIST				Grey-black SAND.
									Dark grey SAND; as above; faint product odor.
15	*			84	WET				▽
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: TRIPOD/HAMMER
SAMPLING METHOD: MACRO
~~PROJECT NAME:~~
LOCATION: NEAR TK 3411
PROJECT NO.: 815-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

COPPOR00000417

BORING NO. TOS-HS-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98
CHECKED BY N.W.H. DATE FINISHED 10-27-98
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							9"		ROCK/SAND 0.5'
					MOIST				Brown SILTY SAND; 20% silt; gravel. No product odor.
5							SM		Brown SILTY SAND; as above; slight product odor.
	*			<18	MOIST				
10									Color Variable; brown to grey; moderate product odor.
					MOIST				Moderate product odor
15									Grey SILTY SAND; as above; strong product odor (gasoline). ▽
	*			128	WET				
20									BOTTOM OF BORING = 16.0 FEET
25									
30									
35									

DRILLING CO.: CRISSMAN
DRILLING METHOD: TRIPOD/HAMMER
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: NEAR TK 3411
PROJECT NO.: B15-500.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

IT CORPORATION

BORING NO. TOS-HS-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-27-98
CHECKED BY N.W.H. DATE FINISHED 10-27-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		ROCK/SAND 0.5
					Mst				Brown SAND; 40% coarse 40% medium; 10% fine; 10% silt no product product odor.
				28					Grades to grey silty SAND at 4 ft. Slight product odor.
5					Mst				Brown silty SAND; 10% silt 50% coarse 30% medium 10% fine
				31	Mst		sm		Moderate product odor.
10									Sand; same as above
	*			28					
					Mst				Brown SAND; same as above.
15	*			65	Wt				▽ Dark grey SAND; strong product odor.
									TOTAL DEPTH = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PROBE TRIPOD
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TANK 3411
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	7-14-99	APPROVED BY		PROJ. NUMBER

BORING NO. TOS-HS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 11-05-98
CHECKED BY N.W.H. DATE FINISHED 11-05-98
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 20.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		ROCK 0.5
					Mst				Brown silty SAND: 30% coarse, 20% medium, 40% fine, 10% silt.
					Mst				Thin silt layer, brown sandy SILT, 10% fine sand
									Brown silty SAND, 30% coarse, 30% medium, 30% fine, 10% silt.
5									No product odor.
									Slight product odor.
				92	Mst				Slight product odor.
10							sm		Brown SILTY SAND (same as above)
	*				Mst				Moderate product odor
15	*			61					Brown SILTY SAND, same as above moderate product odor.
					Wt				Strong product odor. Grey silty SAND, same as above
	*			134				▽	Black SILTY SAND; 30% coarse, 30% medium, 20% fine.
									18.0
							ol		SILT; grey; 50% organics (roots). 18.25
20					Wt		ml		Grey sandy SILT; 10% coarse sand; trace fine gravel; slight product odor, low plasticity, organics
									TOTAL DEPTH = 20.0 FEET
25									
30									
35									

DRILLING CO.: GEO-TECH
DRILLING METHOD: GEO PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TANK 3411
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-14-99	APPROVED BY			

IT CORPORATION

COPPOR00000420

BORING NO. TOS-LS-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Rock/Sand Rock bed/gravel and sand 2.0'
					Mst				Medium brown SAND, poorly sorted; silty SAND ~15% silt
5									
					Mst		sm		
				2.0					Coarse silty SAND; 30% silt; no product odor.
10									11.0'
							ml		Grey sandy SILT; moderate plasticity, moist; 5% fine sand; black and grey, slight mottle; moderate product odor.
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-27-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-LS-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.N. DATE BEGAN 10-14-98
CHECKED BY N.W.B. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Ballast Rock (7.0)
					Mst				Rock/Roadbed/brick sand, clay, mixed
									Brown poorly sorted, silty SAND, non plastic, no odor.
5					Mst		sm		Brown silty SAND, 70% coarse grains; 10% silt; 20% fine sand, no product odor. Product odor; very faint. (9.0)
10					Mst		ml		Sandy grey SILT; 10% fine sand 90% silt; no product odor (wet)
15					Wt				Slight product odor; grey SILT; same as above
20									BOTTOM OF BORING = 20.0 FEET
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH, UPPER
PROJECT NO.: 815-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-27-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-LS-3

COORDINATES N _____ E _____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED _____
APPROVED BY _____ GROUND SURFACE EL _____
TOTAL DEPTH 12'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							sw		SAND 1.0'
					wl		sm		SAND 2.0'
					Msl				Brown SILT, 3% fine sand black mottle non plastic no product odor.
					wl				Brown SILT; grey mottle; moderate plasticity; no product odor.
5									
							ml		
					wl				
10									Brown SILT; same as above, 5% fine sand
									BOTTOM OF BORING = 12 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: NEAR PT
PROJECT NO.: 615-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	7-28-99	APPROVED BY		DISK NUMBER

IT CORPORATION

BORING NO. TOS-LS-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0				27	Mst				Silty SAND, brown; 10% silt, 40% coarse; 20% medium; 30% fine
					Mst				SAND; same as above.
5					Mst				No product odor; moist.
				9			sm		
10					Mst				SAND; same as above. SAND and SILT; 5% fine sand, sandy silt, mica flakes 1%; no organics; dense; moderate plasticity; no product odor.
					Wt				▽
15				9					
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: 815-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-29-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

BORING NO. TOS-LS-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							gc		Rock blanket.	.05'
									SAND silty, brown no product odor.	
				6					Brown, silty SAND, same as above	
				12	Mst		sm		Slight product odor at 4 feet	
5					Mst					
					Wt				▽ Wet silty SAND.	6.5
				178					SILT, grey, 10% fine sand, low plasticity, slight product odor. Strong product odor, low plasticity.	
10							ml		Grey sandy SILT, same as above low plasticity, strong product odor	
									Grey SILT, same as above moderate product odor.	
15				28						
									BOTTOM OF BORING = 16.0 FEET	
20										
25										
30										
35										

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-29-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-LS-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-29-98
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gm		Rock Surface 1.0'
					Mst				SAND, brown, silty, 40% coarse, 80% medium, 30% fine
									SAND brown, same as above.
									Slight product odor, same as above very faint
5					Mst		sm		
				25	Wt				▽ Fine silty SAND, 60% fine sand, 40% silt slight product odor. 10.0
10					Wt				Fine grey SILT sandy, moderate plasticity, 10% fine sand; slight product odor.
				9			ml		
15				10					SILT, same as above with organic (root traces).
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CRISMAN
DRILLING METHOD: PUSH PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: TOSCO BEACH
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-29-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

BORING NO. TOS-RF-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-12-98

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL. ____

TOTAL DEPTH 16'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0							sw		SAND: beach sand. <5% silt; 95% fine to medium sand	1.0'
	*			0	Msl		sm		Silty SAND; 10% silt; 90% fine sand; brown. Grey silty SAND; 30% silt; 70% coarse sand, non plastic	6.0'
5							ml		Grey, clayey SILT, 90% silt; 10% clay; moderate plasticity.	6.5'
	*						sm		Grey silty SAND; 40% silt; 60% fine sand; low plasticity.	8.0'
							ml		Sandy SILT; 10% sand.	8.5'
							sm		2" red silty SAND, red/orange, rust colored.	9.0'
10					Wt				Grey sandy SILT; 5% sand; fine orange spotting; mottled sand.	
	*			0			ml		Fine grey sandy SILT; 5% fine sand; small amount of black and orange mottle; low plasticity, wet.	
15										
20									BOTTOM OF BORING = 16.0 FEET	
25										
30										
35										

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILBRIDGE
PROJECT NO.: B15-300.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	7-27-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

BORING NO. TOSCO-RF-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 10-13-96

CHECKED BY N.W.H. DATE FINISHED ____

APPROVED BY ____ GROUND SURFACE EL ____

TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		Gravel ballast 2.0
					Mst				SAND; low quartz grayish brown; mixed color with brown, 15% silt; poorly sorted, non plastic no odor. 8.0'
5							sm		
	*			20					Grey with some brown mottle SILT, grey no sand no odor
10					Mst				Grey SILT; low plasticity.
15							ml		
	*			30					
20									BOTTOM OF BORING = 20.0 FEET
25									
30									
35									

DRILLING CO.: GEOTECH
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: TOSCO BEACH
PROJECT NO.: 815-3001A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &
DATE	7-23-99	APPROVED BY		DATE ISSUED

IT CORPORATION

BORING NO. TOS-UB-1

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 32.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0'
							gw		COBBLES: 2-3". 7.5
					Mst				Brown SAND: 65% medium; 35% fine; < 5% silt; no product odor.
5									
					Mst				
							sw		SAND: 90% sand; 10% gravel
10									
	*			0					SAND WITH SILT; 80% sand as above; 20% silt; no product odor. 14.5'
15							ml		CLAYEY SILT; 5% fine sand; no product odor. 15.5'
	*			0	Sat				Brown SAND (as above). SAND with 20% gravel fine to coarse.
							sw		Brown SAND (as above).
	*			0	Sat				
20									BOTTOM OF BORING = 20 FEET
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: FRONT AVE.
PROJECT NO.: 615-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-15-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-2

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 32.0

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							gw		GRAVEL 1.0
									Brown SAND: fine to medium; 60% medium; 80% fine; trace organics
5					Mst				
	*			0			sw		Rootlets; no product odor.
10					Dp				Rootlets
					Mst				
15				0	Sat				
	*								Grading to grey sand, some. 16.5'
									Dark grey SAND; 0-10% silt; no product odor
					Sat				Reddish brown SAND; 15% silt
20	*			10			sm		Grey SAND.
									Dark grey to black SAND; faint product odor.
	*			140	Sat				
									BOTTOM OF BORING = 24.0 FEET
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILLBRIDGE 54" SANITARY SEWER
PROJECT NO.: 615-300.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-3

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 1.0'
					Dp		gm		Rock and sand roadbed; large round rock with sand matrix. 2.0'
					Wt/Mst				
					Mst				Very fine SAND with 10-15% silt; brown.
	*			0.5					Very fine sand as above
5					Mst				Very fine sand; grading looser; brown; no product odor.
	*			0	Wt		sp		
					Wt				Brown sand; medium grained
10					Sat				Dark grey; balck sand with 5% silt; occasional pebbles; heavy sheen; diesel odor; (no pebbles) same as above; slight product odor. Depth to water 9.1' below ground surface after sampling. 11.0'
	*			100	Sat		ml		Stiff; dark brown; grey silt, low plasticity; occasional rootlets.
15									BOTTOM OF BORING = 12.0 FEET
									Water at 12.45 feet.
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILLBRIDGE/SANSERVER
PROJECT NO.: 815-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	

BORING NO. TOS-UB-4

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT	1.0'
					Mst		gw		GRAVEL; graded river rock	2.0'
					Wt		sw		SAND; clean, coarse grey with red and clear quartz grains; 20% quartz coarse.	
5	*			0	Wt				Sand as above	7.0'
							ml		Silt lense; 2" thick.	7.5'
							sw			9.0'
	*			0			ml		Brown silt, with 5-10% fine sand.	10.0'
10					Sat		sm		Black SAND, strong product odor (diesel) many wood fragments and trace gravel.	
	*			145	Sat					
									BOTTOM OF BORING = 12.0 FEET	
15										
20										
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: WILLBRIDGE/SANSERVER
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY		DWG NUMBER	

IT CORPORATION

COPPOR00000432

BORING NO. TOS-UB-5

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL. ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							ml		ASPHALT 1.0
							gw		ROCK (roadbed) 2.0
					Dry		sm		Brown silty SAND; 20% silt; no product odor
					Mst				4.5'
5	*			140	Mst				Grey green sandy SILT; very fine sand; faint product odor.
	*			185	Wt		ml		SILT (as above).
10					Wt				Rootlets wood, organics no sheen moderate product odor.
	*			177	Wt				
									BOTTOM OF BORING = 12.0 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: HAND AUGER
SAMPLING METHOD: BRASS TUBE
PROJECT NAME:
LOCATION: 10" WOOD USPS ABANDONED
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME & DISK NUMBER	
DATE	6-16-99	APPROVED BY			

IT CORPORATION

BORING NO. TOS-UB-6

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 3-31-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 12.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0							ml		ASPHALT 12" 1.0'
					Dp		gw		Coarse clean dark grey SAND with rock (roadbed) 2.5'
					Dp				Brown to grey SAND; 10% coarse; 60% medium; 25% fine; trace silt
5					Mst				
	*			0	Mst		sw		SAND as above.
	*				Wt				10.0'
10	*			0	Wt		gw		SAND with fine to coarse gravel (fill). GRAVEL, fine, no product odor. Hard object at 11.8 feet.
									BOTTOM OF BORING = 12 FEET
15									
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: STORM IN N. BOARD FRONT
PROJECT NO.: B15-100.1A

IT CORPORATION

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-16-99	APPROVED BY		DISK NUMBER	

BORING NO. TOS-UB-7

COORDINATES N ____ E ____

FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 20.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION	
0									ASPHALT Gray	1.0'
					Dp		sm		Brown SAND with silt; 85% fine to medium sand with 15% silt no product odor	
5					Mst				Very fine brown SAND WITH SILT; 80% sand; 20% silt; no product odor.	7.5'
	*			0						
					Wt		ml		SILT WITH SAND; brown, low plasticity silt, with 15% fine sand; no product odor.	9.5'
	*			1						
10							sm		Grading to SILTY SAND. SAND WITH SILT; brown.	11.0'
					Wt					
							ml		Sandy SILT; 60% silt; 40% fine sand; brown, non-plastic no product odor.	13.0
15									Silty SAND; 5% silt.	
	*			15					SAND; black; 15% silt; fine gravel; no product odor.	
							sm		FILL	
					Wt				Black SAND; 10% coarse; 35% medium; 55% fine; trace fine gravel; faint product odor or organics.	
20									TOTAL DEPTH = 20.0 FEET	
25										
30										
35										

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME:
LOCATION: 60" SANITARY GS LOT
PROJECT NO.: B15-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-18-99	APPROVED BY		DISK NUMBER	

IT CORPORATION

BORING NO. TOS-UB-8

COORDINATES N ____ E ____

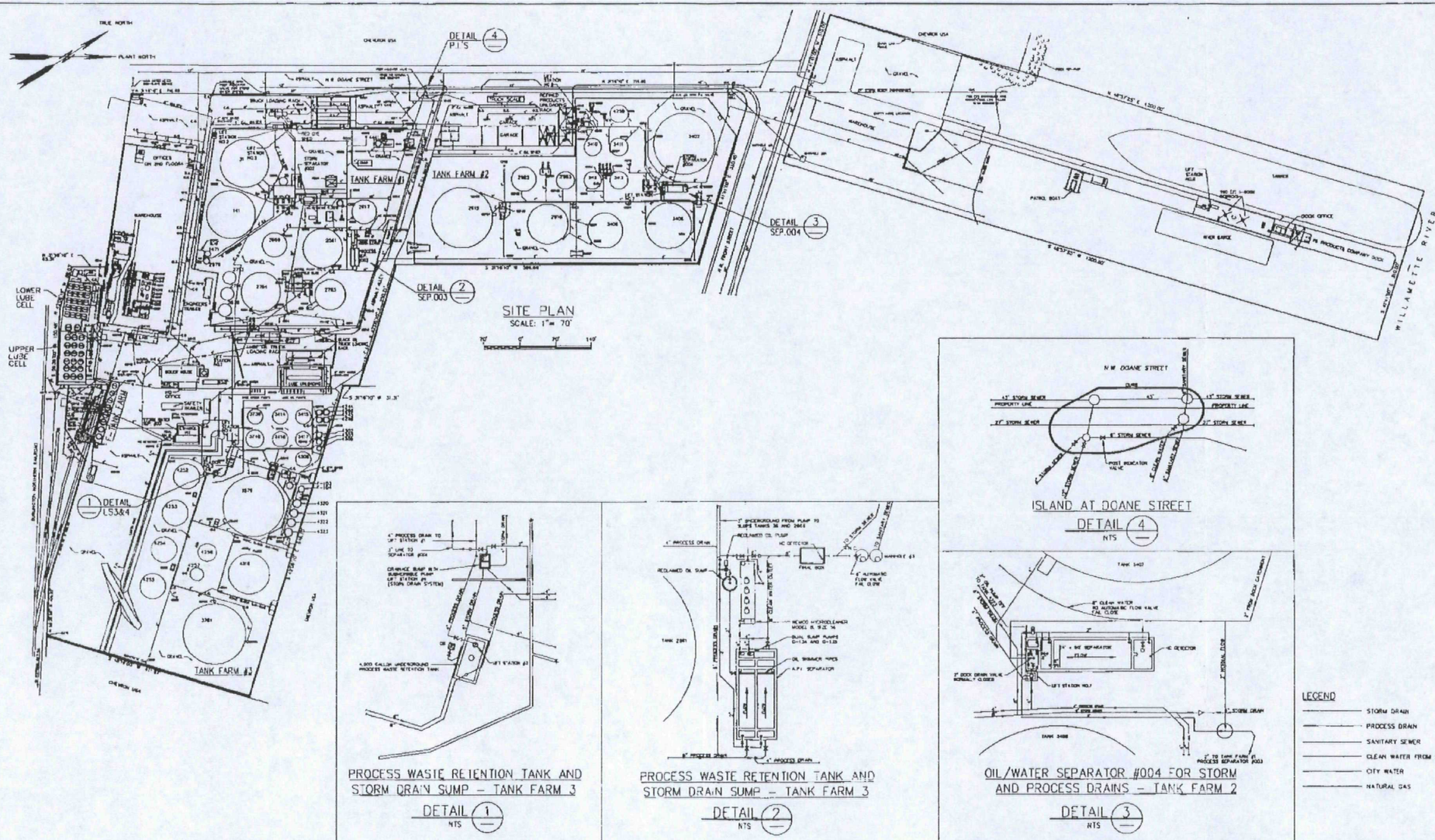
FIELD GEOLOGIST N.W.H. DATE BEGAN 4-1-99
CHECKED BY N.W.H. DATE FINISHED ____
APPROVED BY ____ GROUND SURFACE EL ____
TOTAL DEPTH 16.0'

DEPTH IN FEET	SAMPLE NUMBER PENETRATION (BLOWS/6")	RECOVERY	SAMPLE INTERVAL	P.I.D. (ppm)	MOISTURE CONTENT	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0									ASPHALT 0.5'
									Brown medium to fine SAND; no product odor.
					Mst				
5									▽ W.T.
					Mst				Brown SAND; 80% fine sand; 15% very fine sand; 5% silt; no product odor.
	*			0	Mst		sm		
					Wt				
10									Brown SAND; as above, no product odor.
	*			0.5					
					Sat				Brown SAND; as above.
15									Dark brown SAND as above; no product odor.
	*			0	Sat				
									BOTTOM OF BORING = 16.0 FEET
20									
25									
30									
35									

DRILLING CO.: CASCADE
DRILLING METHOD: GEO-PROBE
SAMPLING METHOD: MACRO
PROJECT NAME: ____
LOCATION: 60" SANITARY
PROJECT NO.: 815-100.1A

DRAWN BY	M.J.S.	CHECKED BY		FILE NAME &	
DATE	6-20-99	APPROVED BY		DISK NUMBER	

IT CORPORATION



DRAWING NO.	REFERENCE DRAWINGS	REV NO	DATE	REVISED	DRAWN BY	CKD. BY
0608-C-1000	SITE PLAN	0	10/15/96	UPDATED PER COAST GUARD REQUIREMENTS	DAB	WHB

UNOCAL 76
76 PRODUCTS COMPANY
Los Angeles, California

ALPHA ENGINEERS and CONSTRUCTORS, INC.
19 NW 5th AVE, SUITE 204, PORTLAND, OR 97209 Tel:(503)227-1577/Fax:(503)227-3244

DRAWN BY	D.A.BYNUM
CHKD BY	WHB
APPD BY	KJP
SCALE	AS SHOWN
DATE	10/15/96

PORTLAND TERMINAL
PORTLAND, OREGON
PLOT PLAN
PROCESS, STORM, AND SANITARY DRAINAGE

DRAWING NO.	SHEET	REV.
0608-C-7000	1 OF 1	0

COPPOR00000437