

**OCCIDENTAL CHEMICAL CORPORATION
OLIN CORPORATION**

ENGINEERING REPORT

FINAL

VOLUME IV

**APPENDIX C
DRAWINGS**

**102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK**

SEPTEMBER 9, 1995

**FLUOR DANIEL, INC.
MARLTON, NEW JERSEY**

REV	DATE	DESCRIPTION	BY	CHKD	APP'D	REV. DATE	REV. DESCRIPTION	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.	REV. NO.
A		ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERIM)												
B		ISSUED FOR REFERENCE												
C		FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)												

Fluor Daniel

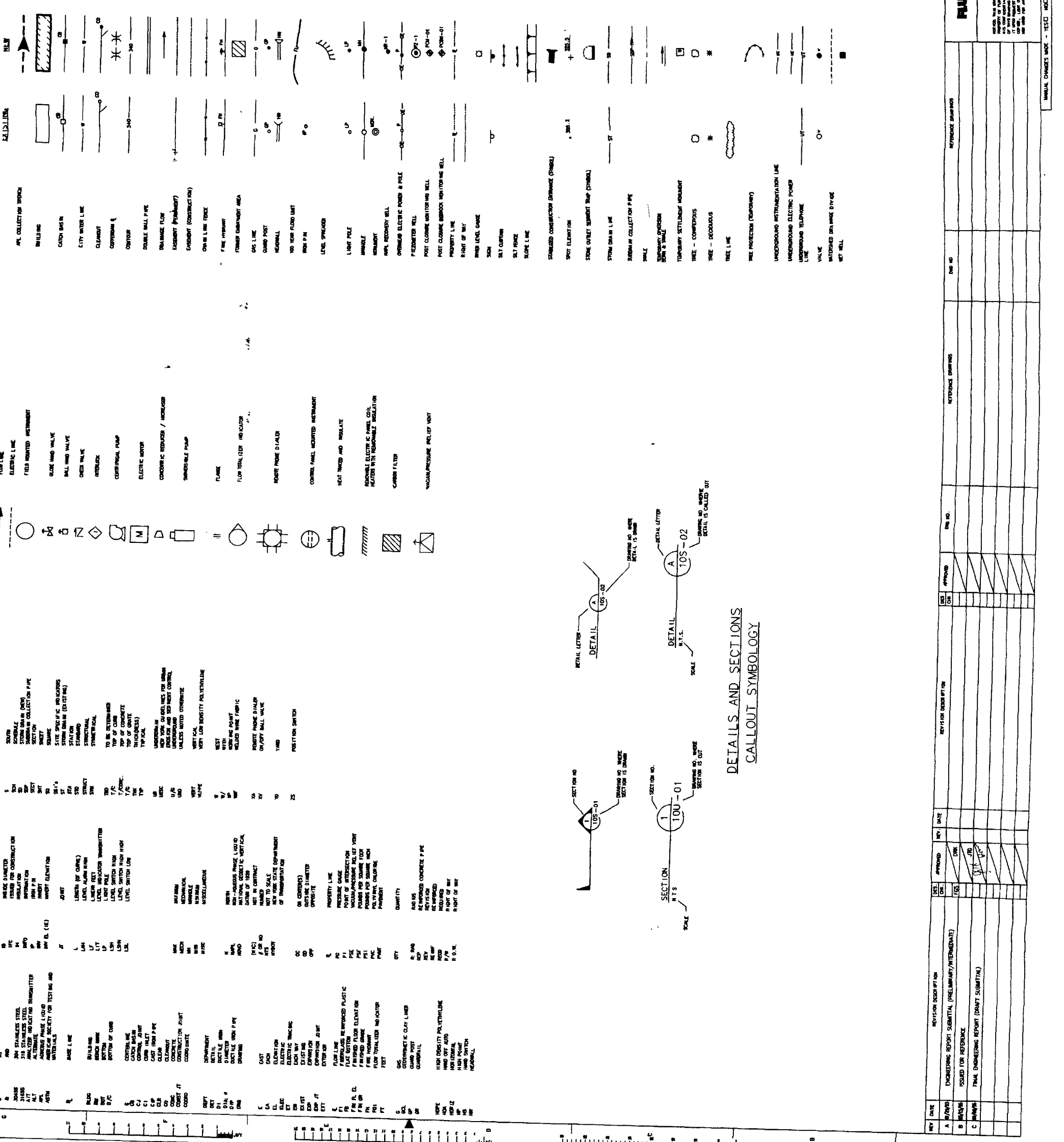
Fluor Daniel is a leader in the design and construction of industrial and process plants. The company has over 40 years of experience in the design and construction of industrial and process plants. Fluor Daniel is a leader in the design and construction of industrial and process plants. The company has over 40 years of experience in the design and construction of industrial and process plants.

OXYCHEM / QUIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

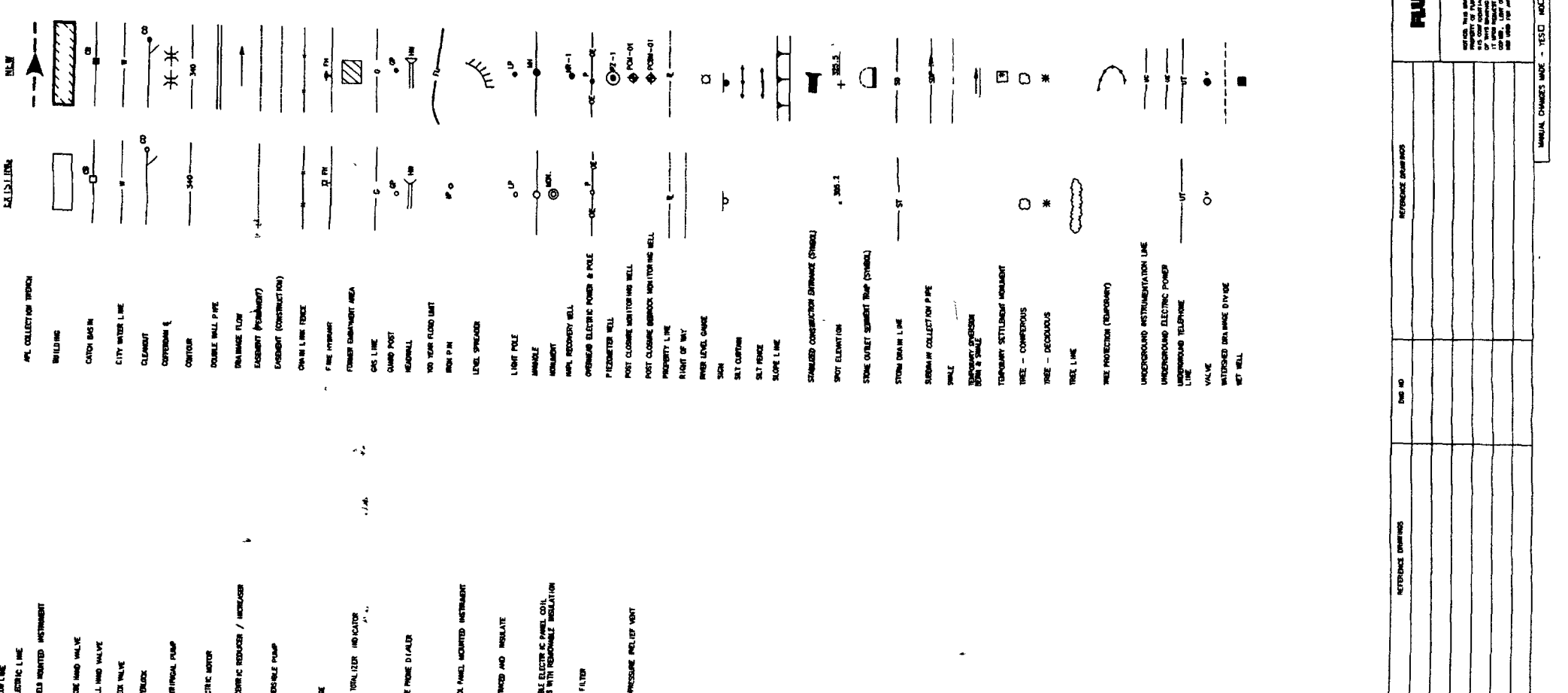
LEGEND AND ABBREVIATIONS

594000-107-02

DATE: 10/11/93
DRAWN: J. GUNAS
CHECKED: J. GUNAS
APPROVED: J. GUNAS



**DETAILS AND SECTIONS
CALLOUT SYMBOLS**

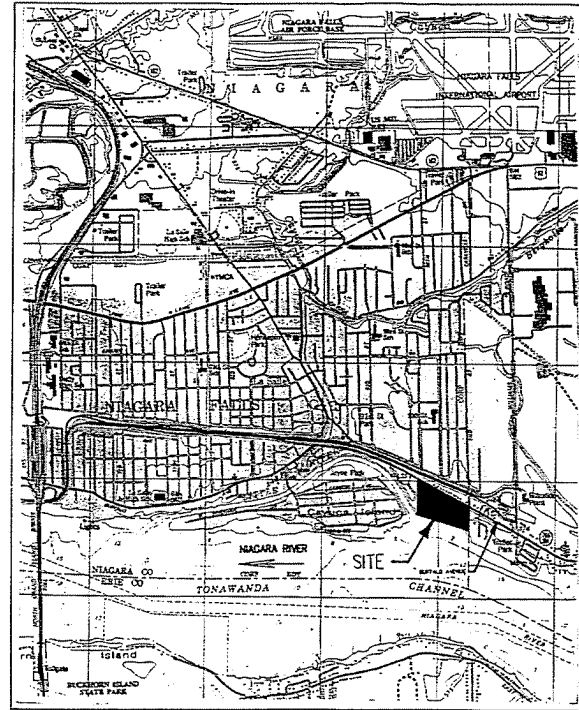


SYMBOL	DESCRIPTION
1	100-01
2	100-02
3	105-01
4	105-02

REMEDIAL DESIGN

102nd STREET LANDFILL SITE

NIAGARA FALLS, NEW YORK



REF: U.S. GEOLOGICAL SURVEY, TONAWANDA WEST QUADRANGLE
LOCATION MAP
 SCALE: 1"=2000'

PREPARED FOR

OCCIDENTAL CHEMICAL CORPORATION
 360 RAINBOW BOULEVARD SOUTH
 NIAGARA FALLS, NEW YORK 14302

OLIN CHEMICALS
 LOWER RIVER ROAD
 CHARLESTON, TENNESSEE 37310

LIST OF DRAWINGS

DWG. NO.	TITLE	DWG. NO.	TITLE
594000-102-01	COVER SHEET	594000-30K-09	SLURRY WALL PROFILE
594000-102-02	LEGEND AND ABBREVIATIONS	594000-30K-10 (DELETED)	SLURRY WALL PROFILE AND DETAIL (DELETED)
594000-30K-01	MASTER SITE REMEDIATION PLAN (80 SCALE)	594000-30K-11	UTILITY RELOCATION - SECTIONS AND DETAILS
594000-30K-01A	MASTER SITE REMEDIATION PLAN RELOCATION OF UNDERGROUND UTILITIES	594000-30K-12	PERIMETER SOILS - SECTIONS AND DETAILS
594000-30K-01B	MASTER SITE REMEDIATION PLAN PERIMETER SOILS	594000-30K-13	STORM DRAINAGE - SECTIONS AND DETAILS
594000-30K-01C	MASTER SITE REMEDIATION PLAN STORM DRAINAGE	594000-30K-14	STORM DRAINAGE - SECTIONS AND DETAILS
594000-100-01	MASTER SITE GRADING PLAN (80 SCALE)	594000-105-01	SITE DETAILS
594000-100-06	FILL PLACEMENT SEQUENCE	594000-105-02	CAPPING SYSTEM & SUBGRADE - SECTIONS AND DETAILS
594000-100-01	STAGE 1 - CONSTRUCTION SEQUENCE - SOIL EROSION & SEDIMENT CONTROL	594000-105-03	TYPICAL SITE GRADING CROSS SECTIONS
594000-100-02	STAGE 2 - CONSTRUCTION SEQUENCE - SOIL EROSION & SEDIMENT CONTROL	594000-25A-01	APL AND NAPL SYSTEMS - FLOW DIAGRAMS
594000-100-03	DRAINAGE DIVIDE PLAN	594000-25A-02	PIPING AND INSTRUMENTATION DIAGRAM - APL SYSTEM
594000-100-04	SOIL EROSION CONTROL DETAILS	594000-25A-03	PIPING AND INSTRUMENTATION DIAGRAM - NAPL SYSTEM
594000-30K-02	SITE REMEDIATION PLAN - AREA 1 (40 SCALE)	594000-150-01	LOADOUT FACILITY - GENERAL ARRANGEMENT PLAN AND FOUNDATION PLAN
594000-30K-02A	SITE REMEDIATION PLAN - AREA 1 - RELOCATION OF UNDERGROUND UTILITIES	594000-150-02	LOADOUT FACILITY - CONCRETE SECTIONS AND DETAILS
594000-30K-02B	SITE REMEDIATION PLAN - AREA 1 - PERIMETER SOILS	594000-55H-01	LOADOUT FACILITY - MECHANICAL PLAN AND DETAILS
594000-30K-02C	SITE REMEDIATION PLAN - AREA 1 - STORM DRAINAGE	594000-55H-02	LOADOUT FACILITY - PIPE SUPPORT DETAILS - SECTIONS AND DETAILS
594000-30K-03	SITE REMEDIATION PLAN - AREA 2 (40 SCALE)	594000-65U-01	ELECTRICAL POWER PLAN
594000-30K-03B	SITE REMEDIATION PLAN - AREA 2 - PERIMETER SOILS	594000-65U-02	TELEPHONE AND INSTRUMENTATION PLAN
594000-30K-04	SITE REMEDIATION PLAN - AREA 3 (40 SCALE)	594000-65U-03	ONE LINE DIAGRAM - POWER DISTRIBUTION PANEL BOARD
594000-30K-04A	SITE REMEDIATION PLAN - AREA 3 - RELOCATION OF UNDERGROUND UTILITIES		
594000-30K-04B	SITE REMEDIATION PLAN - AREA 3 - PERIMETER SOILS		
594000-30K-04C	SITE REMEDIATION PLAN - AREA 3 - STORM DRAINAGE		
594000-30K-05	SITE REMEDIATION PLAN - AREA 4 (40 SCALE)		
594000-30K-05B	SITE REMEDIATION PLAN - AREA 4 - PERIMETER SOILS		
594000-30K-05C	SITE REMEDIATION PLAN - AREA 4 - STORM DRAINAGE		
594000-100-02	SITE GRADING PLAN - AREA 1 (40 SCALE)		
594000-100-03	SITE GRADING PLAN - AREA 2 (40 SCALE)		
594000-100-04	SITE GRADING PLAN - AREA 3 (40 SCALE)		
594000-100-05	SITE GRADING PLAN - AREA 4 (40 SCALE)		
594000-30K-05	APL, NAPL AND MONITORING WELLS AND MISS. DETAILS		
594000-30K-07	UTILITY RELOCATION DETAILS		
594000-30K-08	APL COLLECTION SYSTEM - SECTIONS & DETAILS		

GENERAL NOTES:

- ALL COORDINATES AND BEARINGS ARE BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM, UNLESS NOTED OTHERWISE.
- THE EXISTING CONDITIONS, PLANIMETRIC AND TOPOGRAPHIC INFORMATION SHOWN ON THESE DRAWINGS IS TAKEN FROM THE SURVEY PREPARED BY MONTOSH & MONTOSH, P.C., DATED SEPTEMBER 28, 1992, UNLESS OTHERWISE NOTED. ELEVATIONS ARE BASED UPON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD).
- STANDARD ABBREVIATIONS AND LEGEND ARE SHOWN ON DRAWING NO. 594000-102-02.
- REFER TO EROSION CONTROL DRAWINGS (594000-100-01, 100-02 AND 100-04) FOR LOCATION OF AREAS TO BE SEEDD AND EROSION CONTROL INFORMATION.
- ALL GRADES SHOWN ARE FINISHED GRADES INCLUDING SURFACE TREATMENTS SUCH AS TOPSOIL OR PAVEMENT. MAKE ALLOWANCES DURING EARTHWORK OPERATIONS FOR THESE SURFACE TREATMENTS.

NOT FOR CONSTRUCTION

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	01/25/91	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)											
B	02/15/91	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)											

FLUOR DANIEL

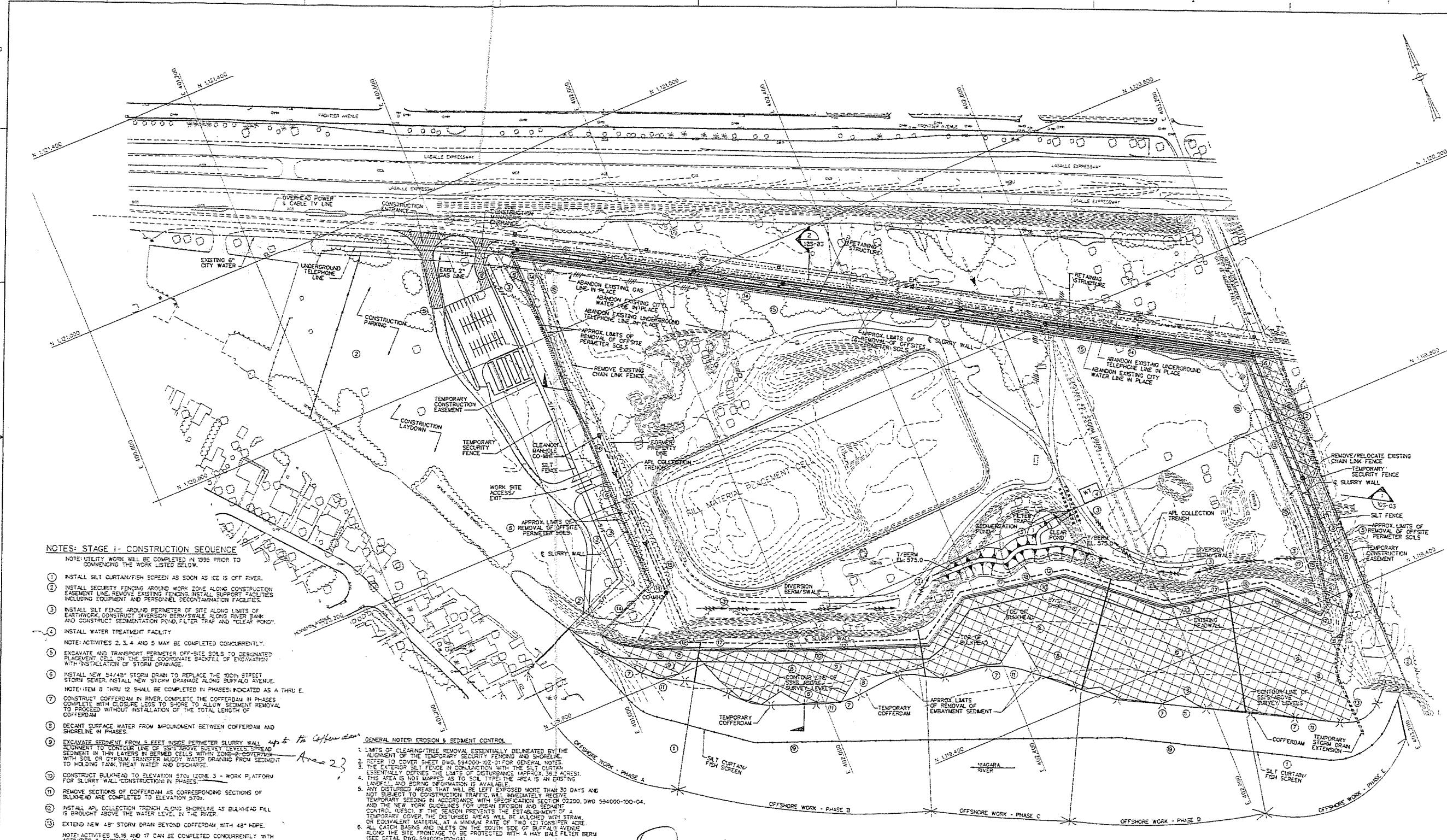
DESIGNED BY: G. KURTZ
 CHECKED BY: J. GERVAS
 SUPERVISOR: M. SHANNON
 LEAD PROJECT MANAGER: J. GERVAS

DATE: 9/24/91

OXYCHEM / OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

COVER SHEET

NOTICE: THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS LOANED TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY. AND IS CONSIDERATION OF THE LOAN HEREBY CONFIRMED THAT THE BORROWER WILL NOT REPRODUCE OR TRANSMIT THIS DRAWING IN ANY MANNER.



NOTES: STAGE I - CONSTRUCTION SEQUENCE

NOTE: UTILITY WORK WILL BE COMPLETED IN 1993 PRIOR TO COMMENCING THE WORK LISTED BELOW.

- 1. INSTALL SILT CURTAIN/FISH SCREEN AS SOON AS ICE IS OFF RIVER.
- 2. INSTALL SECURITY FENCING AROUND WORK ZONE ALONG CONSTRUCTION EASEMENT LINE REVEALS EXISTING TRENCHES. INSTALL SUPPORT FACILITIES INCLUDING EQUIPMENT AND PERSONNEL DECONTAMINATION FACILITIES.
- 3. INSTALL SILT FENCE AROUND PERIMETER OF SITE ALONG LIMITS OF EARTHWORK. CONSTRUCT DIVERSION BERM/SWALE ALONG RIVER BANK AND CONSTRUCT SEDIMENTATION POND, FILTER TRAP AND "CLEAR POND".
- 4. INSTALL WATER TREATMENT FACILITY.
- NOTE: ACTIVITIES 2, 3, 4 AND 5 MAY BE COMPLETED CONCURRENTLY.
- 5. EXCAVATE AND TRANSPORT PERIMETER OFF-SITE SOILS TO DESIGNATED PLACEMENT CELL ON THE SITE COORDINATE BANKS OF EXCAVATION WITH INSTALLATION OF STORM DRAINAGE.
- 6. INSTALL NEW 54"/48" STORM DRAIN TO REPLACE THE 100IN STREET STORM SEWER. INSTALL NEW STORM DRAINAGE ALONG BUFFALO AVENUE. NOTE: ITEM 6 THRU 12 SHALL BE COMPLETED IN PHASES INDICATED AS A THRU E.
- 7. CONSTRUCT COFFERDAM IN RIVER. COMPLETE THE COFFERDAM IN PHASES COMPLETE WITH CLOSURE LEGS TO PERMIT SOIL REMOVAL TO PROCEED WITHOUT INSTALLATION OF THE TOTAL LENGTH OF COFFERDAM.
- 8. DECONTAMINATE SURFACE WATER FROM IMPOUNDMENT BETWEEN COFFERDAM AND SHORELINE IN PHASES.
- 9. EXCAVATE SEDIMENT FROM 5 FEET INSIDE PERIMETER SLURRY WALL ALIGNMENT TO CONTROL LINE OF 33% ABOVE SHELVY LEVELS. SPREAD SEDIMENT IN THIN LAYERS IN BERMED CELLS WITHIN ZONE 2 COFFERDAM WITH SOIL OR OXYDUM TRANSFER MUDDY WATER DRAINING FROM SEDIMENT TO HOLDING TANK, TREAT WATER AND DISCHARGE.
- 10. CONSTRUCT BULKHEAD TO ELEVATION 570. (ZONE 3 - WORK PLATFORM FOR SLURRY WALL CONSTRUCTION IN PHASES).
- 11. REMOVE SECTIONS OF COFFERDAM AS CORRESPONDING SECTIONS OF BULKHEAD ARE COMPLETED TO ELEVATION 570.
- 12. INSTALL API COLLECTION TRENCH ALONG SHORELINE AS BULKHEAD FILL IS BROUGHT ABOVE THE WATER LEVEL IN THE RIVER.
- 13. EXTEND NEW 48" STORM DRAIN BEYOND COFFERDAM WITH 48" HOPE. NOTE: ACTIVITIES 16, 18 AND 17 CAN BE COMPLETED CONCURRENTLY WITH ACTIVITIES 8 THROUGH 12.
- 14. INSTALL OFFSHORE SECTIONS OF PERIMETER SLURRY WALL AND API COLLECTION TRENCH.
- 15. INSTALL RETAINING WALL ALONG BUFFALO AVENUE. PLACE FILL AND FORM PERIMETER BERM IN ZONE 1. INSTALL CAPPING SYSTEM LINER, DRAINAGE ZONE AND VEGETATION ZONE ON EXTERIOR SLOPE OF BERM AND SEED.
- 16. INSTALL PERMANENT FENCE ALONG BUFFALO AVENUE.
- 17. INSTALL OFFSHORE SECTION OF PERMANENT SLURRY WALL.
- 18. COMPLETE BULKHEAD (AREA 5) TO FINISH GRADE AND PLACE RIPRAP ON FACE.
- 19. REMOVE SILT CURTAIN.

GENERAL NOTES: EROSION & SEDIMENT CONTROL

- 1. LIMITS OF CLEARING/TREE REMOVAL ESSENTIALLY DELINEATED BY THE ALIGNMENT OF THE TEMPORARY SECURITY FENCING AND SHORELINE.
- 2. REFER TO COVER SHEET DWG. 594000-100-01 FOR GENERAL NOTES.
- 3. THE EXTERIOR SILT FENCE IN CONJUNCTION WITH THE SILT CURTAIN ESSENTIALLY DEFINES THE LIMITS OF DISTURBANCE (APPROX. 36.3 ACRES). THIS AREA IS NOT MAPPED AS TO SOIL TYPES. THE AREA IS AN EXISTING LANDFILL AND BORING INFORMATION IS AVAILABLE.
- 4. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING IN ACCORDANCE WITH SPECIFICATION SECTION 02200, DWG. 594000-100-04, AND THE NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC). IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW OR EQUIVALENT MATERIAL, AT A MINIMUM RATE OF TWO (2) TONS PER ACRE.
- 5. ALL CATCH BASINS AND INLETS ON THE SOUTH SIDE OF BUFFALO AVENUE ALONG THE SITE FRONTAGE TO BE PROTECTED WITH A HAY BALT FILTER BERM (SEE DETAIL DWG. 594000-100-04).
- 6. INSTALL EROSION SEDIMENT CONTROL MEASURES INDICATED HEREIN AND ON DWG. 594000-100-04 FOR SEEDING PLAN. REFER TO DWG. 594000-100-04 FOR DETAILS AND SPECIFICATIONS.
- 7. MAINTENANCE OF ALL EROSION CONTROL MEASURES TO BE IN ACCORDANCE WITH THE NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
- 8. THE EXISTING FINAL SURFACE OF THE SITE OTHER THAN THOSE AREAS COVERED BY PERMANENT ROADWAYS AND STRUCTURES ARE TO BE PERMANENTLY SEEDED IN ACCORDANCE WITH SPECIFICATION SECTION 02200 AND AS NOTED ON DWG. 594000-100-04.
- 9. ONE HUNDRED YEAR FLOOD ELEVATION IS 566 FEET NATIONAL GEODETIC VERTICAL DATUM (NOVEMBER 1987 FEDERAL SURVEILLANCE RATE MAP OUT OF NIAGARA FALLS, N.Y. PANEL NO. 180500 5003 G). FIFTEEN FEET SHALL BE CONSTRUCTED EQUAL TO STORM OUTLET SEDIMENT TRAPS AREA-5.3, L-32 FEET, CASEY, EL. -573.0.

44
Water Location of
to be met fairly

NOT FOR CONSTRUCTION

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE
A	02/28/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)		OK					
B	03/09/93	FINAL ENGINEERING REPORT (FINAL SUBMITTAL)		OK					

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE

FLUOR DANIEL

APPROVED BY
 E. SZYMONIAK/J. GERVASIS
 CHECKED BY
 J. GERVASIS
 SUPERVISOR
 J. GERVASIS
 DATE PREPARED
 DATE APPROVED
 PROJECT
 R. MARGUCCO
 CLIENT
 OXYCHEM/OLIN

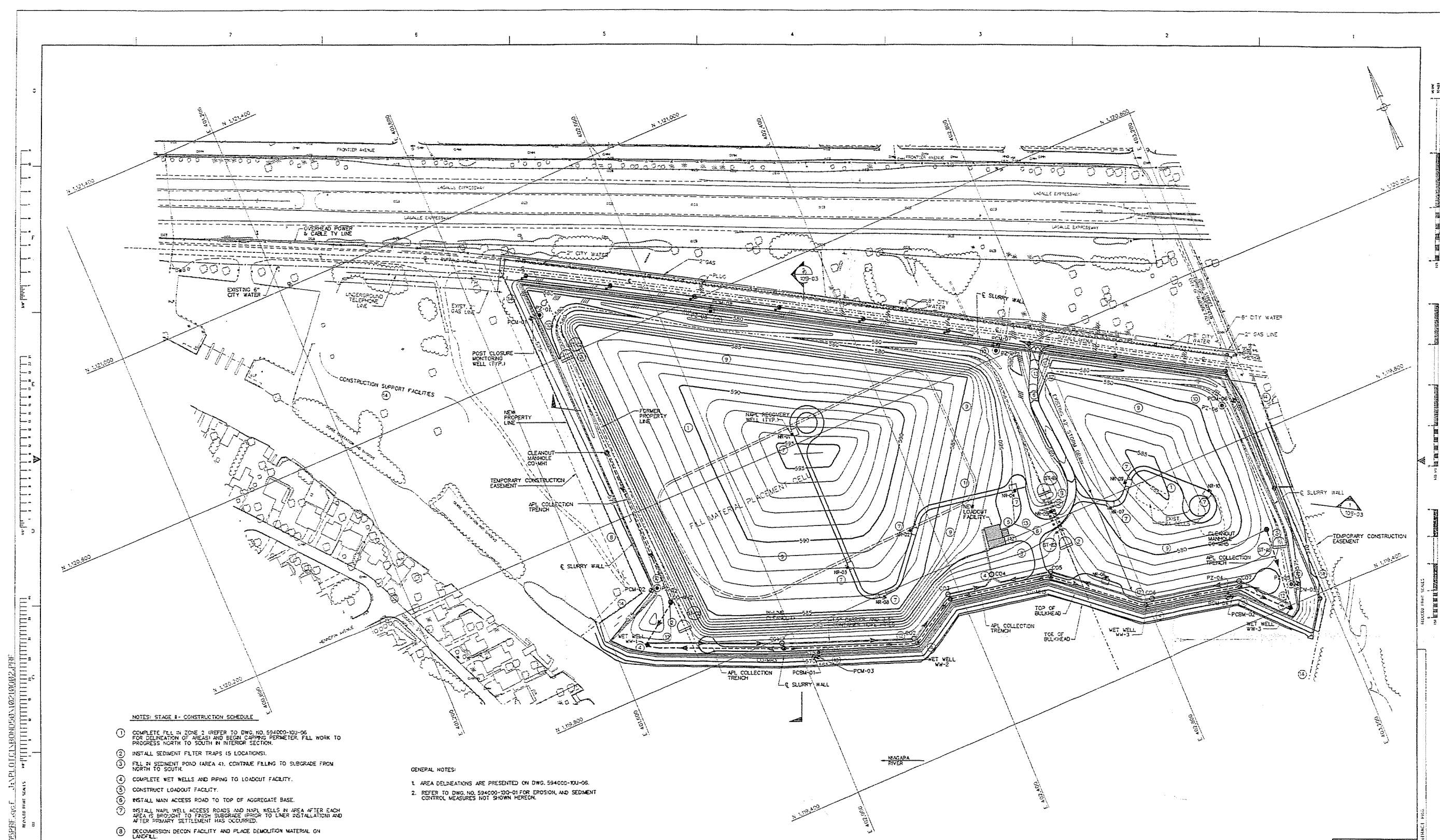
OXYCHEM/OLIN
 REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

STAGE I - CONSTRUCTION SEQUENCE
 EROSION & SEDIMENT CONTROL

SCALE: 1" = 80'
 DRAWING NO.: 594000-100-01

FILED: SEP. 15. 1993

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- NOTES: STAGE II - CONSTRUCTION SCHEDULE**
1. COMPLETE FILL IN ZONE 2 (REFER TO DWG. NO. 594000-100-06 FOR DELINEATION OF AREAS) AND BEGIN CAPPING PERIMETER. FILL WORK TO PROGRESS NORTH TO SOUTH IN INTERIOR SECTION.
 2. INSTALL SEDIMENT FILTER TRAPS (5 LOCATIONS).
 3. FILL IN SEDIMENT POND (AREA 4). CONTINUE FILLING TO SUBGRADE FROM NORTH TO SOUTH.
 4. COMPLETE WET WELLS AND PIPING TO LOADOUT FACILITY.
 5. CONSTRUCT LOADOUT FACILITY.
 6. INSTALL MAIN ACCESS ROAD TO TOP OF AGGREGATE BASE.
 7. INSTALL NAPL WELL ACCESS ROADS AND NAPL WELLS IN AREA AFTER EACH AREA IS BROUGHT TO FINISH SUBGRADE PRIOR TO LINER INSTALLATION AND AFTER PRIMARY SETTLEMENT HAS OCCURRED.
 8. DECOMMISSION DECON FACILITY AND PLACE DEMOLITION MATERIAL ON LANDFILL.
 9. FINISH INSTALLATION OF CAP (INCLUDING SEED, FERTILIZER AND MULCH).
 10. INSTALL POST-CLOSURE MONITORING WELLS/PNEZOMETERS.
 11. INSTALL TELEPHONE/INSTRUMENTATION.
 12. INSTALL POWER FEED TO LOADOUT FACILITY AND APL WELLS.
 13. PAVE ACCESS ROADS.
 14. DEMOBILIZATION.

GENERAL NOTES:

1. AREA DELINEATIONS ARE PRESENTED ON DWG. 594000-100-06.
2. REFER TO DWG. NO. 594000-200-01 FOR EROSION AND SEDIMENT CONTROL MEASURES NOT SHOWN HEREIN.

NOT FOR CONSTRUCTION

0 80 160 FT.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWING	END. NO.	REFERENCE DRAWING
A	01/28/95	ENGINEERING REPORT (SUBMITTAL - PRELIMINARY/INTERIM)	JTG	JTG									
B	03/06/95	FINAL ENGINEERING REPORT (SUBMITTAL)	JTG	JTG									

FLUOR DANIEL

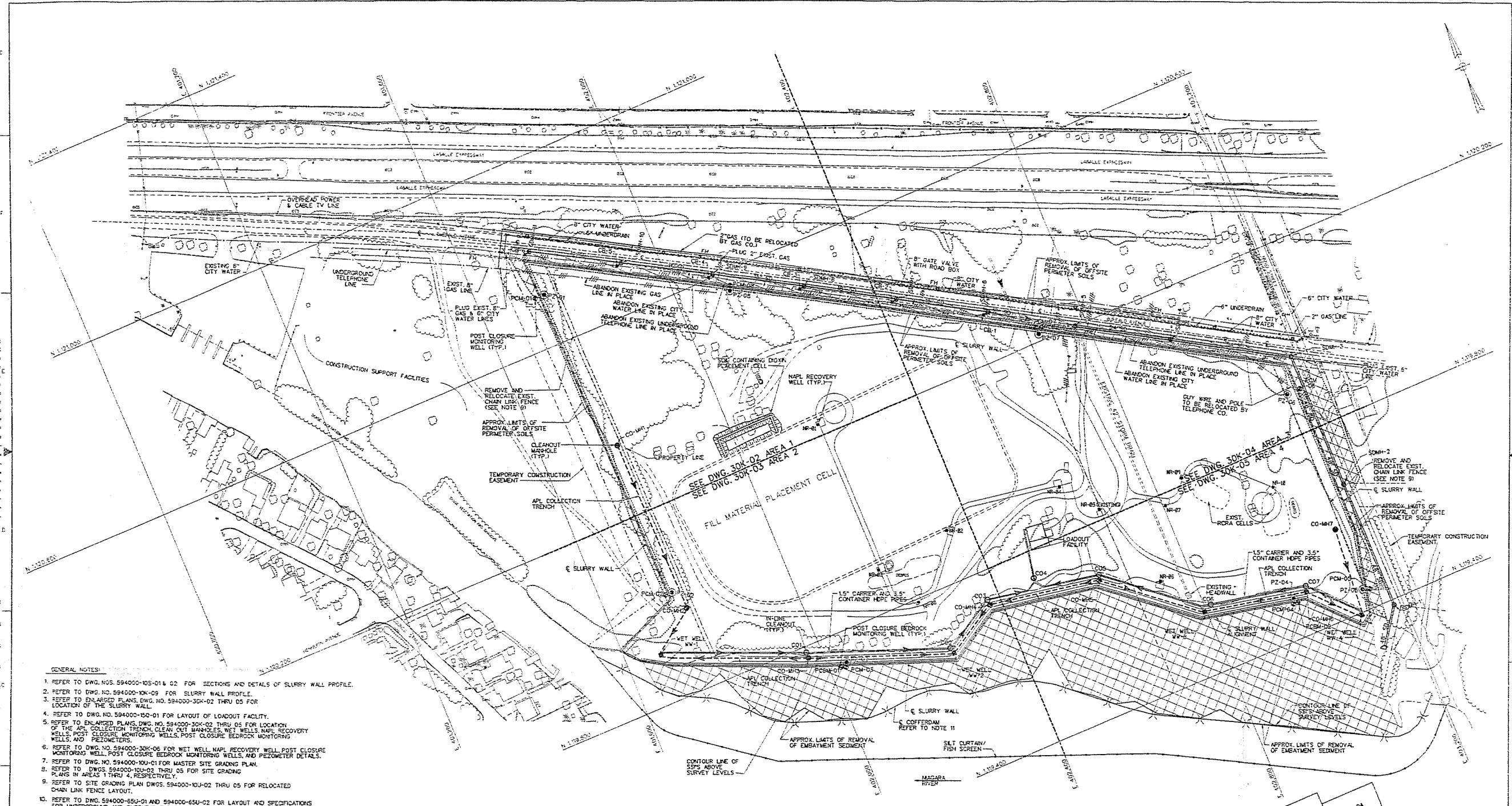
DESIGNED BY: T. SZYMONIAK
 CHECKED BY: J. GERVAIS
 SUPERVISOR: J. GERVAIS
 PROJECT: R. MARGUCCIO
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

STAGE II - CONSTRUCTION SEQUENCE
 EROSION & SEDIMENT CONTROL

SCALE: 1" = 80'
 DRAWING NO.: 594000-100-02

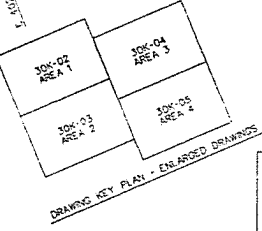
594000-100-02.dwg
 12/15/95
 JTG
 102nd Street Landfill Site Remedial Design
 Erosion & Sediment Control
 Stage II - Construction Sequence



- GENERAL NOTES:**
- REFER TO DWG. NOS. 594000-105-01 & 02 FOR SECTIONS AND DETAILS OF SLURRY WALL PROFILE.
 - REFER TO DWG. NO. 594000-106-09 FOR SLURRY WALL PROFILE.
 - REFER TO ENLARGED PLANS DWG. NO. 594000-30K-02 THRU 05 FOR LOCATION OF THE SLURRY WALL.
 - REFER TO DWG. NO. 594000-150-01 FOR LAYOUT OF LOADOUT FACILITY.
 - REFER TO ENLARGED PLANS DWG. NO. 594000-30K-02 THRU 05 FOR LOCATION OF THE APL COLLECTION TRENCH, CLEAN OUT MANHOLES, WET WELLS, POST CLOSURE MONITORING WELLS, POST CLOSURE BEDROCK MONITORING WELLS, AND PEZOMETERS.
 - REFER TO DWG. NO. 594000-30K-06 FOR WET WELL NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, POST CLOSURE BEDROCK MONITORING WELLS, AND PEZOMETER DETAILS.
 - REFER TO DWG. NO. 594000-100-01 FOR MASTER SITE GRADING PLAN.
 - REFER TO DWGS. 594000-100-02 THRU 05 FOR SITE GRADING PLANS IN AREAS 1 THRU 4, RESPECTIVELY.
 - REFER TO SITE GRADING PLAN DWGS. 594000-100-02 THRU 05 FOR RELOCATED CHAIN LINK FENCE LAYOUT.
 - REFER TO DWG. 594000-650-01 AND 594000-650-02 FOR LAYOUT AND SPECIFICATIONS FOR UNDERGROUND AND OVERHEAD ELECTRIC POWER LINES AND UNDERGROUND TELEPHONE CABLES.
 - REFER TO DWGS. 594000-30K-03 AND 594000-30K-05 FOR LOCATION OF COFFERDAM AND SILT CURTAIN.
 - REFER TO DWGS. 594000-30K-02B, 02C, 04B AND 05B FOR PLANS SHOWING REMOVAL/CONSOLIDATION OF PERIMETER SOILS FOR AREAS 1 THRU 4, RESPECTIVELY.
 - REFER TO DWGS. 594000-30K-02C, 04C AND 05C FOR STORM DRAIN LAYOUT IN AREAS 1, 3, & 4, RESPECTIVELY.
 - REFER TO DWGS. 594000-30K-03 AND 05 FOR DELINEATION OF THE LIMITS OF REMOVAL OF OFFSHORE SEDIMENT.
 - REFER TO DWGS. 594000-30K-02A AND 04A FOR PLANS SHOWING RELOCATION OF UNDERGROUND UTILITIES FOR AREAS 1 AND 3, RESPECTIVELY.
 - REFER TO DWG. 594000-30K-11 FOR UTILITY RELOCATION SECTIONS AND DETAILS.
 - REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION DETAILS.
 - REFER TO DWG. 594000-102-02 FOR LEGEND & ABBREVIATIONS.

LIST OF EXISTING UTILITIES

UTILITY	OWNING UTILITY/AGENCY
1. CITY WATER	CITY OF NIAGARA FALLS, NEW YORK
2. GAS	NATIONAL FUEL GAS CORPORATION
3. TELEPHONE	NEW YORK TELEPHONE
4. POWER	NIAGARA MOHAWK POWER CORPORATION
5. CABLE TV	NIAGARA FRONTIER CABLE TELEVISION
6. STORM SEWER	CITY OF NIAGARA FALLS AND TOWN OF WHEATFIELD, NY



REV.	DATE	REVISION DESCRIPTION	DES.	APP. DATE	REV. DATE	REVISION DESCRIPTION	DES.	APP. DATE	ENG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	01/28/95	ENGINEERING REPORT SUBMITAL (PRELIMINARY/INTERMEDIATE)	JIC									
B	6/25/95	DELETED SILT CURTAIN, ROAD OPTION, SLURRY WALL ALIGNMENT, CLEAN UP NOTES & 1-6 ISSUED FOR REVIEW AND COMMENT-RELOCATION OF UNDERGROUND UTILITIES AND REMOVAL/CONSOLIDATION OF PERIMETER SOILS	JIC									
C	09/26/95	FINAL ENGINEERING REPORT (FINAL SUBMITAL)	JIC									

FLUOR DANIEL

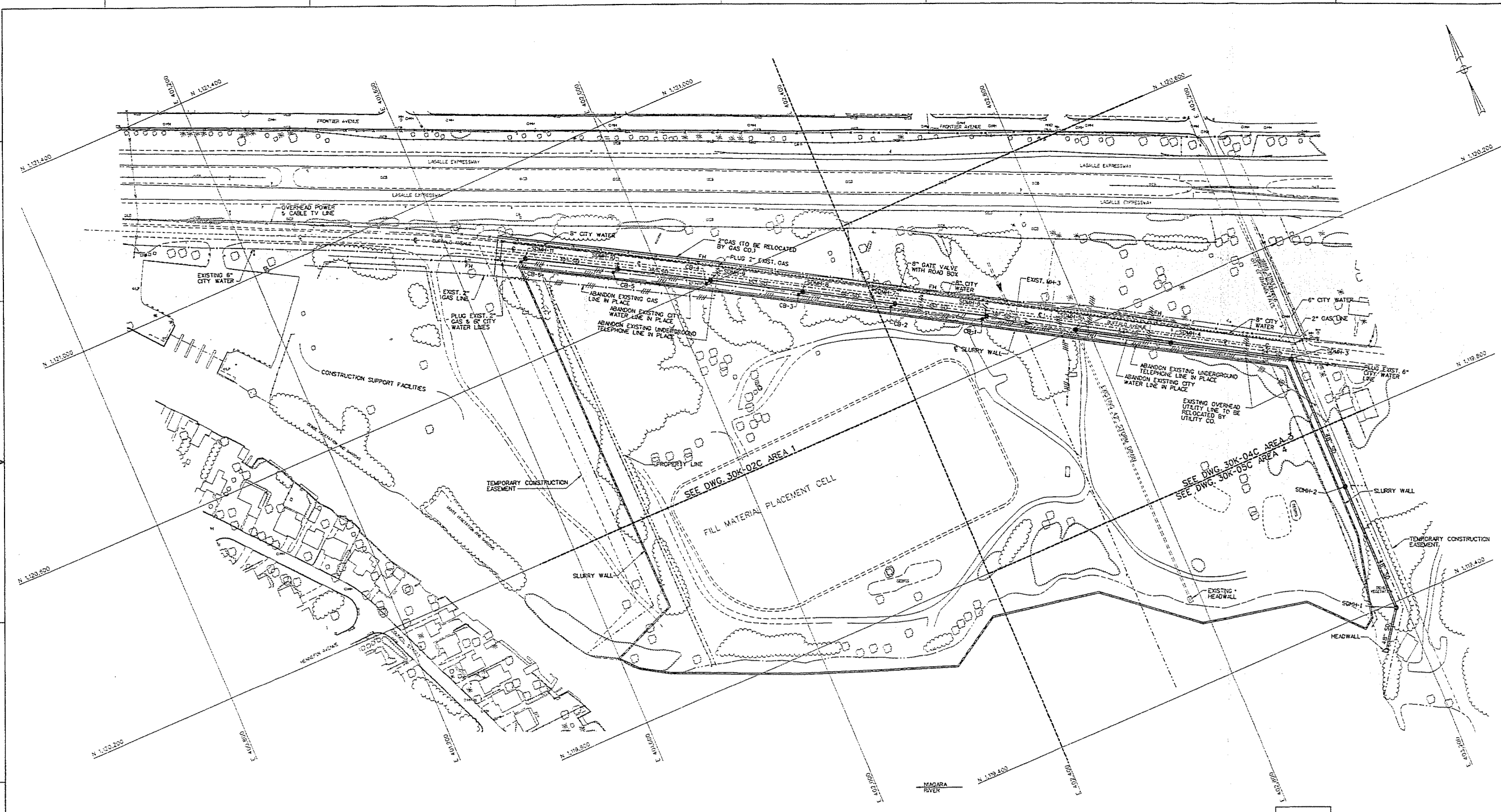
DESIGNED BY: U. KATHARAKA/BMB
 CHECKED BY: J. GERVAIS
 DRAWN BY: J. GERVAIS
 DATE: 09/26/95
 PROJECT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

MASTER SITE REMEDIATION PLAN

SCALE: 1"=80'
 DRAWING NO.: 594000-30K-01
 SHEET: C

FILE: 594000-30K-01.dwg
 PLOT: 09/26/95 10:00 AM
 PLOTTER: HP-GL/2500
 PLOT SCALE: 1"=80'
 PLOT SHEETS: 1 OF 1
 PLOT STATUS: SUCCESSFUL



MONUMENT TABULATION
(BENCH MARKS)

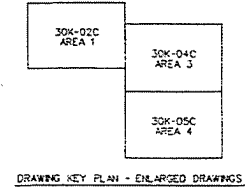
NORTHWEST MONUMENT (HAD 27)	NYSPC	NORTH 1120,792.586 EAST 401,761.139 ELEV. NOV 929 - 573.22
NORTHEAST MONUMENT (HAD 27)	NYSPC	NORTH 1119,955.911 EAST 403,165.131 ELEV. NOV 929 - 574.86

GENERAL NOTES:

1. REFER TO DWGS. 594000-30K-02C, 04C AND 05C FOR PLANS DEPICTING STORM DRAINAGE LAYOUT.
2. REFER TO DWGS. 594000-30K-13 AND 14 FOR STORM DRAINAGE DETAILS.
3. REFER TO DWG. 594000-30K-11 FOR TYPICAL SECTION-STORM DRAINAGE.
4. REFER TO DWG. 594000-102-02 FOR LEGEND & ABBREVIATIONS.

LIST OF EXISTING UTILITIES

UTILITY	OWNING UTILITY/AGENCY
1. CITY WATER	CITY OF NIAGARA FALLS, NEW YORK
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4. POWER	NIAGARA MOHAWK POWER CORPORATION
5. CABLE TV	NIAGARA FRONTIER CABLE TELEVISION
6. STORM SEWER	CITY OF NIAGARA FALLS AND TOWN OF WHEATFIELD, NY



DRAWING KEY PLAN - ENLARGED DRAWINGS

0 50 100 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV. DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	5/29/74	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)							594000-02-02	LEGEND AND ABBREVIATIONS		
B	5/29/74	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)										
1	5/6/75	FINAL ENGINEERING REPORT (HAT SUBMITTED)										

FLUOR DANIEL

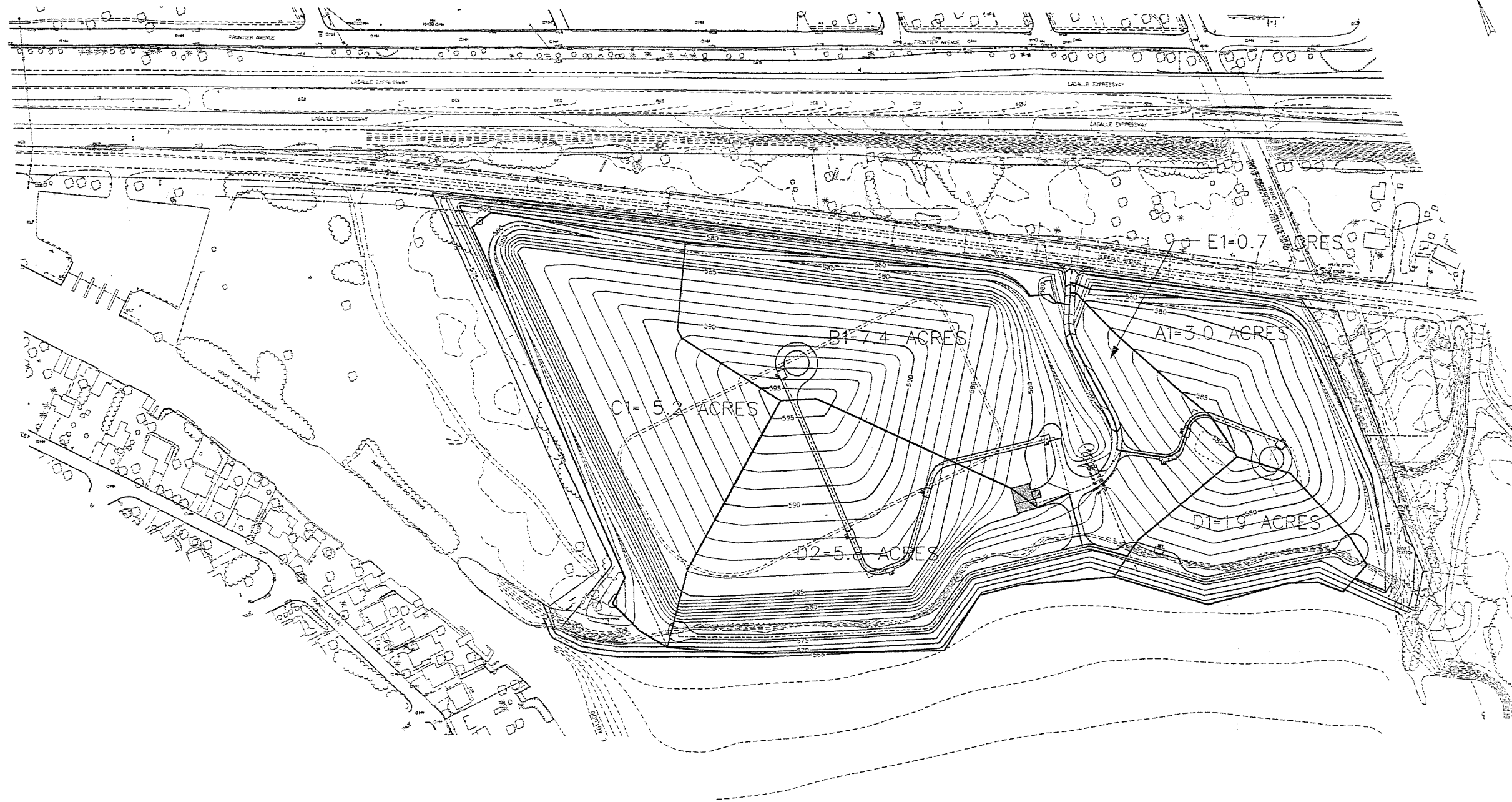
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 APPROVED BY: J. GERVAIS
 DATE: 5/10/74
 DRAWN BY: R. MARGUSCO
 DATE: 5/10/74
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

MASTER SITE REMEDIATION PLAN
 STORM DRAINAGE

SCALE: 1"=80'
 DRAWING NUMBER: 594000-30K-01C
 SHEET: 1



#	AREA ACRES	LONGEST OVERLAND DISTANCE	SWALE	SWALE DIRECTION	INTENSITY INCHES PER HOUR	10 YEAR STORM EVENT			
						PEAK DISCHARGE CFS	VELOCITY FT/SEC	SWALE SLOPE PERCENT	SWALES DEPTH FT
A1	3.0	220'	975	EAST	4.8	12.8	1.5	0.5	0.85
B1	7.4	150'	2270	CENTER	3.8	21.1	1.8	0.5	1.1
C1	5.2	150'	2290	WEST	4.0	14.8	1.5	0.5	0.95
D1	1.9	150'	-	-	6.0	-	-	-	-
D2	5.8	150'	-	-	6.0	26.1	-	-	-
E1	1.8	300'	-	NORTHWEST	4.8	1.5	0.4	-	0.93

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REV. DATE	REVISION DESCRIPTION	DES. NAME	APPROVED	REV. DATE	REVISION DESCRIPTION	DES. NAME	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	10/26/95 ENGINEERING REPORT SUBMITTAL (PRELIMINARY REVISIONS)	JTG	[Signature]								
B	11/1/95 FINAL ENGINEERING REPORT (FINAL SUBMITTAL)	JTG	[Signature]								



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 CHECKED BY: J. GERVAIS
 SUPERVISOR: J. GERVAIS
 PROJECT: R. MARQUICCI
 CLIENT: OXYCHEM/OLIN

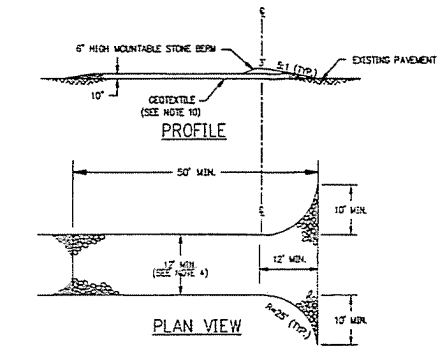
OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

DRAINAGE DIVIDE PLAN

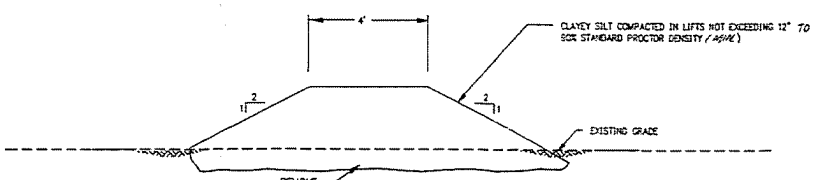
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MANUAL CHANGES MADE - YES NO DWG. FILE UPDATED - YES NO MODEL UPDATED - YES NO CAD DRAFTER: [Name]

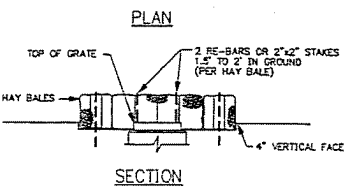
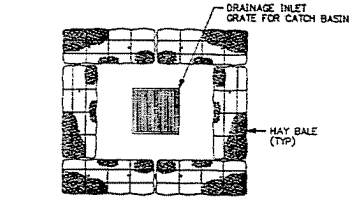
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 CHECKED: JTG
 DATE: 11/1/95
 SCALE: AS SHOWN
 PROJECT: 102nd STREET LANDFILL SITE
 DRAWING: 594000-100-03



TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



TYPICAL DIVERSION BERM/DIKE DETAIL
N.T.S.



TYPICAL HAY BALE FILTER BERM - CATCH BASIN DETAIL
N.T.S.

PERMANENT SEEDING MIXTURE AND NOTES

SEED MIXTURE	RATE PER ACRE (LBS)	RATE PER 1,000 SQFT (LBS)
MIXTURE		
BIRDFOOT TREFOIL OR LADINO CLOVER	8	0.20
TALL FESCUE OR SMOOTH BROMEGRASS	20	0.45
REDTOP	2	0.05
TOTAL	30	0.70

INOCULATE WITH APPROPRIATE INOCULUM IMMEDIATELY PRIOR TO SEEDING. LADINO OR COMMON WHITE CLOVER MAY BE SUBSTITUTED FOR BIRDFOOT TREFOIL AND SEEDED AT THE SAME RATE.
PERENNIAL RYEGRASS MAY BE SUBSTITUTED FOR THE REDTOP BUT INCREASE SEEDING RATE TO 5 LBS/ACRE (0.1 LB/1,000 SQFT).

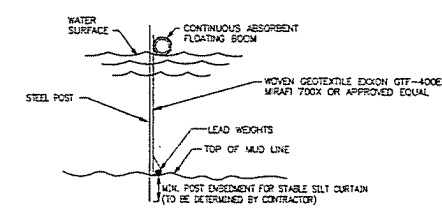
- NOTES:
- TIME OF PLANTING
FALL PLANTING IS PREFERRED. SEED AFTER AUGUST 15. IN THE SPRING PLANT UNTIL MAY 15.
IF SEEDING IS DONE BETWEEN MAY 15 AND AUGUST 15, IRRIGATION MAY BE NECESSARY TO INSURE A SUCCESSFUL SEEDING.
 - SITE PREPARATION
A. INSTALL NEEDED WATER AND EROSION CONTROL MEASURES AND BRING AREA TO BE SEEDED TO DESIRED GRADES.
B. TOPSOIL TO BE A MINIMUM OF 4" THICK. TOPSOIL MATERIAL AND INSTALLATION TO BE IN ACCORDANCE WITH THE NY GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
C. PREPARE SEEDBED LOOSENING SOIL TO A DEPTH OF 6 INCHES BY TILLING DIAMETERLY BEFORE GRASS SEEDING TAKES PLACE TO PROMOTE GERMINATION AND ESTABLISHMENT.
D. REMOVE ALL STONES OVER 1 INCH IN DIAMETER, STICKS AND FOREIGN MATTER FROM THE SURFACE.
E. LIME TO PH OF 6.5.
F. FERTILIZE AS REQUIRED IN ACCORDANCE WITH SOIL TEST ANALYSIS CONDUCTED BY AN INDEPENDENT SOIL TESTING LAB.
G. INCORPORATE LIME AND FERTILIZER IN TOP 2-4 INCHES OF TOPSOIL.
H. SMOOTH AND FIRM THE SEEDBED.

- PLANTING
USE A COMPACTION TYPE SEEDER IF POSSIBLE. SEED TO A DEPTH OF 1/8 TO 1/4 INCH. IF SEED IS TO BE BROADCAST, COMPACTION OR ROLL AFTER SEEDING. IF HYDROSEEDING, LIME AND FERTILIZER MAY BE APPLIED THROUGH THE SEEDER AND ROLLING IS NOT PRACTICAL.
- MULCHING
MULCH ALL SEEDED AREAS IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS FOR MULCHING ON PAGE 3.31 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
- SELECT ADAPTED SEED VARIETIES FROM THE UESC GUIDELINES.
- REPEAT FERTILIZING
THREE TO FOUR WEEKS AFTER GERMINATION (SPRING SEEDINGS) APPLY 1 POUND NITROGEN/1,000 SQUARE FEET USING A COMPLETE FERTILIZER WITH A 2-1-1 OR 4-1-3 RATIO OR AS RECOMMENDED BY SOIL TEST RESULTS. SUMMER AND EARLY FALL SEEDINGS APPLY AS ABOVE UNLESS AIR TEMPERATURES ARE ABOVE 85°F FOR EXTENDED PERIOD. WAIT UNTIL HEAT WAVE IS OVER TO FERTILIZE. LATER FALL/WINTER SEEDINGS, FERTILIZE IN SPRING.

- RESTRICT USE
NEW SEEDINGS SHOULD BE PROTECTED FROM USE FOR ONE FULL YEAR TO ALLOW DEVELOPMENT OF A DENSE SOIL WITH GOOD ROOT STRUCTURE.
- SWALES
THE ABOVE SEED MIXTURE IS COMPATIBLE WITH WATERWAYS. SWALES AND OUTLETS SHALL BE PROTECTED AGAINST EROSION BY VEGETATIVE MEANS AS SOON AFTER CONSTRUCTION AS PRACTICAL. VEGETATION MUST BE WELL ESTABLISHED BEFORE DIVERSIONS OR OTHER CHANNELS ARE OUTLETED INTO THEM. USE JUTE MATTING, EXCELISOR MATTING OR SEEDING OF CHANNELS TO PROVIDE EROSION PROTECTION AS SOON AFTER CONSTRUCTION AS POSSIBLE.
SWALE CENTERS OR CRITICAL AREAS MAY BE SEEDED. REFER TO THE STANDARD AND SPECIFICATION FOR STABILIZATION WITH SOO ON PAGE 2.13 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL. BE SURE SOO IS SECURELY ANCHORED USING STAPLES OR STAKES.
- MAINTENANCE
FERTILIZE LIME AND MOW AS NEEDED TO MAINTAIN DENSE PROTECTIVE VEGETATIVE COVER.
SWALES SHALL NOT BE USED FOR ROADWAYS.
IF RILLS DEVELOP IN THE BOTTOM OF A SWALE, PROMPT ATTENTION IS REQUIRED TO AVOID THE FORMATION OF GULLIES. EITHER HAY OR STRAW BALES, RIPRAP, EXCELISOR OR FILTER FABRIC MAY BE USED DURING THE ESTABLISHMENT PHASE. SEE FIGURE 3.1, FILL MAINTENANCE MEASURES ON PAGE 3.27 OF THE N.Y. GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL. SPACING BETWEEN FILL MAINTENANCE BARRIERS SHALL NOT EXCEED 100 FEET.

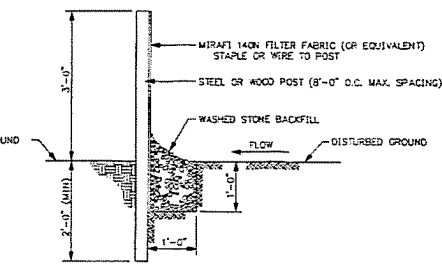
CONSTRUCTION NOTES

- CONSTRUCT IN ACCORDANCE WITH THE NY GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL (UESC).
- STONE SIZE - USE 2" STONE.
- LENGTH - NOT LESS THAN 50 FEET.
- THICKNESS - NOT LESS THAN TEN (10) INCHES.
- WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH PROVIDE FOR INGRESS OR EGRESS. TWENTY-FOUR (24) FOOT MIN. IF SINGLE ENTRANCE TO SITE.
- THE GEOTEXTILE WILL BE PLACED OVER THE ENTRANCE AREA PRIOR TO PLACING OF STONE. THE GEOTEXTILE SHALL BE WOVEN FABRIC EQUIVALENT TO MIRAFI 600X OR NONWOVEN FABRIC EQUIVALENT TO TREVIRA SPUNBOUND 1155. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND MILDWEAR AND ROT RESISTANT.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

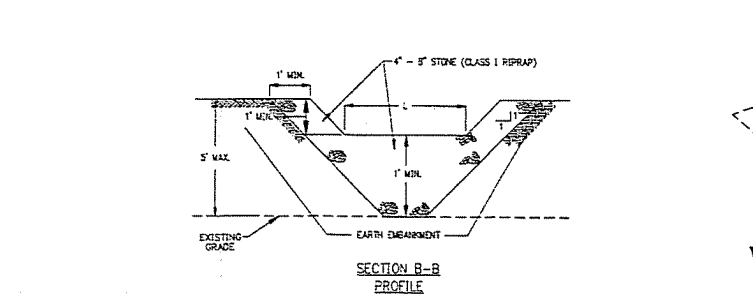
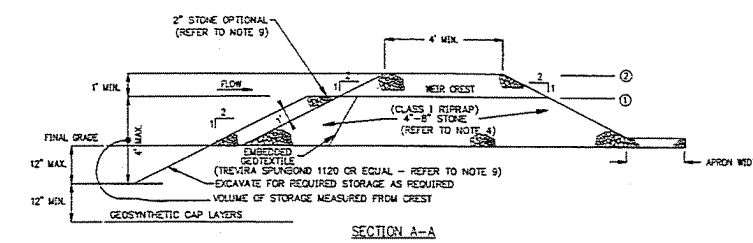


SILT CURTAIN DETAIL (RIVER)
N.T.S.

- THE SILT CURTAIN SHALL BE PROPERLY SECURED AND STAKED (MAXIMUM 4' SPACING) AT SUFFICIENT INTERVALS TO PREVENT MIGRATION OF SEDIMENTS.
- INSTALLATION OF SILT CURTAIN TO WITHSTAND ANY ANTICIPATED AQUATIC VEGETATION INTERFERENCE CURRENTS, AND WAVE ACTION DURING THE DURATION OF ITS USE.
- MAINTAIN SILT CURTAIN UNTIL COFFERDAM IS REMOVED.
- WATER DEPTH VARIATIONS. REFER TO BATHYMETRIC SURVEY OF THE NIAGARA RIVER, 102ND STREET LANDFILL SITE, JULY, 1996.



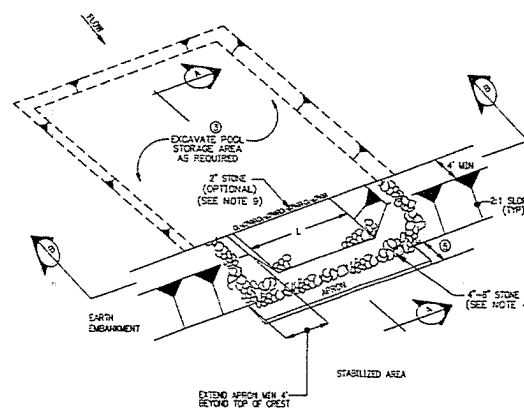
TYPICAL SILT FENCE DETAIL
N.T.S.



SECTION A-A PROFILE
SECTION B-B PROFILE

CONSTRUCTION NOTES FOR STONE OUTLET SEDIMENT TRAP

- AREA UNDER EMBANKMENT SHALL BE CLEARED, CULDED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
- THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER COLLECTABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
- THE STONE USED IN THE STRUCTURE SHALL BE CLASS 1 RIPRAP AS SPECIFIED IN SPED SEC 02200 WITH A 1" THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR PROVIDE AN EMBEDDED GEOTEXTILE IN THE RIPRAP.
- SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSION WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH TO THE TRAP.
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION IS MINIMIZED.
- THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED WITH ESTABLISHED VEGETATION.
- OPTION: A ONE FOOT LAYER OF 2" STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.
- ADDITIONAL SEDIMENT TRAPS MAY BE USED UPSTREAM AND SIZED ACCORDINGLY TO CONTROL SMALLER WATERSHEDS.
- FOR LOCATION OF STONE OUTLET SEDIMENT TRAPS, REFER TO DMS 594000-100-01.



STONE OUTLET SEDIMENT TRAP DETAILS
N.T.S.

SWALE	WATERSHED AREA, ACRES	MINIMUM VOLUME, CU. YD.	MINIMUM OUTLET CREST LENGTH, L. FEET	CREST ELEVATION (1)	EMBANKMENT ELEV. (2)	POOL AREA, FT ² X DEPTH, FT. (3)	DESIGN DEPTH OF SEDIMENT, FT. (4)	APRON WIDTH, FT. (5)
A1	3.0	207	32.5 1/2	578.5	578.0	5460	2.1	4.0
B1	5.0	402	30.0 3/4	578.5	578.0	10335	2.0	4.0
B2	1.4	102 1/2	9.0	577.0	578.0	2760	1.7	4.0
C1	2.0	147 1/2	21.0 1/2	578.5	577.5	3520	0.7	4.0
C2	3.2	214	32.0 1/4	579.5	580.5	5500	1.3	4.0

REFER TO DMS 594000-100-01 THROUGH 100-03

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	01/20/00	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)											
B	05/20/00	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)											

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CHECKED BY: J. GERMAN
DATE: 01/20/00

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SOIL EROSION CONTROL DETAILS

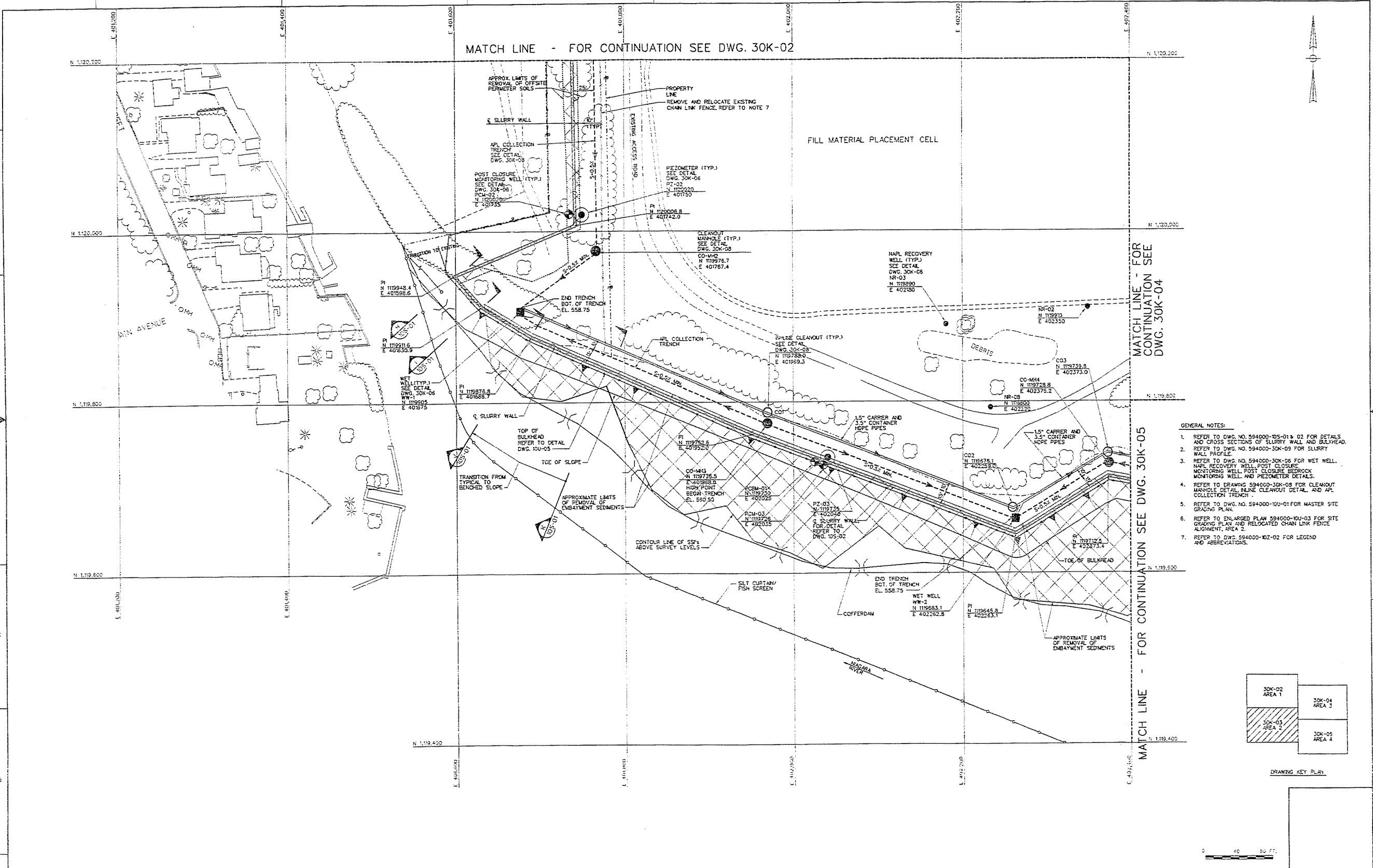
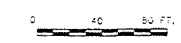
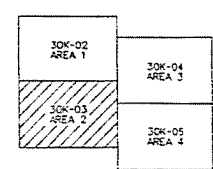
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PROJECT NO.: 594000-100-04
DATE: 01/20/00

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-02

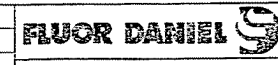
MATCH LINE - FOR CONTINUATION SEE DWG. 30K-04

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-05

- GENERAL NOTES:
- REFER TO DWG. NO. 594000-05-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL AND BULKHEAD.
 - REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
 - REFER TO DWG. NO. 594000-30K-06 FOR WET WELL, NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL AND PIEZOMETER DETAILS.
 - REFER TO DRAWING 594000-30K-08 FOR CLEANOUT MANHOLE DETAIL, PALM CLEANOUT DETAIL, AND APL COLLECTION TRENCH.
 - REFER TO DWG. NO. 594000-10U-01 FOR MASTER SITE GRADING PLAN.
 - REFER TO ENLARGED PLAN 594000-10U-03 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE ALIGNMENT, AREA 2.
 - REFER TO DWG. 594000-10Z-02 FOR LEGEND AND ABBREVIATIONS.



REV	DATE	REVISION DESCRIPTION	DESIGNED	CHECKED	APPROVED	DATE	REVISION DESCRIPTION	DESIGNED	CHECKED	APPROVED	DATE	REFERENCE DRAWING	DWG NO.	REFERENCE DRAWING
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B	1/18/05	FINAL ENGINEERING REPORT (DRAFT SUBMITAL)												

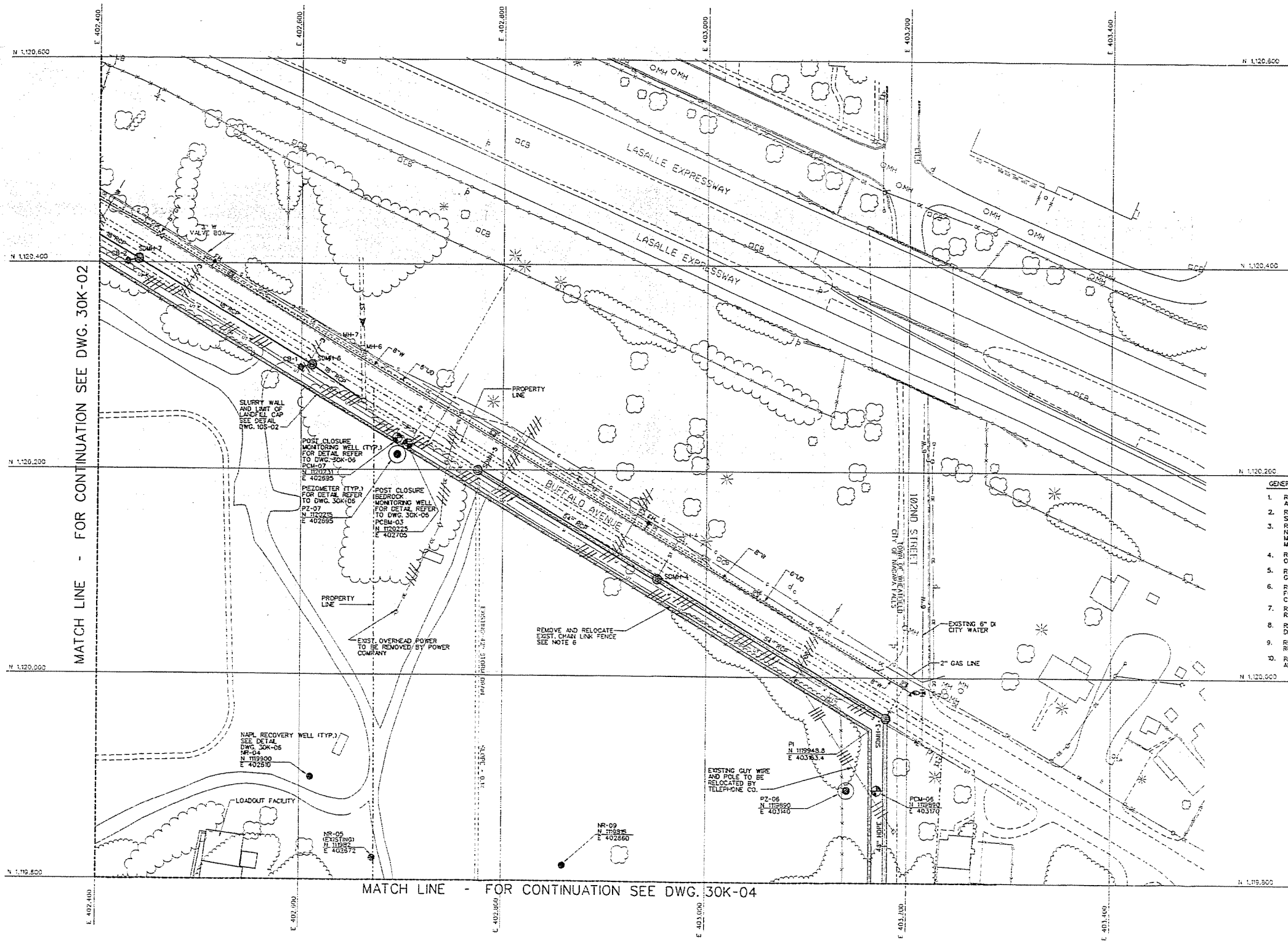


DESIGNED BY
A. BUMB
CHECKED BY
J. CERVAS
SUPERVISOR
L. CERVAS
PROJECT
A. BUMB
PROJECT
R. MARGUCCIO
CLIENT
OXYCHEM/OLIN

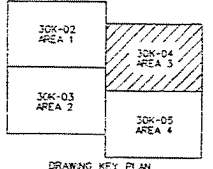
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REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN
AREA 2
SCALE: 1" = 40'
PROJECT NO.: 594000-30K-03

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- GENERAL NOTES:
1. REFER TO DWG. NO. 594000-103-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL.
 2. REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
 3. REFER TO DWG. NO. 594000-30K-06 FOR NAPL RECOVERY WELL, POST CLOSURE MONITORING WELL, AND PIEZOMETER DETAILS.
 4. REFER TO DRAWING NO. 594000-150-01 FOR LAYOUT OF LOADOUT FACILITY.
 5. REFER TO DWG. NO. 594000-100-01 FOR MASTER SITE GRADING PLAN.
 6. REFER TO ENLARGED PLAN DWG. NO. 594000-100-04 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE ALIGNMENT, AREA 3.
 7. REFER TO DWG. 594000-30K-04A FOR UTILITIES RELOCATION LAYOUT DATA, AREA 3.
 8. REFER TO DWG. 594000-30K-04C FOR STORM DRAINAGE LAYOUT DATA, AREA 3.
 9. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION, SECTIONS AND DETAILS.
 10. REFER TO DWG. 594000-302-02 FOR LEGEND AND ABBREVIATIONS.



0 20 40 60 FT.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	1/23/95	ENGINEERING REPORT SUBMITAL (PRELIMINARY / INTERMEDIATE)										
B	5/6/95	FINAL ENGINEERING REPORT (FINAL SUBMITAL)										



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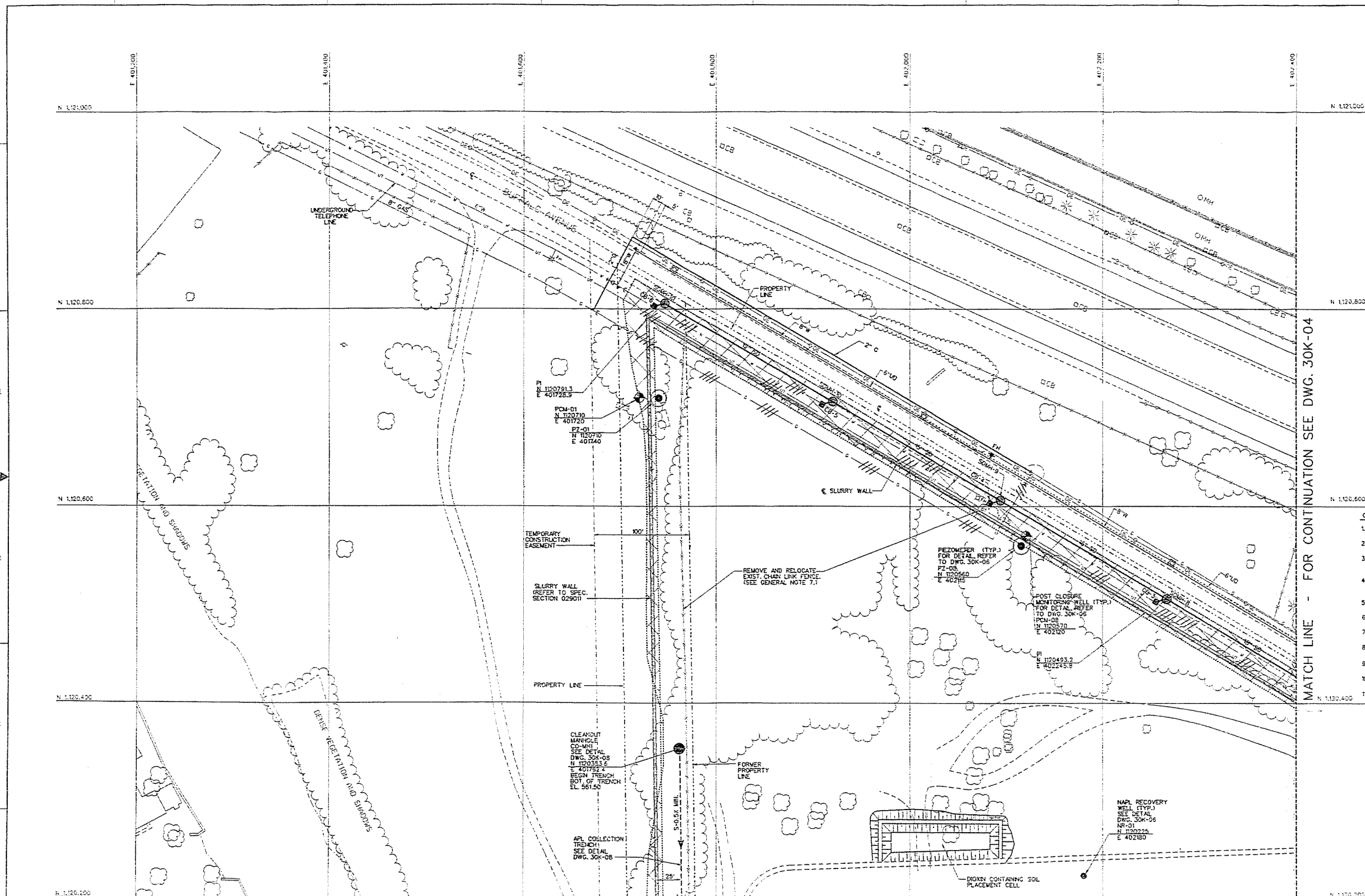
SIGNED BY:
A. BANGSI, MUNTHEVAR
DESIGNED BY:
J. SERVAS
SUPERVISOR:
J. SERVAS
CHECKED BY:
A. BANGSI
PROJECT MANAGER:
R. MARGUCCO
DATE:
OXYCHEM/OLIN

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102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

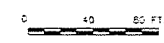
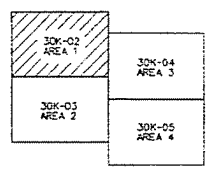
SITE REMEDIATION PLAN
AREA 3

SCALE: 1"=40'
DRAWING NUMBER: 594000-30K-04
JOB CODE: B

MANUAL CHANGES MADE: YES NO DWG. FILE UPDATED: YES NO MODEL UPDATED: YES NO CADD DRAWING No. 594000-30K-04



- GENERAL NOTES:**
1. REFER TO DWG. NO. 594000-105-01 & 02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL.
 2. REFER TO DWG. NO. 594000-30K-05 FOR PROFILE OF SLURRY WALL.
 3. REFER TO DWG. NO. 594000-30K-06 FOR NAPL RECOVERY WELL, POST-CLOSURE MONITORING WELL AND PEZOMETER DETAILS.
 4. REFER TO DRAWING 594000-30K-08 FOR CLEANOUT MANHOLE DETAIL, INLINE CLEANOUT DETAIL, AND APL COLLECTION TRENCH.
 5. REFER TO DWG. NO. 594000-100-01 FOR MASTER SITE GRADING PLAN.
 6. REFER TO DWG. NO. 594000-102-00 FOR SITE GRADING PLAN AND RELOCATED CHAIN LINK FENCE LAYOUT.
 7. REFER TO DWG. 594000-102-30K-28 FOR LIMITS OF REMOVAL OF OFFSITE PERIMETER SOILS, AREA 1.
 8. REFER TO DWG. 594000-102-30K-20 FOR STORM DRAINAGE LAYOUT, AREA 1.
 9. REFER TO DWG. NO. 594000-30K-2A FOR UTILITY RELOCATION LAYOUT DATA, AREA 1.
 10. REFER TO DWG. NO. 594000-30K-07 FOR UTILITY RELOCATION DETAILS.
 11. REFER TO DWG. 594000-102-02 FOR LEGEND AND ABBREVIATIONS.



REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV. DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	ENCL.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	12/19/99	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERIM)									594000-105-01	MASTER SITE REMEDIATION PLAN
B	3/28/00	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)									594000-100-01	MASTER SITE GRADING PLAN
											594000-100-02	SITE GRADING PLAN - AREA 1

FLUOR DANIEL

DESIGNED BY: A. SUBRAMANIAM
 CHECKED BY: J. GERVAIS
 APPROVED BY: J. GERVAIS
 DATE: 11/11/99

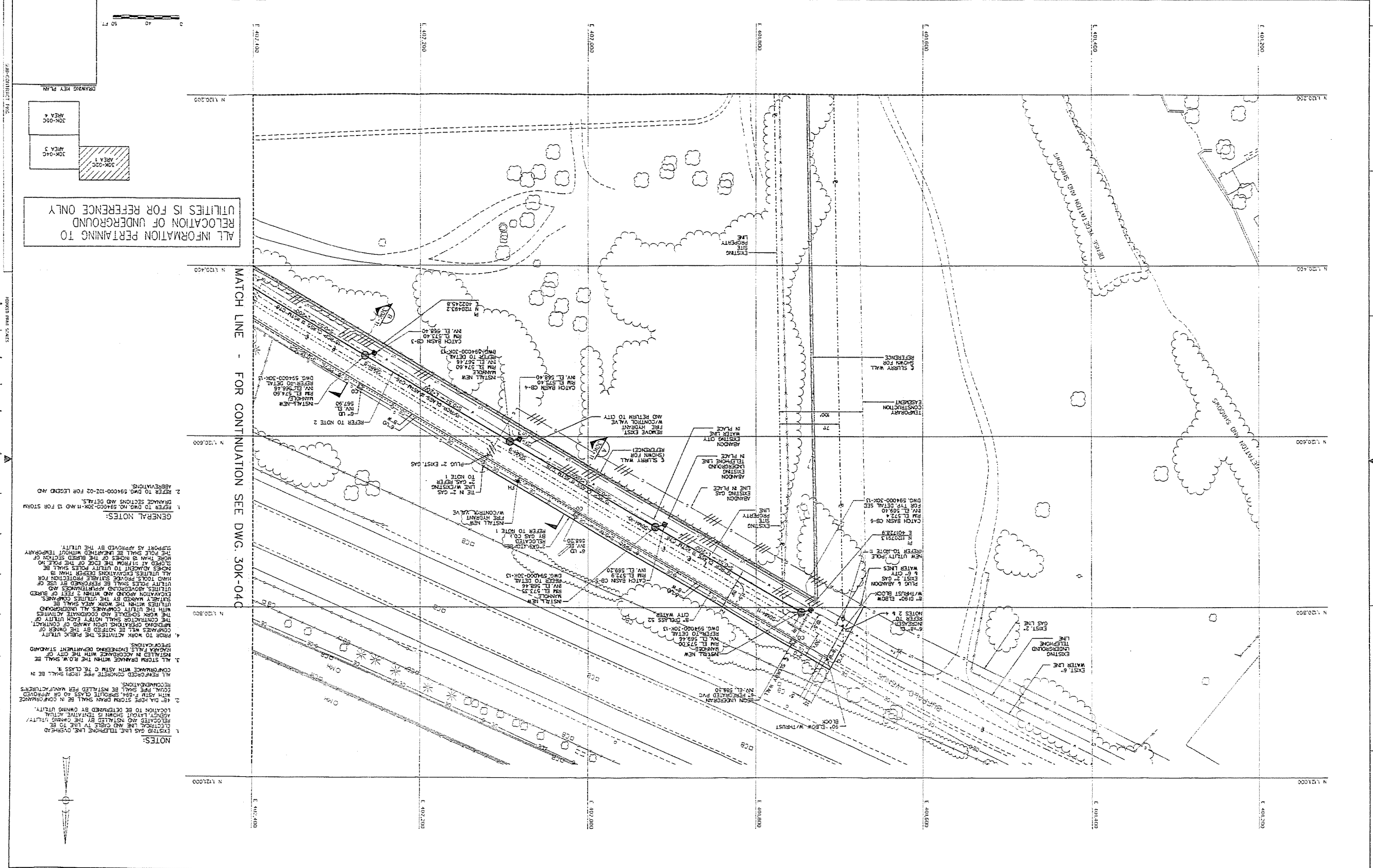
PROJECT: OXYCHEM/OLIN
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN
 AREA 1

SCALE: 1"=40'
 DWG. NO.: 594000-30K-02
 DATE: 9/10/99

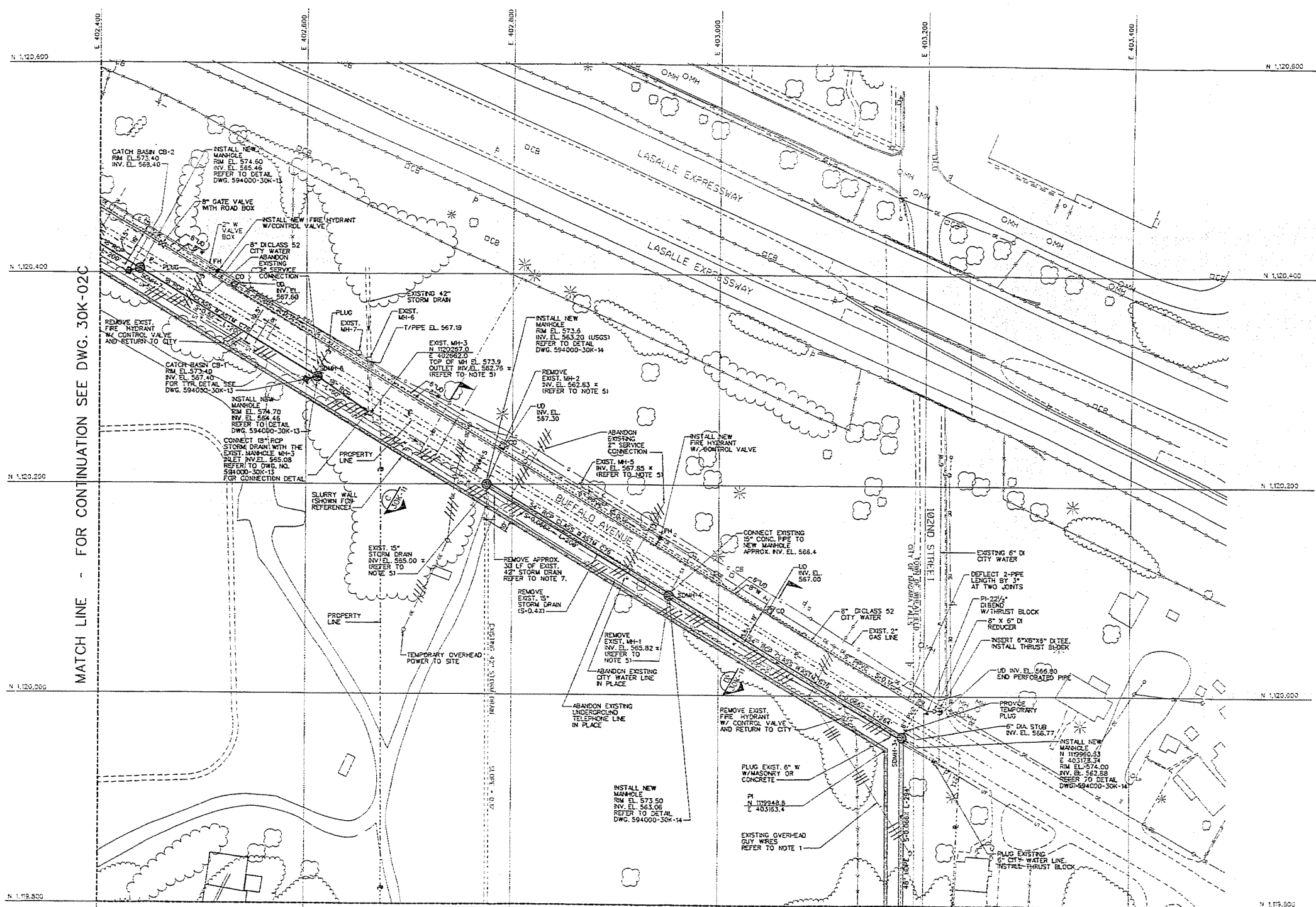
REV	DATE	DESCRIPTION	BY	CHECKED
1	08/21/1995	ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
2		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
3		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
4		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
5		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
6		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
7		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
8		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
9		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	
10		ISSUED FOR REVIEW AND APPROVAL	FLUOR DANIEL	



ALL INFORMATION PERTAINING TO RELOCATION OF UNDERGROUND UTILITIES IS FOR REFERENCE ONLY

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-04C

- GENERAL NOTES:**
1. REFER TO DWG. 594000-30K-04C FOR STORM DRAINAGE SECTIONS AND DETAILS.
 2. REFER TO DWG. 594000-102-02 FOR LEGEND AND ABBREVIATIONS.
- NOTES:**
1. EXISTING GAS LINE, TELEPHONE LINE, OVERHEAD ELECTRICAL LINE AND CABLE TV LINE TO BE RELOCATED AND SHIELDED BY INSTALLING UTILITY PROTECTIVE TUBING IN TRENCH.
 2. 18" DIA. PIPE STORM DRAIN SHALL BE IN COMPLIANCE WITH ALL CITY ORDINANCES AND ALL CITY DEPARTMENT STANDARDS.
 3. ALL STORM DRAINAGE WITHIN THE P.O.W. SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF MANHATTAN FALLS, ENGINEERING DEPARTMENT STANDARDS.
 4. PRIOR TO WORK ACTIVITIES, THE PUBLIC UTILITY UTILITIES MARKED BY THE UTILITIES COMPANIES SHALL BE MARKED BY THE UTILITIES COMPANIES. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OF THE EXCAVATION APPROVED AND COORDINATE ACTIVITIES WITH THE UTILITY COMPANIES. ALL UNDERGROUND UTILITIES MARKED BY THE UTILITIES COMPANIES SHALL BE PROTECTED BY THE UTILITIES COMPANIES. ALL UTILITIES EXCAVATIONS DEEPER THAN 18" HAND TOOLS SHOULD BE USED TO EXCAVATE. ALL UTILITIES EXCAVATIONS DEEPER THAN 18" SHOULD BE EXCAVATED BY THE UTILITIES COMPANIES. ALL UTILITIES EXCAVATIONS DEEPER THAN 18" SHOULD BE EXCAVATED BY THE UTILITIES COMPANIES. ALL UTILITIES EXCAVATIONS DEEPER THAN 18" SHOULD BE EXCAVATED BY THE UTILITIES COMPANIES.



- NOTES:**
- EXISTING GAS LINE, TELEPHONE LINE, OVERHEAD ELECTRICAL LINE, CABLE TV LINE, AND WATER LINE TO BE RELOCATED AND INSTALLED BY THE OWNING UTILITY AGENCY. LAYOUT SHOWN IS TENTATIVE. ACTUAL LOCATION TO BE DETERMINED BY OWNING UTILITY.
 - 48" DIA HOPE STORM DRAIN SHALL BE IN CONFORMANCE WITH ASTM F-354. SPOONED CLASS 40 OR APPROVED EQUAL PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
 - ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE IN CONFORMANCE WITH ASTM C 75, CLASS II.
 - ALL STORM DRAINAGE WITHIN THE P.O.W. SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF NIAGARA FALLS ENGINEERING DEPARTMENT STANDARD SPECIFICATIONS.
 - THE NUMBERING SYSTEM FOR EXISTING MANHOLES IS TAKEN FROM A REPORT ENTITLED "FINAL REPORT: UTILITIES INVESTIGATION/RECORD SEARCH PHASE: 102ND STREET REMEDIAL INVESTIGATION, NIAGARA FALLS, NEW YORK", PREPARED BY WOODWARD-CLOSE CONSULTANTS, 500 BUTLER PLACE, PLYMOUTH MEETING, PA 19462, DATED JULY 15, 1988. RM AND INVERT ELEVATIONS FOR EXISTING MANHOLES (WHERE SHOWN) ARE TAKEN FROM A TOPOGRAPHIC SURVEY PERFORMED BY MANTOSH, J. MANTOSH, P.C. CONSULTING ENGINEERS, BUFFALO, NEW YORK, DATED 5/19/92.
 - INVERT ELEVATIONS OF EXISTING APERTURES, SHOWN WITH AN ASTERISK (*) ARE CITY OF NIAGARA FALLS DATUM.
 - PRIOR TO WORK ACTIVITIES, THE PUBLIC UTILITY COMPANIES WILL BE NOTIFIED BY THE OWNER OF BEGINNING OPERATIONS UPON AWARD OF CONTRACT. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OF THE WORK SCHEDULE AND COORDINATE ACTIVITIES WITH THE UTILITY COMPANIES. ALL UNDERGROUND UTILITIES WITHIN THE WORK AREA SHALL BE SUITABLY MARKED BY THE UTILITIES COMPANIES. EXCAVATION AROUND AND WITHIN 2 FEET OF BURIED UTILITIES, ABOVEGROUND APERTURES AND UTILITY POLES SHALL BE PERFORMED BY USE OF HAND TOOLS. PROVIDE SUITABLE PROTECTION FOR ALL UTILITIES EXCAVATIONS DEEPER THAN 18 INCHES ADJACENT TO UTILITY POLES SHALL BE SLOPED AT 1:1 FROM THE EDGE OF THE POLE NO MORE THAN 8 INCHES OF THE BURIED SECTION OF THE POLE SHALL BE UNERTHED WITHOUT TEMPORARY SUPPORT AS APPROVED BY THE UTILITY.
 - REMOVE APPROXIMATELY 30 LF OF EXISTING STORM DRAIN. PLACE DEBRIS AND SOIL IN FILL PLACEMENT CELL AND PLUG END OF PIPE WITH CONCRETE. SCOUR/CLEAN END OF PIPELINE AND COAT WITH EPOXY BONDING AGENT IMMEDIATELY PRIOR TO PLACING CONCRETE. CONCRETE SHALL EXTEND AT LEAST 18 INCHES OF PIPELINE BEYOND THE END OF THE PIPELINE AND 2' ABOVE THE PIPELINE BACKFILL WITH BONDING MATERIAL N 12" COMPACTED LF15 90% PROCTOR.

- GENERAL NOTES:**
- REFER TO DWG. NO. 594000-30K-07 FOR UTILITY SYSTEM RELOCATION DETAILS.
 - REFER TO DWG. 594000-102-02 FOR LEGEND AND ABBREVIATIONS.

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-02C

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-05C

ALL INFORMATION PERTAINING TO PROPOSED RELOCATION OF UNDERGROUND UTILITIES IS SHOWN FOR REFERENCE ONLY

0 40 80 FT.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	5/2/94	ISSUED FOR REVIEW AND COMMENT (STORM DRAINAGE)								594000-102-02	LEGEND AND ABBREVIATIONS		
A	5/15/96	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)											
A	5/8/99	FINAL ENGINEERING REPORT (CRMT) SUBMITTAL											

FLUOR DANIEL

DESIGNED BY: BARBER/GERVAS
 CHECKED BY: J. GERVAS
 SUPERVISOR: J. GERVAS
 PROJECT: R. MARGUCCIO
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

SITE REMEDIATION PLAN AREA 3
 STORM DRAINAGE

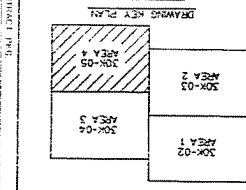
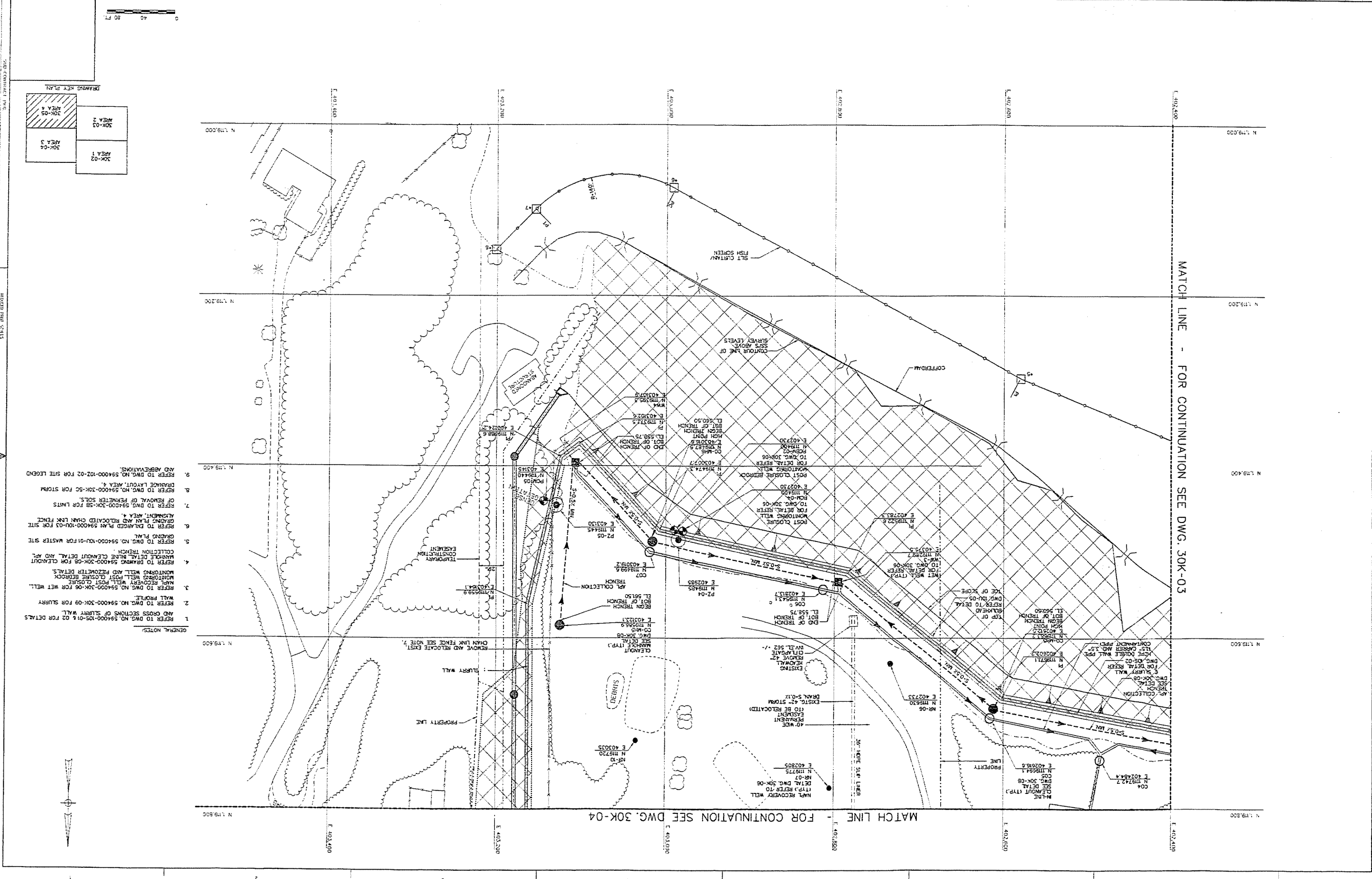
SCALE: 1" = 40'
 DRAWING NUMBER: 594000-30K-04C
 SHEET: 1

REV.	DATE	DESCRIPTION	BY	CHK.	APP.
1	08/25/05	DISPERSED REPORT SHEET (PRELIMINARY/PROVISIONAL)	DM		
2	08/25/05	FINAL DISPERSED REPORT SHEET (FINAL)	DM		

PERSON DESCRIPTION	PERSON	DATE
DESIGNER	DM	
CHECKER	DM	
APPROVER	DM	
DATE		

NO.	DESCRIPTION	DATE
1	DESIGNER	
2	CHECKER	
3	APPROVER	
4	DATE	

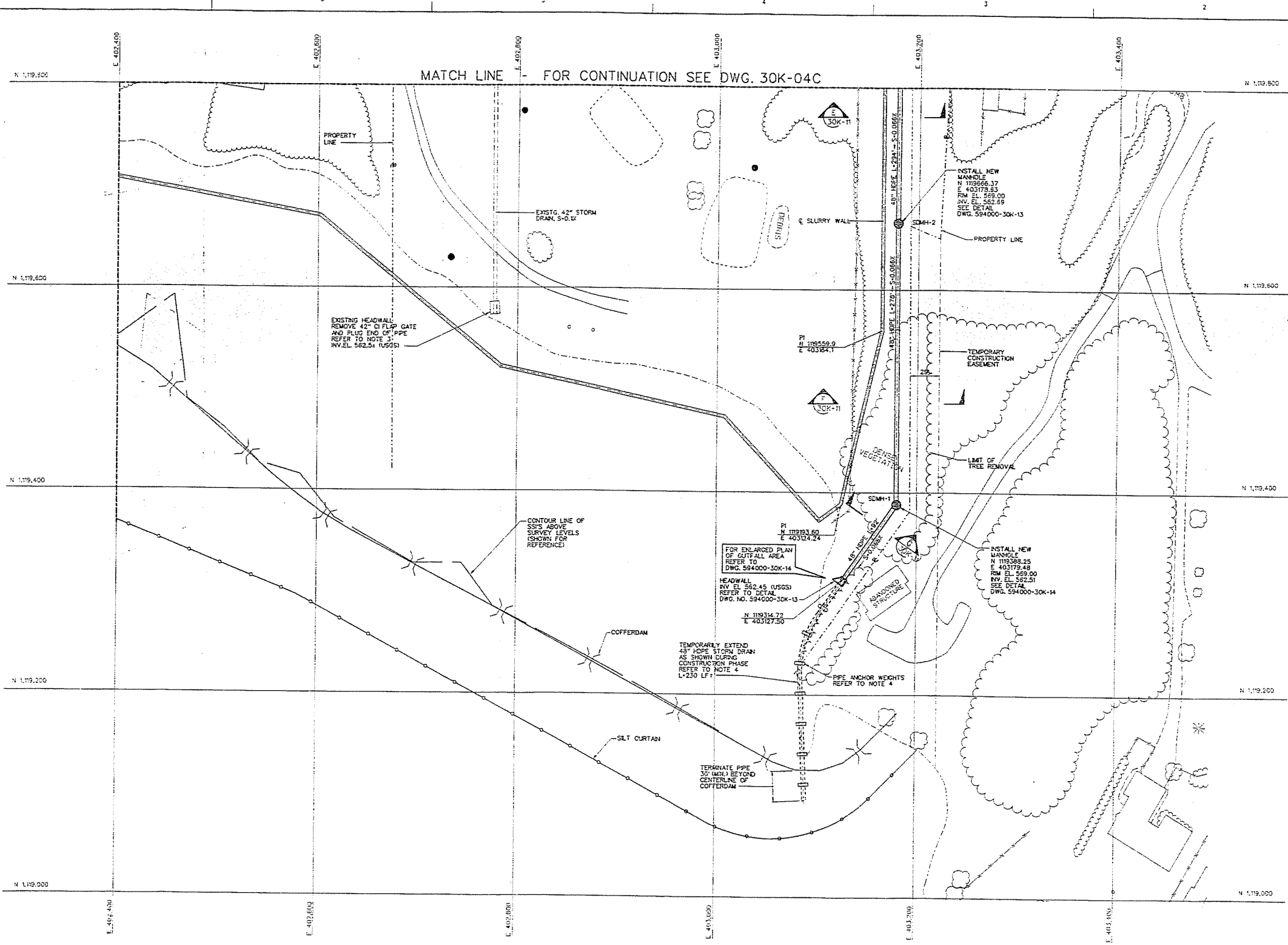
NO.	DESCRIPTION	DATE
1	DESIGNER	
2	CHECKER	
3	APPROVER	
4	DATE	



- GENERAL NOTES:
1. REFER TO DWG. NO. 594000-105-01-02 FOR DETAILS AND CROSS SECTIONS OF SLURRY WALL.
 2. REFER TO DWG. NO. 594000-30K-09 FOR SLURRY WALL PROFILE.
 3. REFER TO DWG. NO. 594000-30K-06 FOR WET WELL, MONITORING WELL, POST CLOSURE BERMOCK, MAKEUP DETAIL, CLEANOUT DETAIL, AND AP COLLECTION TRENCH.
 4. REFER TO DWG. NO. 594000-30K-08 FOR CLEANOUT COLLECTION TRENCH.
 5. REFER TO DWG. NO. 594000-104-01-FOR MASTER SITE GRADINGS PLAN.
 6. REFER TO ENLARGED PLAN 594000-104-03 FOR SITE ALIGNMENT, AREA 4.
 7. REFER TO DWG. 594000-30K-58 FOR LIMITS OF REMOVAL OF FERMETER SOILS.
 8. REFER TO DWG. NO. 594000-30K-5C FOR STORM DRAINAGE LAYOUT, AREA 4.
 9. REFER TO DWG. NO. 594000-102-02 FOR SITE LEGEND AND ABBREVIATIONS.

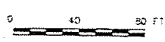
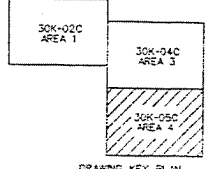
MATCH LINE - FOR CONTINUATION SEE DWG. 30K-04

MATCH LINE - FOR CONTINUATION SEE DWG. 30K-03

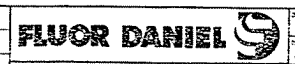


- NOTES:**
- 48" DIA HDPE STORM DRAIN SHALL BE IN CONFORMANCE WITH ASTM F-684 SPORULITE GLASS HD OR APPROVED EQUAL PIPE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
 - TEMPORARY 48" DIA HDPE STORM DRAIN SHALL BE 500 12.5' 1000-SERIES PIPE AS MANUFACTURED BY PHILLIPS-DRESCOPE, INC. OR APPROVED EQUAL.
 - CLEAR TREES, SHRUBS, VEGETATION AND ALL OTHER MATERIAL PROTRUDING ABOVE THE SURFACE WITHIN THE LIMITS OF WORK.
 - REMOVE EXISTING 42" CI FLAP GATE AND PLUG END OF PIPE WITH CONCRETE. SCOUR/CLEAN END OF PIPELINE AND COAT WITH EPOXY BONDING AGENT IMMEDIATELY PRIOR TO PLACING CONCRETE. CONCRETE SHALL EXTEND AT LEAST 5' BEYOND OF PIPELINE #1 BEYOND THE END OF THE PIPELINE AND 2' ABOVE THE PIPELINE BACKFILL WITH 500000 MATERIAL IN 12" COMPACTED LIFTS (90% PROCTOR).
 - LAY PIPE ALONG EXISTING SHORE LINE. COORDINATE INSTALLATION OF TEMPORARY EXTENSION WITH COMPLETION OF THE COFFERDAM. EXCAVATE SHALLOW TRENCH TO PLACE PIPE. ALLOW PIPE TO FILL WITH RIVER WATER AND SINK INTO THE TRENCH. INSTALL PIPE ANCHORS AT SOFT INTERVALS TO SECURE THE RESISTING AN UPLET FORCE OF 5 KIPS.
- EXCAVATED MATERIAL SHALL BE PLACED IN THE SEDIMENT PLACEMENT CELL ON THE SITE.

- GENERAL NOTES:**
- REFER TO DWG. NO. 594000-30K-11, 13 AND 14 FOR STORM DRAINAGE SECTIONS AND DETAILS.
 - REFER TO DWG. NO. 594000-102-02 FOR LEGEND AND ABBREVIATIONS.

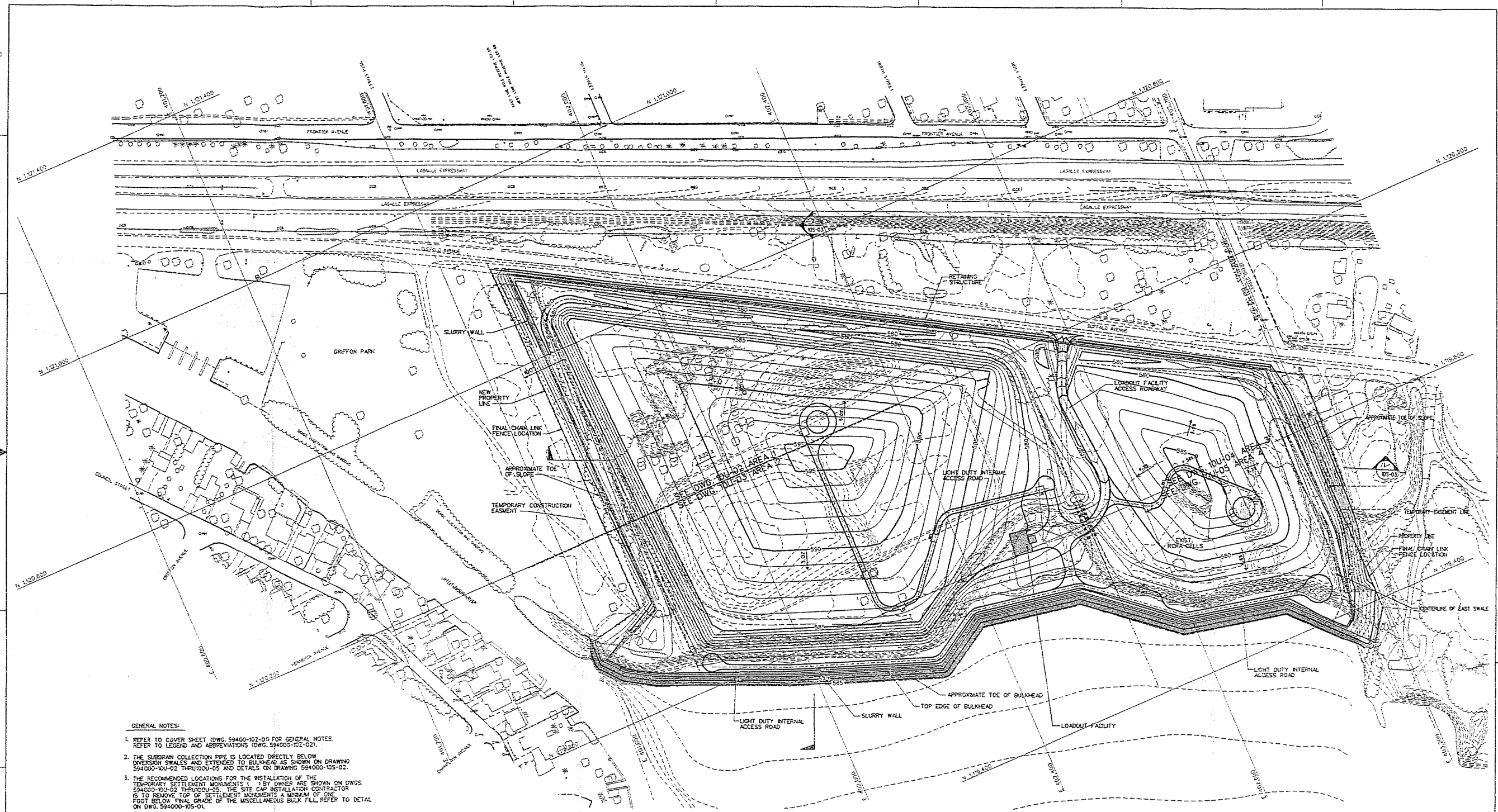


REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	SITE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	1/25/16	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)		JIS									
D	3/24/16	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)											
A	5/12/15	FINAL ENGINEERING REPORT (CRAFT SUBMITTAL)											

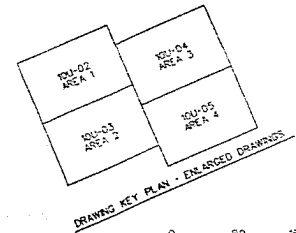


DESIGNED BY
BARBER/GERVAS
CHECKED BY
L. GERVAS
SUPERVISOR
J. GERVAS
DATE PLOTTED
1/25/16
DRAWN BY
R. MARCUS
CLIENT
OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK
SITE REMEDIATION PLAN AREA 4
STORM DRAINAGE
SCALE: 1"=40'
594000-30K-05C
1



- GENERAL NOTES:**
1. REFER TO COVER SHEET (DWG. 59400-102-01 FOR GENERAL NOTES. REFER TO LEGEND AND ABBREVIATIONS (DWG. 59400-102-02).
 2. THE SUBURBAN COLLECTION PIPE IS LOCATED DIRECTLY BELOW DIVERSION SWALES AND EXTENDED TO BULKHEAD AS SHOWN ON DRAWING 59400-10U-02 THROUGH 05 AND DETAILS ON DRAWING 59400-10S-02.
 3. THE RECOMMENDED LOCATIONS FOR THE INSTALLATION OF THE TEMPORARY SETTLEMENT MONUMENTS (1) BY OWNER ARE SHOWN ON DWGS 59400-10U-02 THROUGH 05. THE SITE CAP INSTALLATION CONTRACTOR IS TO REMOVE TOP OF SETTLEMENT MONUMENTS A MINIMUM OF ONE FOOT BELOW FINAL GRADE OF THE MISCELLANEOUS BULK FILL. REFER TO DETAIL ON DWG. 59400-10S-01.
 4. THE LIMIT OF THE TEMPORARY CONSTRUCTION EASEMENT ALONG BUFFALO AVENUE SHALL BE THE SOUTHERN EDGE OF PAVEMENT OF BUFFALO AVENUE.
 5. THIS DRAWING REPRESENTS FINAL GRADING AND FENCE LINE AFTER THE REMEDIATION OF 102ND STREET LANDFILL SITE.
 6. REFERENCE BENCH MARK USED: 102 (U.S.L.S.) ON THE NORTH SIDE OF BUFFALO AVENUE IN THE WEST WALL OF HOUSE NO. 9839, 9 FEET SOUTH OF THE NORTHWEST CORNER OF THE HOUSE. IN THE CONCRETE WATER TABLE ABOUT 2'-1/2 FEET HIGHER THAN GROUND. THE HORIZONTAL LINE OF A CROSS ON THE UNITED STATES LAKE SURVEY STANDARD DISK SET VERTICALLY. 1179.038 METERS OR 5.77.551 FEET NGVD.



0 80 160 FT.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWING	DWG. NO.	REFERENCE DRAWING
A	12/8/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)											
B	1/18/96	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)											

FLUOR DANIEL

NOTICE: THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS LOANED TO THE BORROWER FOR HIS CONSTRUCTION USE ONLY. IT IS TO BE RETURNED TO THE LENDER UPON REQUEST AND APPLICABLE LAW SHALL BE APPLICABLE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND CONDITIONS OF CONTRACT AND ANY CHANGES SHALL BE MADE BY THE LENDER.

DESIGNED BY: J. SZYMANSKI
 CHECKED BY: J. GERVAIS
 SUPERVISOR: J. GERVAIS
 DATE: 1/18/96
 PROJECT: 102ND STREET LANDFILL SITE
 DRAWN BY: R. MARGUCCIO
 DATE: 1/18/96
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

MASTER SITE GRADING PLAN

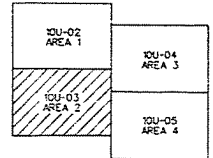
SCALE: 1"=80'
 DRAWING NO.: 59400-10U-01
 SHEET: B

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-02

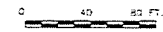
MATCH LINE - FOR CONTINUATION SEE DWG. 10U-04

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-05

- GENERAL NOTES:
1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
 2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
 3. REFER TO DWG. NOS. 594000-105-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.
 4. REFER TO DWG. NO. 594000-100-01 FOR SECURITY FENCING.



DRAWING KEY PLAN



REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWING	DWG. NO.	REFERENCE DRAWING
A	10/28/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	J. CERVAS	[Signature]									
B	01/05/95	FINAL ENGINEERING REPORT (DRAFT DISMISSED)	J. CERVAS	[Signature]									



NOTICE: THIS DRAWING HAS NOT BEEN REPRODUCED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS LOANED TO THE CONTRACTOR FOR HIS USE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THIS DRAWING AND FOR THE RETURN OF THIS DRAWING TO FLUOR DANIEL UPON COMPLETION OF THE PROJECT. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF FLUOR DANIEL.

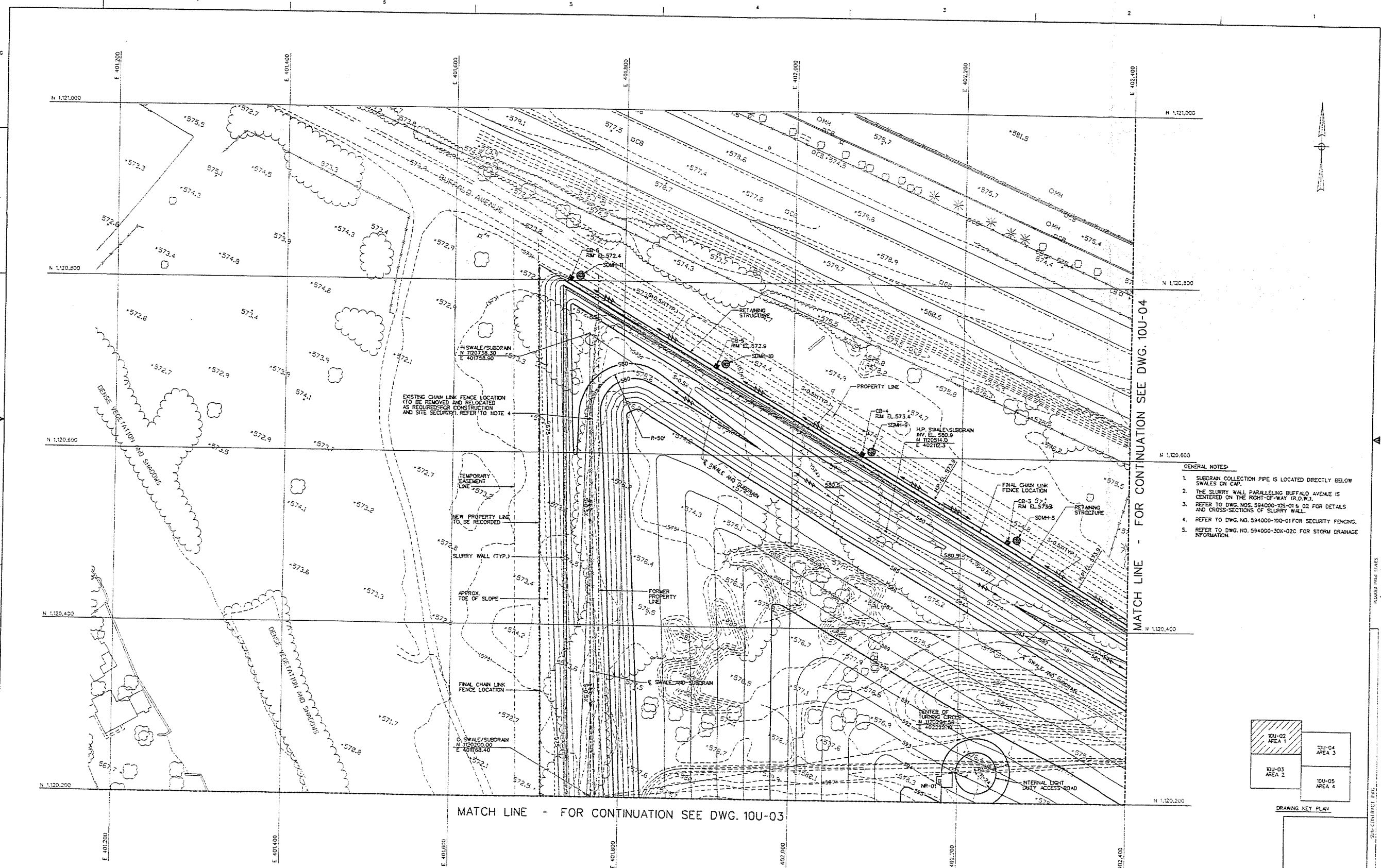
DESIGNED BY: T. SZYMANKA
 DRAWN BY: J. CERVAS
 CHECKED BY: J. CERVAS
 IN CHARGE: J. CERVAS
 PROJECT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

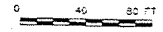
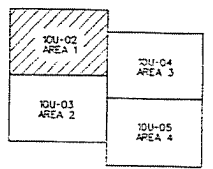
SITE GRADING PLAN - AREA 2

SCALE: 1"=40'

PROJECT NO: 594000-10U-03



- GENERAL NOTES:
1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
 2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
 3. REFER TO DWG. NOS. 594000-105-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.
 4. REFER TO DWG. NO. 594000-100-01 FOR SECURITY FENCING.
 5. REFER TO DWG. NO. 594000-30X-02C FOR STORM DRAINAGE INFORMATION.



MATCH LINE - FOR CONTINUATION SEE DWG. 10U-03

MATCH LINE - FOR CONTINUATION SEE DWG. 10U-04

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	1/23/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	J. GERVAS	[Signature]									
B	3/2/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	J. GERVAS	[Signature]									



NOTED: THIS DRAWING AND ANY OTHER INFORMATION IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS TO BE RETURNED TO FLUOR DANIEL UPON COMPLETION OF THE PROJECT. NO PART OF THIS DRAWING OR ANY INFORMATION HEREON IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF FLUOR DANIEL.

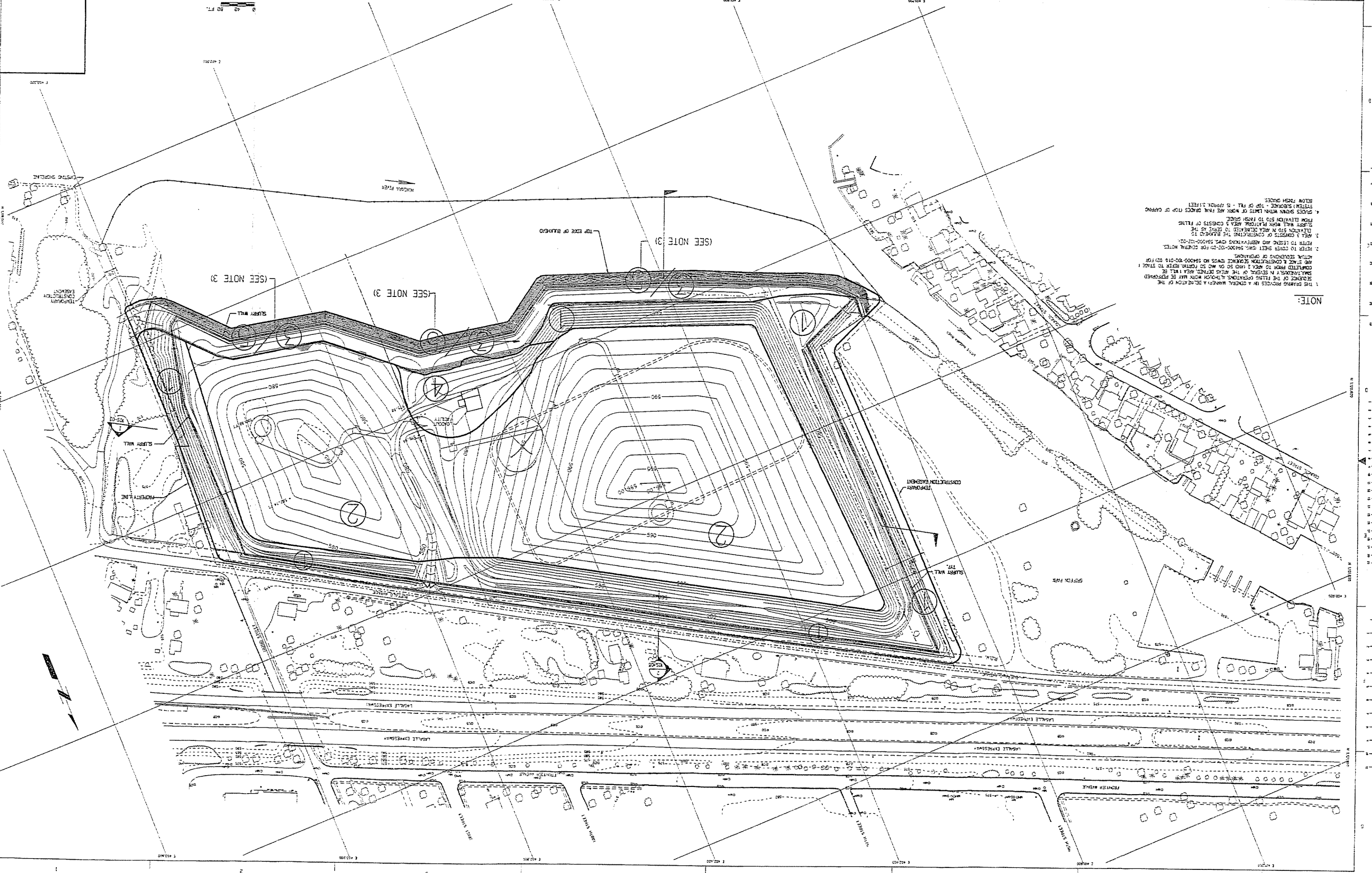
DESIGNED BY: T. SZYMCHAK
 CHECKED BY: J. GERVAS
 DRAWN BY: J. GERVAS
 DATE: 1/18/95
 PROJECT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK
 SITE GRADING PLAN AREA - 1

SCALE: 1"=40'
 DRAWING NUMBER: 594000-10U-02

NO.	DATE	REVISION DESCRIPTION	BY	CHKD.	APP'D.	DATE
1		ENGINEERING REPORT SUBMITTED (SHEET 1 OF 2)				
2		FINAL ENGINEERING REPORT SUBMITTED (SHEET 2 OF 2)				

NO.	DATE	REVISION DESCRIPTION	BY	CHKD.	APP'D.	DATE
1		DESIGN				
2		APPROVED				
3		DESIGN				
4		APPROVED				
5		DESIGN				
6		APPROVED				
7		DESIGN				
8		APPROVED				



NOTE:

1. THE PRINTING PROCESS BY A GENERAL CONTRACTOR IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE PRINTING PROCESS AND SHALL BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS.
2. REFER TO THE GENERAL NOTES AND SPECIFICATIONS FOR THE PROJECT FOR FURTHER INFORMATION.
3. THE CONTRACTOR SHALL MAINTAIN THE ELEVATION OF THE FILL PLACEMENT TO THE ELEVATION SHOWN ON THIS DRAWING.
4. SPACES SHOWN WITH HATCHES OR WITH THE WORDS 'FILL' OR 'GRAVEL' SHALL BE FILLED WITH THE MATERIAL SHOWN.
5. THE CONTRACTOR SHALL MAINTAIN THE TOP OF FILL TO THE ELEVATION SHOWN.
6. THE CONTRACTOR SHALL MAINTAIN THE SLOPE OF THE FILL TO THE SLOPE SHOWN.
7. THE CONTRACTOR SHALL MAINTAIN THE SURFACE OF THE FILL TO THE SURFACE SHOWN.
8. THE CONTRACTOR SHALL MAINTAIN THE PERIMETER OF THE FILL TO THE PERIMETER SHOWN.

(SEE NOTE 3)

(SEE NOTE 3)

(SEE NOTE 3)

TOP LINE OF SLURRY WALL

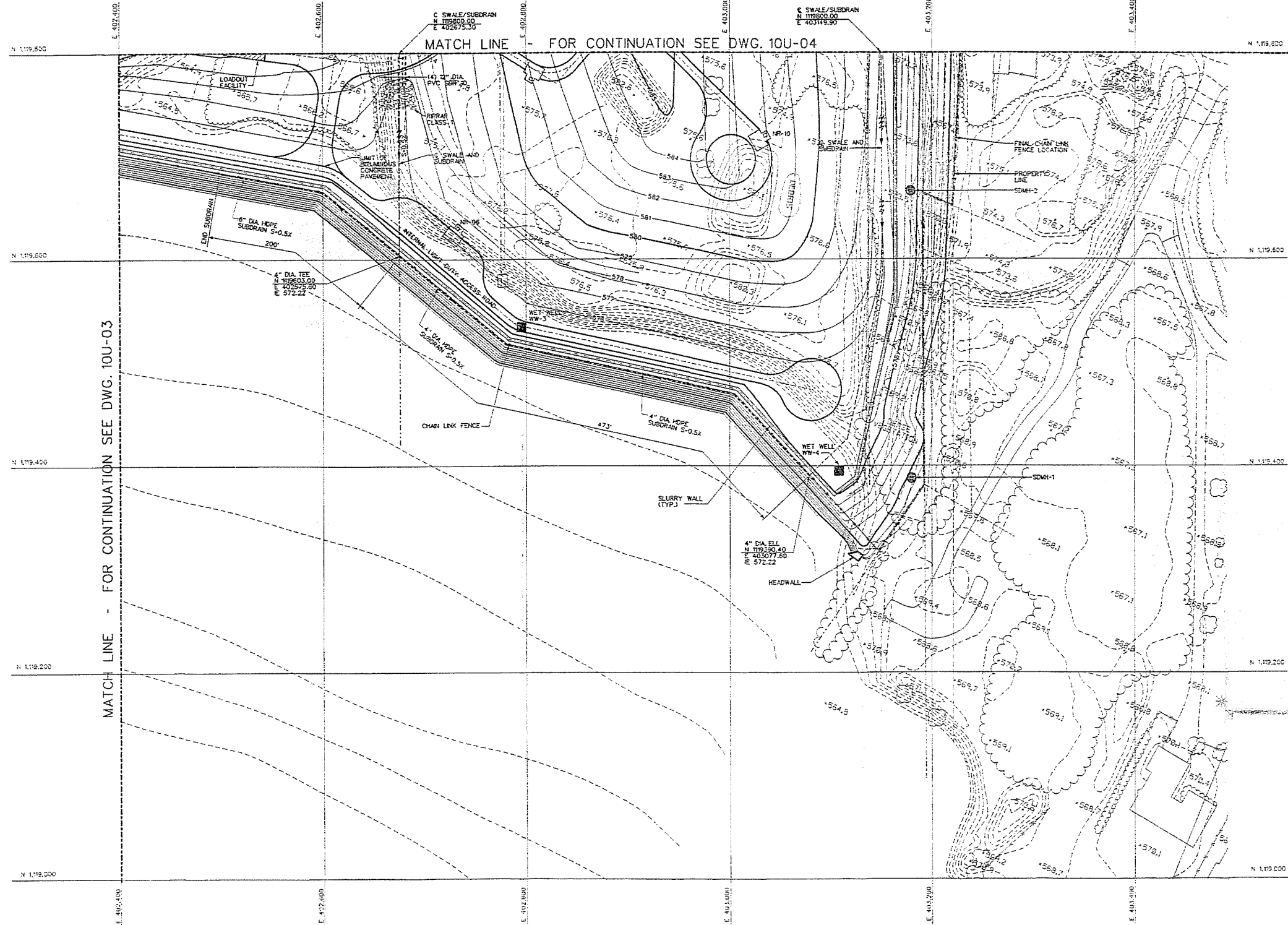
CONSTRUCTION EASEMENT

SLURRY WALL TIE

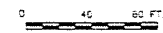
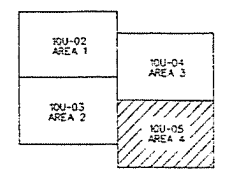


DRAWING NO. 59400-10U-06

SCALE: 1" = 50'



- GENERAL NOTES:**
- SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
 - REFER TO DWG. NOS. 594000-10S-011, 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.

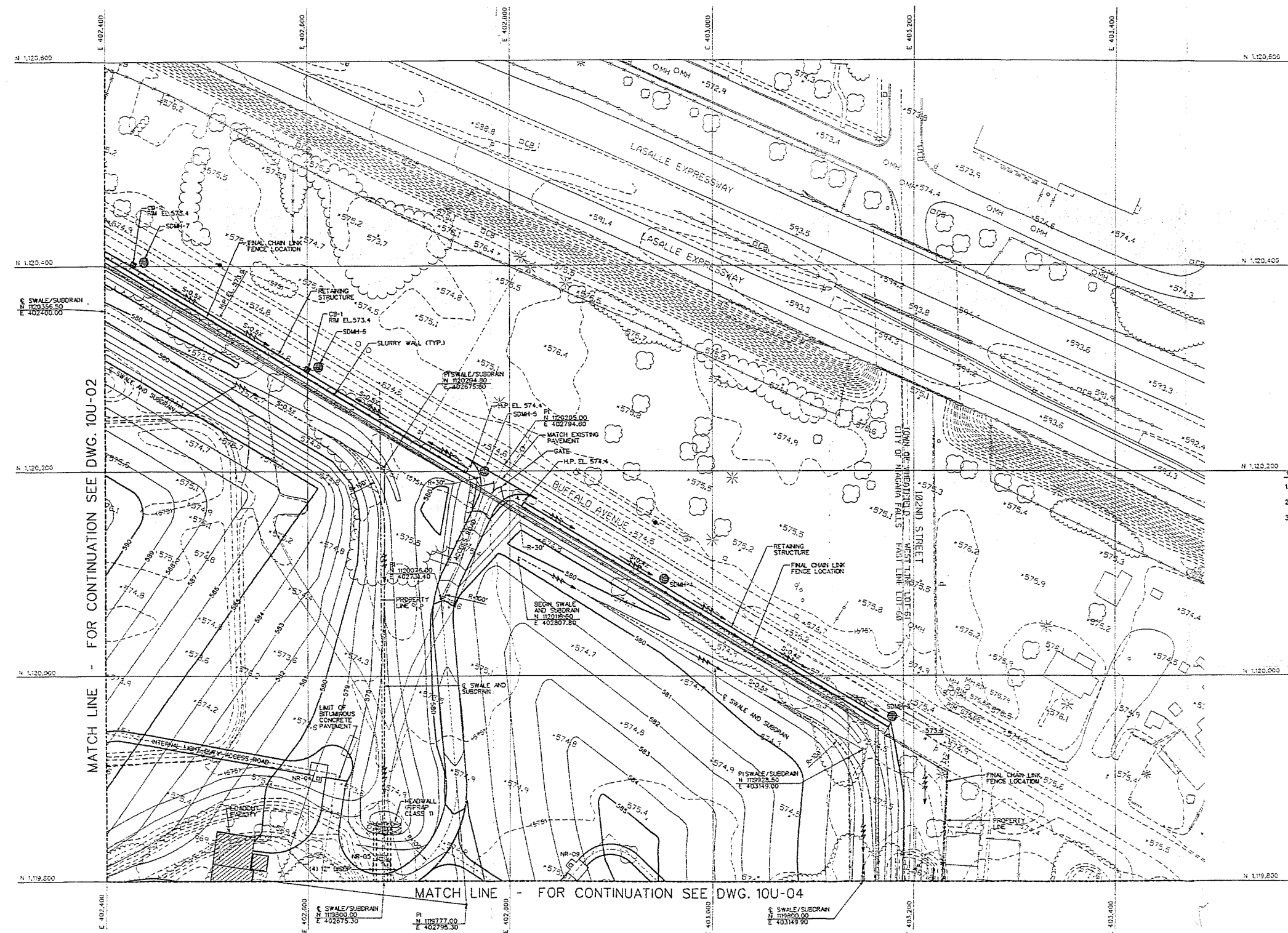


REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REFERENCE DRAWING
A	2/25/11	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)								
B	3/2/11	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)								

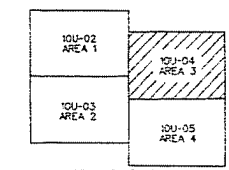


DESIGNED BY
T. STEYNDIJK
CHECKED BY
J. GERVAIS
APPROVED BY
J. GERVAIS
PROJECT MANAGER
R. MARCLOTT
DATE
OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK
SITE GRADING PLAN - AREA 4
SCALE
T=40'
594000-10U-05



- GENERAL NOTES:
1. SUBDRAIN COLLECTION PIPE IS LOCATED DIRECTLY BELOW SWALES ON CAP.
 2. THE SLURRY WALL PARALLELING BUFFALO AVENUE IS CENTERED ON THE RIGHT-OF-WAY (R.O.W.).
 3. REFER TO DWG. NOS. 594000-10S-01 & 02 FOR DETAILS AND CROSS-SECTIONS OF SLURRY WALL.



REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV. DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	12/15/13	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JGP	JGP								
B	5/2/15	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	JGP	JGP								

FLUOR DANIEL

DESIGNED BY: T. SZYMONIAK
 CHECKED BY: J. GERVASIS
 APPROVED BY: J. GERVASIS
 DATE: 11/10/15
 PROJECT: OXYCHEM/OLIN

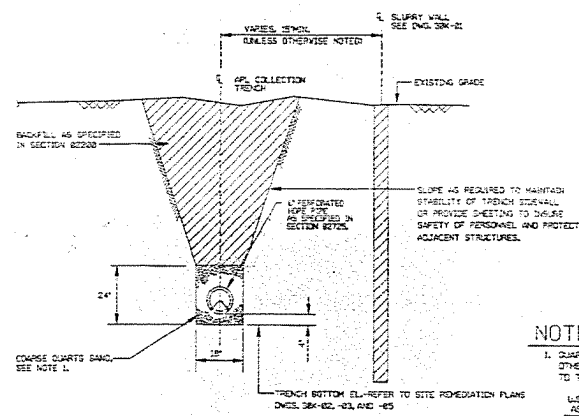
OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

SITE GRADING PLAN - AREA 3

SCALE: 1"=40'
 DRAWING NO.: 594000-10U-04

MARKUP CHANGES MADE: YES NO DWG. FULL UPDATED: YES NO MODEL UPDATED: YES NO CADD DRAWING NO.: 4029064

L:\S\594000\10U-04\10U-04-PIE.dwg
 11/10/15 10:24:19 AM
 JGP

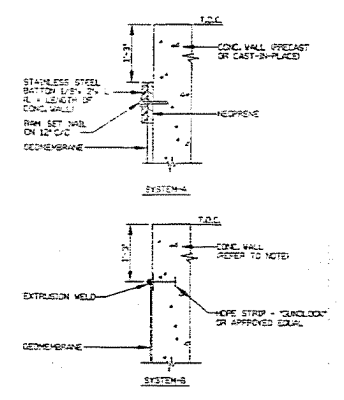


APL COLLECTION TRENCH - TYPICAL SECTION
N.T.S.

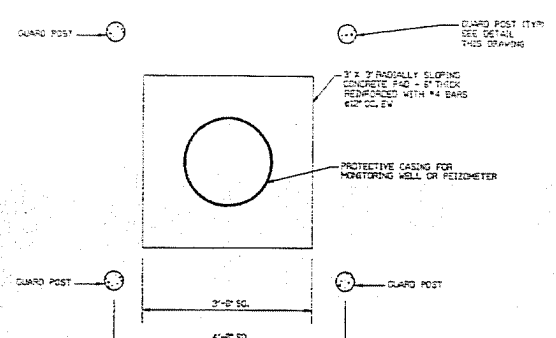
NOTES:

1. QUARTZ SAND SHALL BE FREE OF LOAM DUST AND OTHER FOREIGN PARTICLES CONFORMING TO THE FOLLOWING GRADATION:

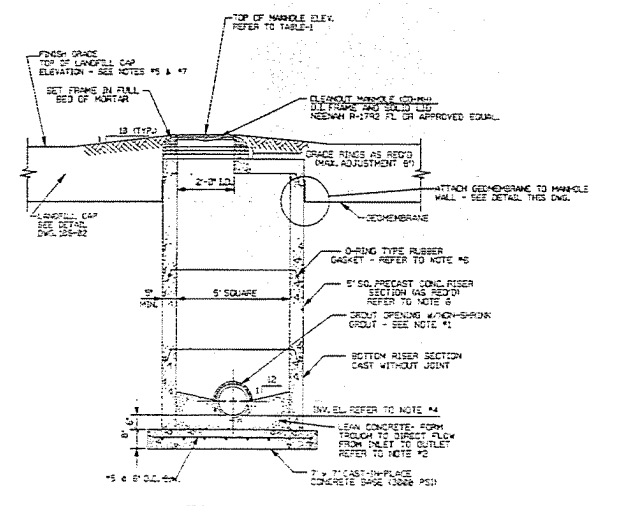
U.S. STANDARD ASTM SIEVE	PERCENT PASSING BY WEIGHT
NO. 20	100
NO. 40	95-100
NO. 60	45-100
NO. 80	10-100
NO. 100	2-10



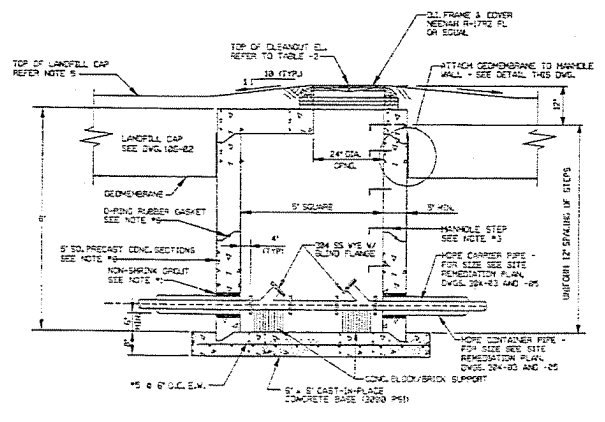
GEOMEMBRANE ATTACHMENT DETAIL
N.T.S.



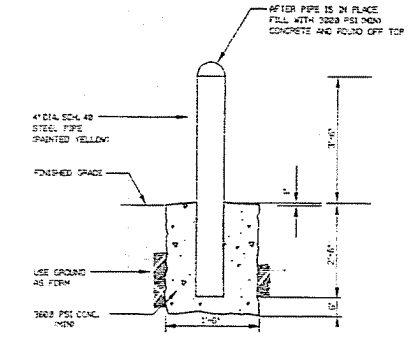
MONITORING WELL AND PIEZOMETER PROTECTION PLAN
N.T.S.



TYPICAL PRECAST REINFORCED CONCRETE CLEANOUT MANHOLE (CO-MH)
N.T.S.



INLINE CLEANOUT DETAIL
N.T.S.



GUARD POST DETAIL
N.T.S.

- GENERAL NOTES:**
1. OPENINGS FOR PIPES IN PRECAST BASE AND RISER SHALL BE FORMED OR REINFORCED TO CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. THE CORNER RADIUS OF ALL OPENINGS SHALL BE A MINIMUM OF 4" RADIUS. ALL PIPES SHALL BE A MINIMUM OF 4" DIAMETER. ALL PIPES SHALL BE INSTALLED WITH THE OUTSIDE DIAMETER OF THE PIPE TO BE INSTALLED.
 2. FORM THROUGH TO DIRECT FLOW FROM INLET TO OUTLET FOR ALL PIPES. COEFFICIENT OF FRICTION SHALL BE EQUAL TO 0.015 FOR ALL PIPES.
 3. MANHOLE STEPS SHALL BE KEENAN RHINCON, ALUMINUM OR APPROVED EQUAL.
 4. REFER TO SITE REMEDIATION PLANS FOR LOCATIONS, INVERT ELEVATIONS AND PIPE SIZES.
 5. FOR TOP OF LANDFILL CAP ELEVATIONS AT CLEANOUTS, SEE SITE GRADING PLAN. ALL CLEANOUTS SHALL BE SLOPED TO DRAIN AWAY FROM STRUCTURE.
 6. PRECAST REINFORCED CONCRETE SECTIONS SHALL CONFORM TO ASTM C478. RUBBER GASKETS FOR JOINTS SHALL CONFORM TO ASTM C424.

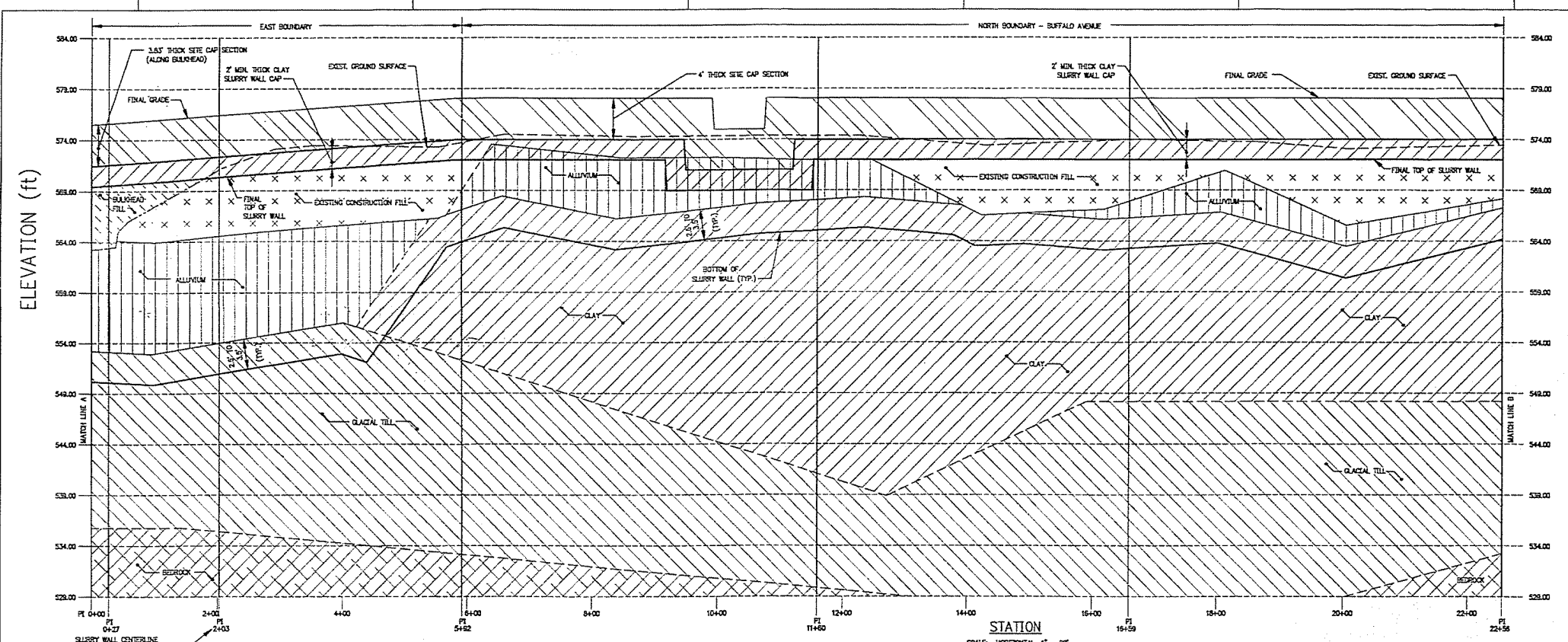
TABLE 1 TOP OF CO-MH ELEVATION		TABLE 2 TOP OF IN-LINE CLEANOUT ELEVATION	
CO-MH #	TOP OF MANHOLE EL.	CO #	TOP OF CLEANOUT EL.
CO-MH 1	578.0	CO 1	578.0
CO-MH 2	578.0	CO 2	578.0
CO-MH 3	578.0	CO 3	578.0
CO-MH 4	578.0	CO 4	578.0
CO-MH 5	578.0	CO 5	578.0
CO-MH 6	578.0	CO 6	578.0
CO-MH 7	578.0	CO 7	578.0

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION
A	7/28/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	DRK											
B	8/24/95	REVISED TITLE													
C	9/14/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)													

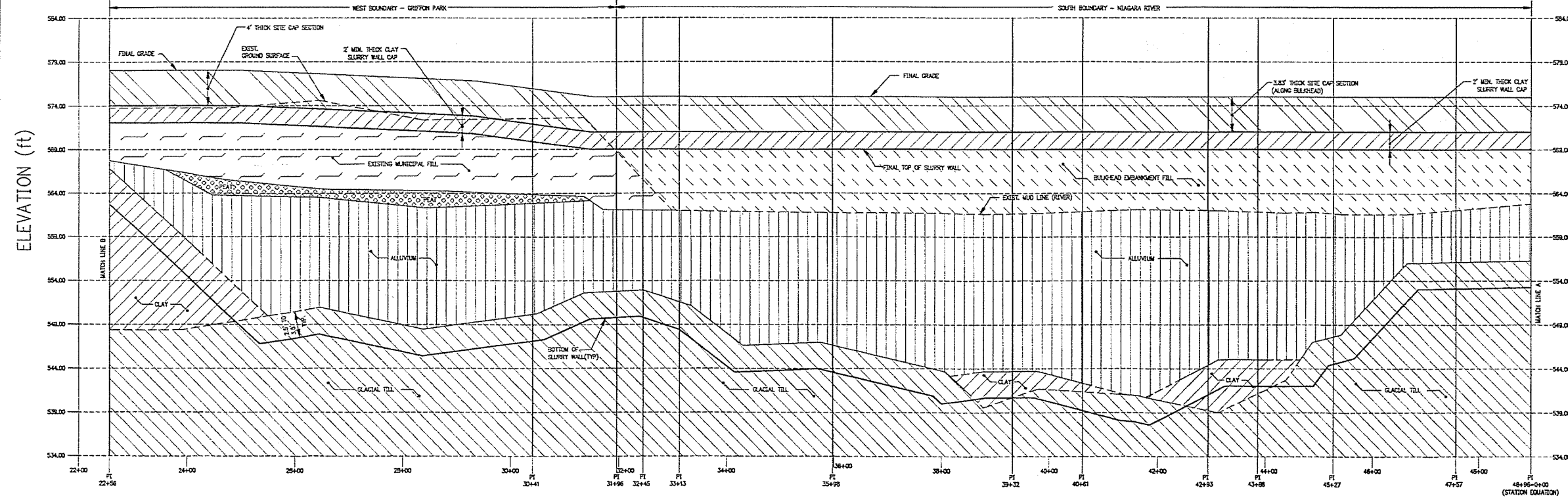
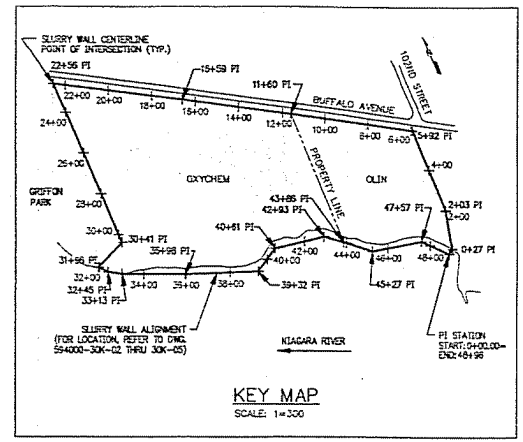


DESIGNED BY
A. BUMB/U. KUMTHEKAR
CHECKED BY
J. GERVAIS
PROJECT ENGINEER
J. GERVAIS
SUPERVISOR
U. KUMTHEKAR
PROJECT MANAGER
R. MARGUCCIA
SCALE
DATE
OXYCHEM/OLIN

OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK
APL COLLECTION SYSTEM
SECTIONS AND DETAILS
DRAWING NO.
594000-30K-08



- NOTES:**
1. DATA CONCERNING SUBSURFACE CONDITIONS HAS BEEN OBTAINED FROM BORINGS PERFORMED DURING THE PREDESIGN FIELD ACTIVITIES. BORING LOGS ARE INCLUDED IN APPENDIX A OF THE PREDESIGN FIELD ACTIVITIES REPORT.
 2. A TWO FOOT THICK NON-CLAY SLURRY WALL CAP IS TO BE INSTALLED ON TOP OF THE SLURRY WALL ALONG ITS ENTIRE LENGTH.
 3. SLURRY WALL WILL BE KEYS INTO THE UNDERLYING GLACIAL TILL/CLAY 2.5 FEET TO 3.5 FEET BELOW ANY WEATHERED ZONE.



NOT FOR CONSTRUCTION

REV.	DATE	REVISION DESCRIPTION	DES. D.R.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. D.R.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	8/29/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)											
B	8/29/95	ENGINEERING REPORT SUBMITTAL (FINAL)											

FLUOR DANIEL

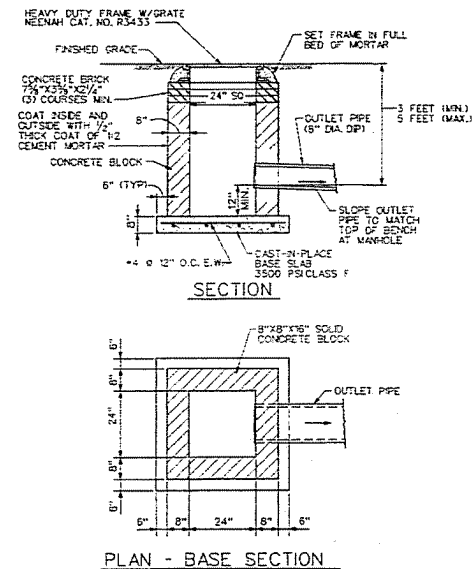
NOTES: THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS LOANED TO THE BORROWER FOR THE CONTRACTOR'S USE ONLY. NO REPRODUCTION OR USE OF THIS DRAWING, THE INFORMATION PROVIDED AND RIGHTS TO RETAIN IT FROM FLUOR DANIEL AND ITS AFFILIATES ARE GRANTED. COPIES, LOAN OR CHANGE SERVICES OF SUBJECTS OR INSTRUMENTS, NOT KEPT FOR REFERENCE UNDER THESE TERMS ARE PROHIBITED.

DESIGNED BY: S. KURTLEK
 CHECKED BY: J. GUYAS
 APPROVED BY: R. SHANAHAN
 DATE: 8/15/95
 PROJECT: R. MASTALON
 DATE: 8/15/95
 CLIENT: OXYCHEM / OLIN

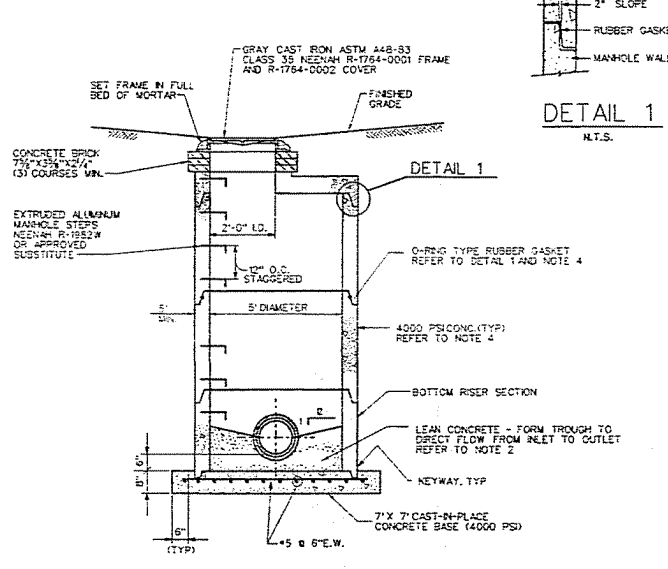
OXYCHEM / OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

SLURRY WALL PROFILE

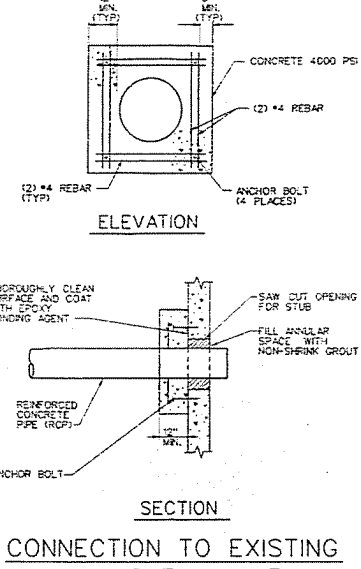
SCALE: AS NOTED
 DRAWING NO: 594000-30K-09
 CADD DRAWING No. 10230K98 02-3-95



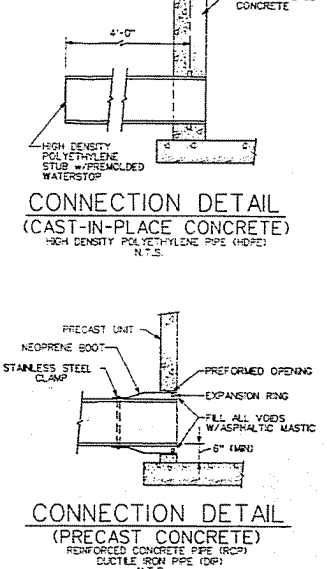
TYPICAL CATCHBASIN DETAIL (BRICK/BLOCK) N.T.S.



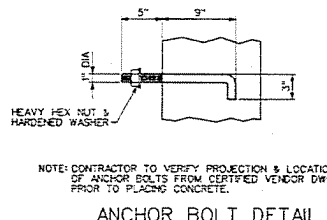
TYPICAL MANHOLE DETAIL - SDMH-6 THRU 11 (PRECAST CONCRETE) N.T.S.



CONNECTION TO EXISTING MANHOLE - MH-3 N.T.S.

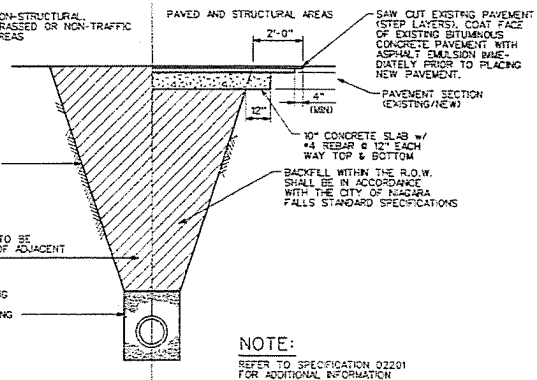


CONNECTION DETAIL (PRECAST CONCRETE) (REINFORCED CONCRETE PIPE (RCP) DUCTILE IRON PIPE (DIP) N.T.S.

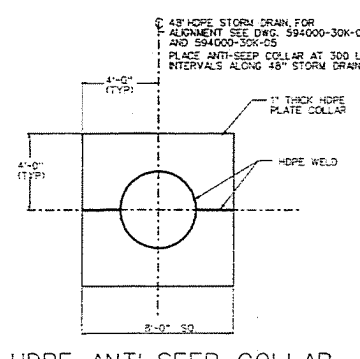


ANCHOR BOLT DETAIL

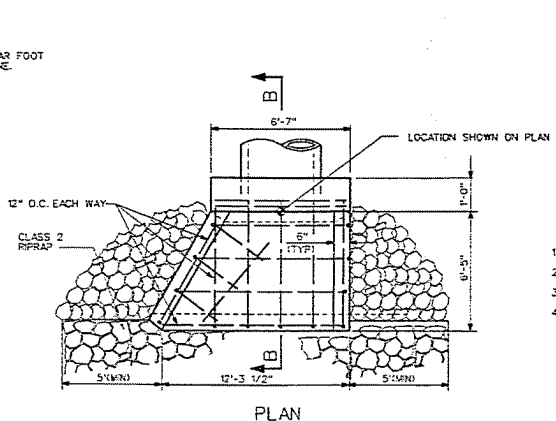
NOTE: SLOPE AS REQUIRED TO MAINTAIN STABILITY OF TRENCH SIDEWALL OR PROVIDE SHEETING TO ENSURE SAFETY OF PERSONNEL AND PROTECT ADJACENT STRUCTURES.



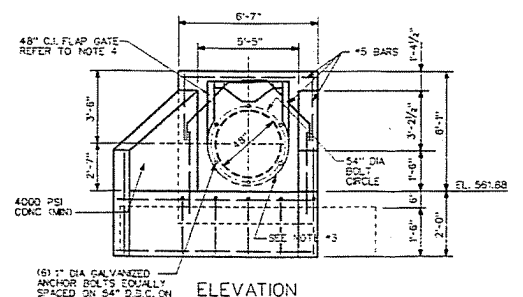
(EXCAVATION/BACKFILL) TYPICAL TRENCH DETAIL N.T.S.



HDPE ANTI-SEEP COLLAR N.T.S.

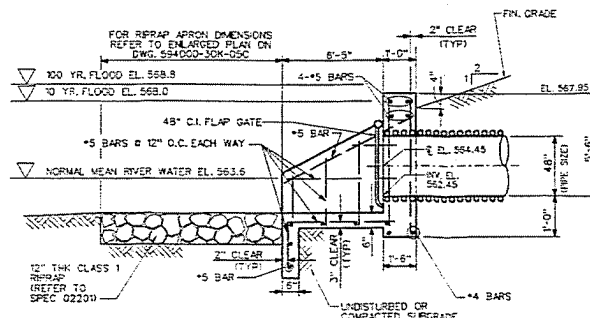


PLAN



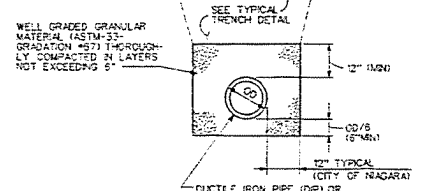
ELEVATION

CONCRETE HEADWALL NOTES:
 1. CONCRETE SHALL HAVE NOT LESS THAN 4000 PSI 28-DAY COMPRESSIVE STRENGTH.
 2. ALL REINFORCEMENT SHALL BE ASTM A615, GR50, SIZE #5 BARS.
 3. SEE DRAWING 594000-30K-05C FOR HEADWALL LOCATION.
 4. FLAP GATE SHALL BE 48 INCH DIAMETER TYPE SF, MODEL #R-5050-SF48 BY NEEHAW FOUNDRY COMPANY OF APPROVED EQUAL. FLAP GATE BODY SHALL BE CAST IRON ASTM A25-B. THE HINGE ARMS SHALL BE HIGH TENSILE BRONZE ASTM B584-C385. AND HINGE PIN SHALL BE TYPE 304 STAINLESS STEEL. FLAP GATE SHALL BE MOUNTED TO CONCRETE WITH SIX 1/2 DIA ANCHOR BOLTS. PROVIDE NEOPRENE SEAT BETWEEN HEADWALL AND VALVE BODY.

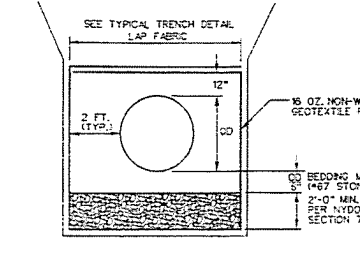


SECTION B-B

CONCRETE HEADWALL DETAIL REFER TO ENLARGED PLAN ON DWG. 594000-30K-05C N.T.S.



TYPICAL BEDDING DETAIL A N.T.S.



TYPICAL BEDDING DETAIL FOR UNSTABLE SUBGRADE N.T.S.

NOTES:

- OPENINGS FOR PIPE IN PRECAST BASE AND RISER UNITS SHALL BE PREFORMED. THE CONTRACTOR SHALL FURNISH THE FABRICATOR WITH ANGLES BETWEEN CENTER LINES, THE INVERT ELEVATION AND THE SIZE OF ALL PIPES. HOLES SHALL BE A MINIMUM OF 4" TO A MAXIMUM OF 6" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE TO BE INSTALLED.
- FORM TROUGH TO DIRECT FLOW FROM INLET(S) TO OUTLET FOR ALL PIPES. DEPTH OF TROUGH SHALL BE EQUAL 1/2 DIAMETER OF OUTLET PIPE.
- REFER TO SITE REMEDIATION PLANS 594000-30K-02C AND 594000-30K-4C 594000-30K-03C FOR LOCATIONS, ELEVATIONS AND PIPE SIZES.
- PRECAST REINFORCED CONCRETE RISER SECTIONS SHALL CONFORM TO ASTM C478. RUBBER GASKETS FOR JOINTS SHALL CONFORM TO ASTM C443.
- FOR ADDITIONAL NOTES SEE DRAWING 594000-150-01.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REFERENCE DRAWINGS	DATE	REFERENCE DRAWINGS
4	5/25/04	ISSUED FOR REVIEW AND APPROVAL (STORM DRAINAGE)										
0	5/25/04	ISSUED FOR CONSTRUCTION (STORM DRAINAGE)										
1	5/25/04	FINAL ENGINEERING REPORT DRAFT SUBMITTAL										

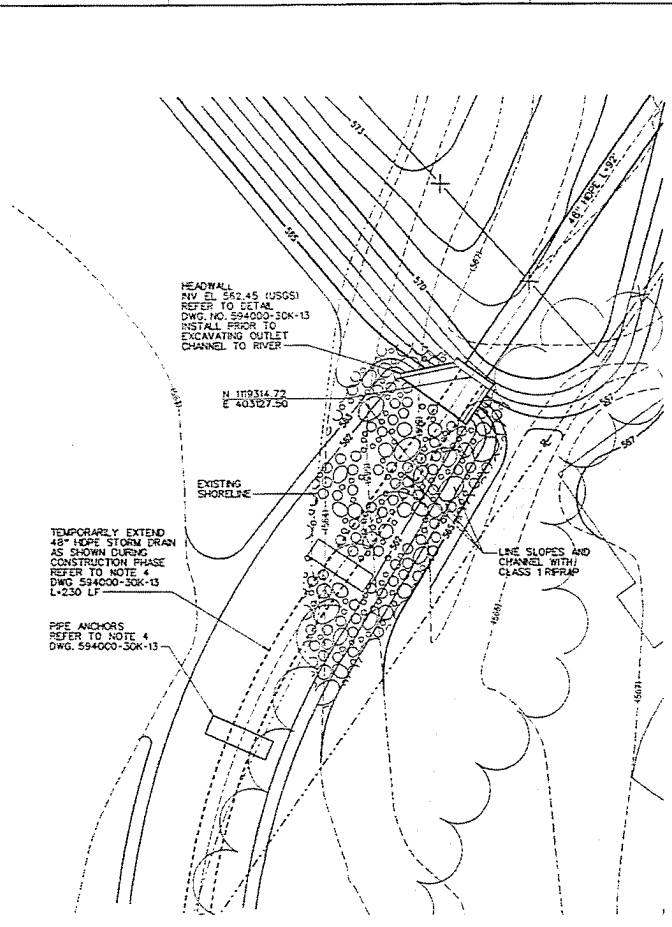


DESIGNED BY: J. GERVASIS
 CHECKED BY: J. GERVASIS
 APPROVED BY: R. MAROUSSAKIS
 DATE: 5/25/04

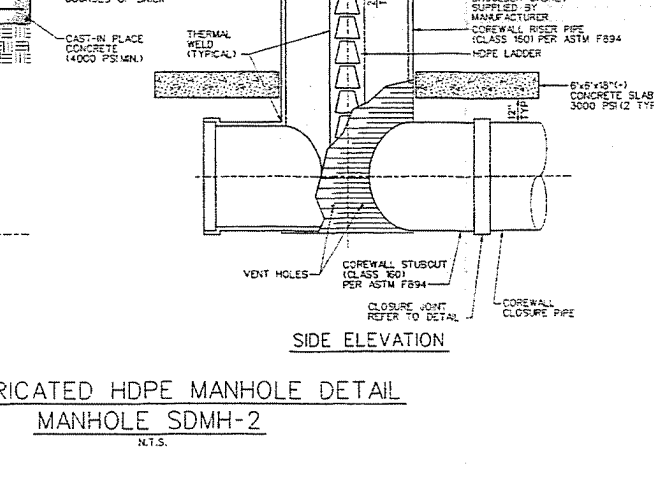
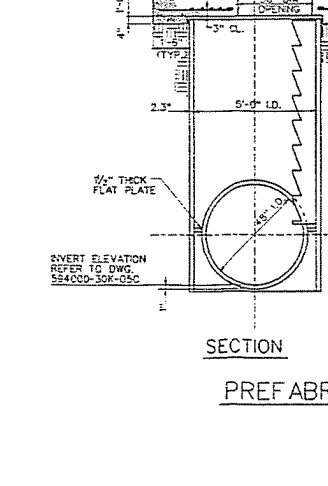
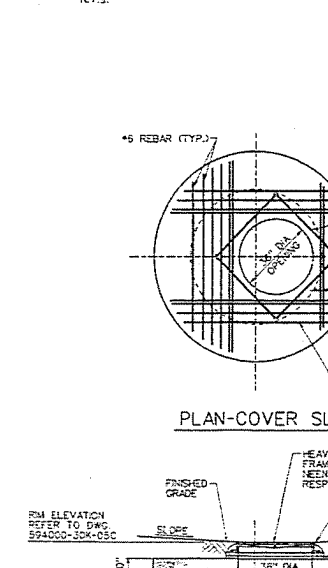
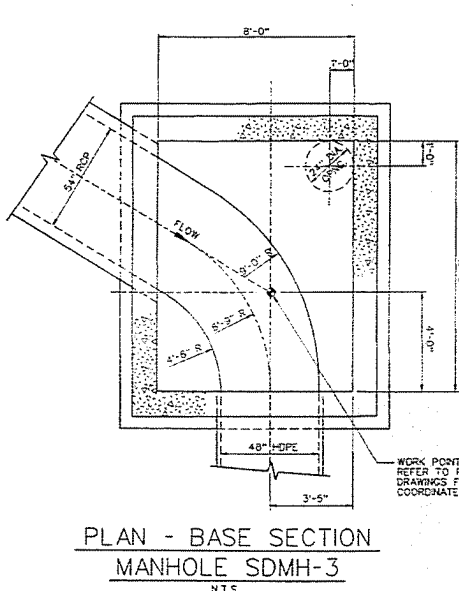
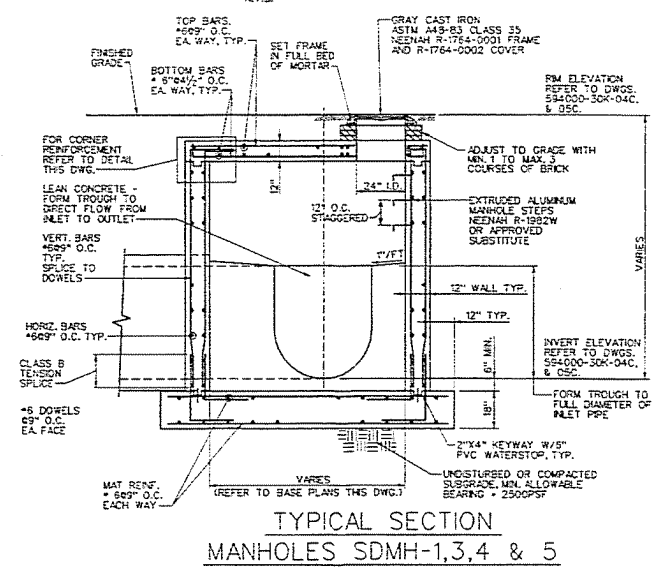
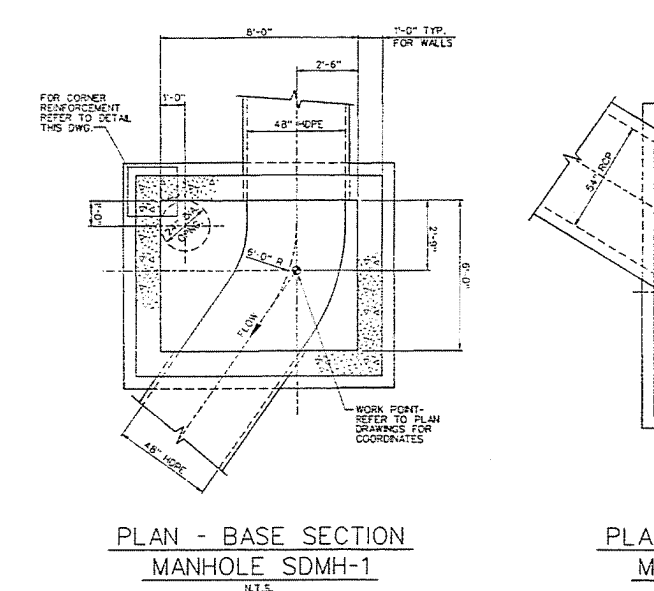
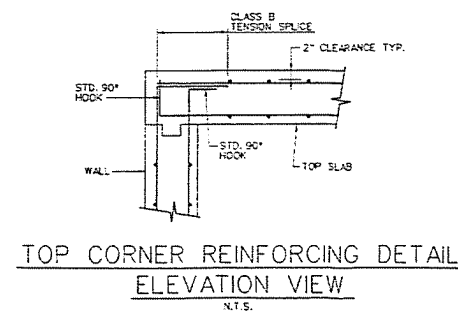
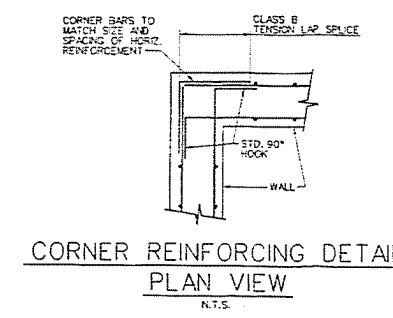
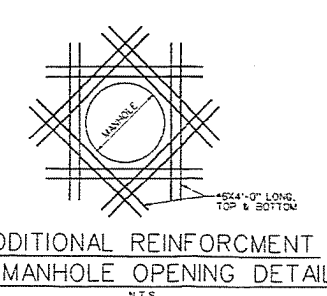
OXYCHEM/OLIN REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

STORM DRAINAGE SECTIONS AND DETAILS

NOTED 594000-30K-13



ENLARGED PLAN
SCALE: 1"=10'
594000-30K-05C



PREFABRICATED HDPE MANHOLE DETAIL
MANHOLE SDMH-2
N.T.S.

- NOTES
- REFER TO DWG. 594000-150-01 FOR ADDITIONAL NOTES.
 - REINFORCING STEEL SHALL BE GRADE 60.
 - CONCRETE STRENGTH SHALL BE 4000 PSI AT 28 DAYS. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.40.
 - PLACE CONCRETE IN ACCORDANCE WITH AC 301-89.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	5/15/05	FINAL ENGINEERING REPORT DRAFT SUBMITTAL	JG	JG									



DESIGNED BY
BARBER/GERVAS

DRAWN BY
J.G. GERVAS

CHECKED BY
J.G. GERVAS

DATE
5/15/05

SCALE
AS SHOWN

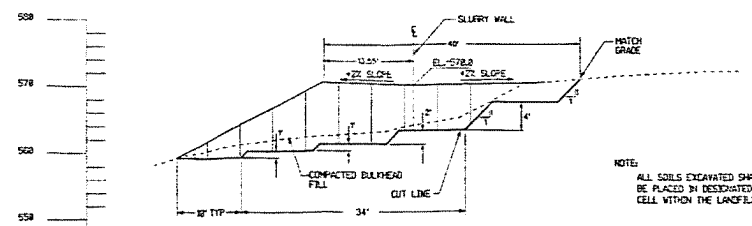
PROJECT NO.
594000-30K-14

NOTED

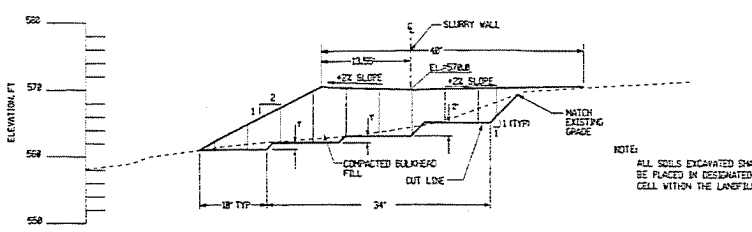
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OXYCHEM/OLIN
REMEDIAL DESIGN
102nd STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

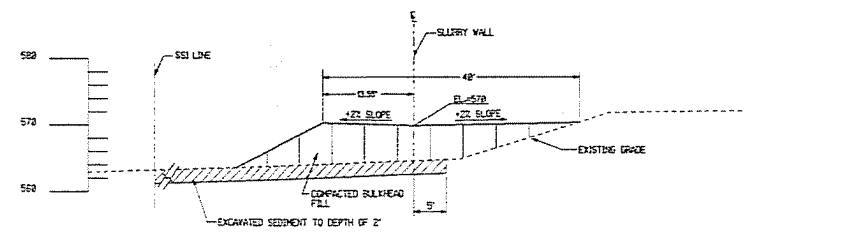
STORM DRAIN
SECTIONS AND DETAILS



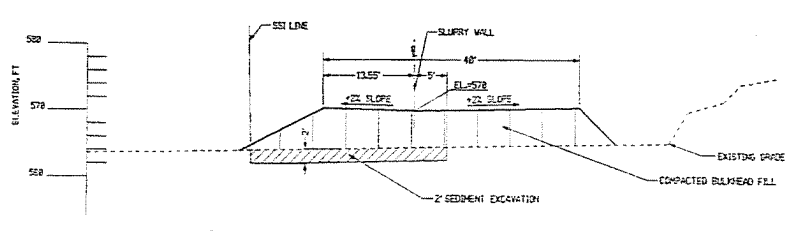
**BULKHEAD (PHASE I)
SLURRY WALL WORK PLATFORM**
NTS
30K-03
H



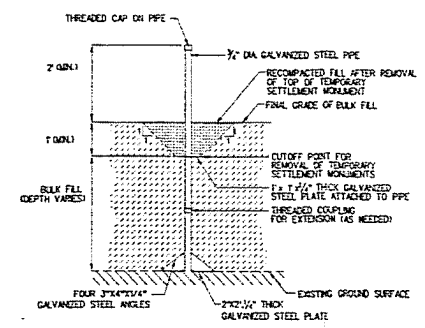
**BULKHEAD (PHASE I)
SLURRY WALL WORK PLATFORM**
NTS
30K-03
I



**BULKHEAD (PHASE I)
SLURRY WALL WORK PLATFORM**
NTS
30K-03
J

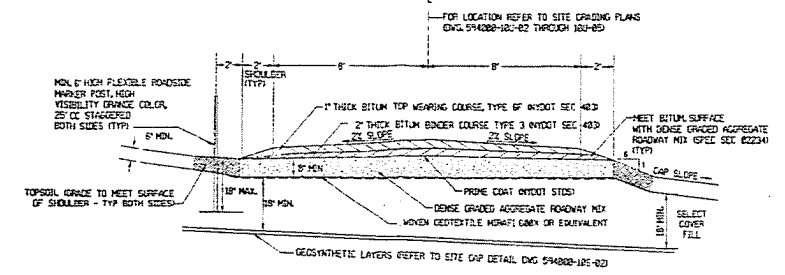


**BULKHEAD (TYP. PHASE I)
SLURRY WALL WORK PLATFORM**
NTS
30K-03
K

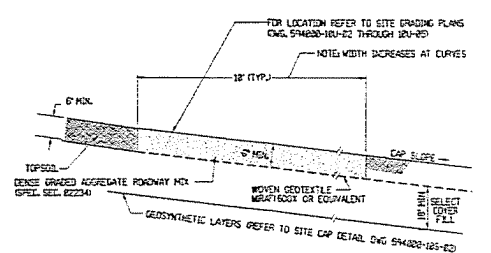


**TEMPORARY
SETTLEMENT MONUMENT**
NTS

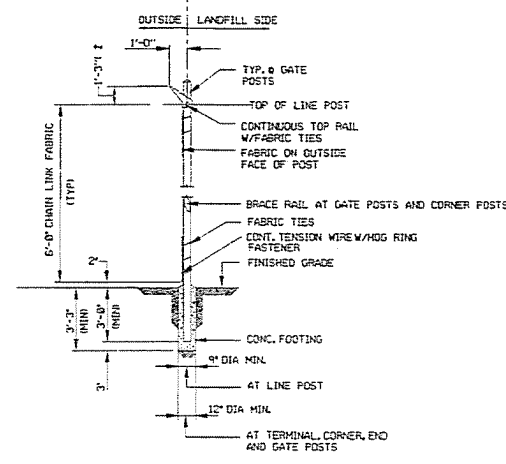
- SETTLEMENT MONUMENT NOTES**
1. INSTALLATION OF TEMPORARY SETTLEMENT MONUMENT BY OWNER.
 2. CONTRACTOR TO REMOVE TOP OF TEMPORARY SETTLEMENT MONUMENTS A MINIMUM OF ONE FOOT BELOW FINAL GRADE OF THE BULK FILL AS SHOWN ABOVE BEFORE CONSTRUCTION OF THE SITE CAP.



LOADOUT FACILITY ACCESS ROAD DETAIL
NTS

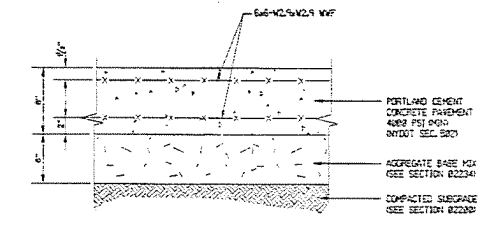


LIGHT DUTY ACCESS ROAD DETAIL
NTS



TYPICAL FENCE POST DETAIL
NTS

- FENCING NOTES**
1. FOR LOCATION OF FENCING, SEE DWGS. 594000-105-02 THROUGH 105-05.
 2. ALL FENCING MATERIAL SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 02334.
 3. DOUBLE SLIDE GATE FRAMES SHALL BE 1-1/2 INCH SCHEDULE 40 HOT DIP GALVANIZED STEEL PIPE WITH 1-1/2 INCH SCHEDULE 40 INTERMEDIATE POSTS AND 3/4 INCH GALVANIZED POSTS.
 4. ALL HARDWARE SHALL BE MANUFACTURER'S STANDARD HARDWARE.
 5. TOP RAIL IS REQUIRED FOR ALL PERMANENT FENCING. TENSION WIRE MAY BE USED IN LIEU OF TOP RAIL FOR TEMPORARY FENCING.
 6. ALL POSTS FOR PERMANENT FENCING SHALL BE SET IN CONCRETE AS PER THIS DETAIL.
 7. CORNER, END AND GATE POSTS FOR TEMPORARY FENCING SHALL BE SET IN CONCRETE AS PER THIS DETAIL. LINE POSTS FOR TEMPORARY FENCING MAY BE SET IN THE GROUND AND STABILIZED USING DRIVE ANCHORS.



CONCRETE APRON DETAIL
NTS

- GENERAL NOTES**
1. APRON LOCATED BETWEEN EDGE OF EXISTING PAVEMENT OF BUFFALO AVENUE AND RIGHT-OF-WAY FOR THE FULL WIDTH OF THE LOADOUT FACILITY ACCESS ROAD INTO THE SITE.

REV.	DATE	REVISION DESCRIPTION	DES. BY	APPROVED	REV. DATE	REVISION DESCRIPTION	DES. BY	APPROVED	ENCL.	REFERENCE DRAWING	DWG. NO.	REFERENCE DRAWING
A	05/24/15	ENGINEERING REPORT SUBMITTAL (PRELIMINARY INTERIM)	JFS	DKK								
B	05/25/15	FINAL ENGINEERING REPORT (GRANT SUBMITTAL)	JFS	DKK								

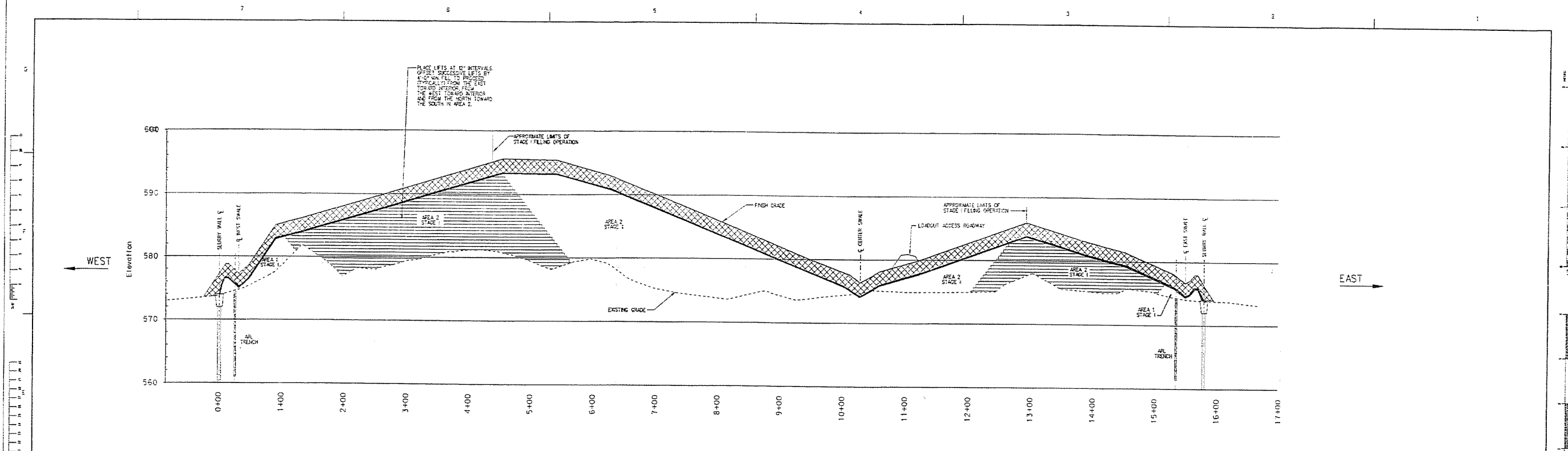


DESIGNED BY
T. SZYMOMAK
CHECKED BY
J. GERVAIS
DRAWN BY
J. GERVAIS
DATE
05/24/15

OXYCHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

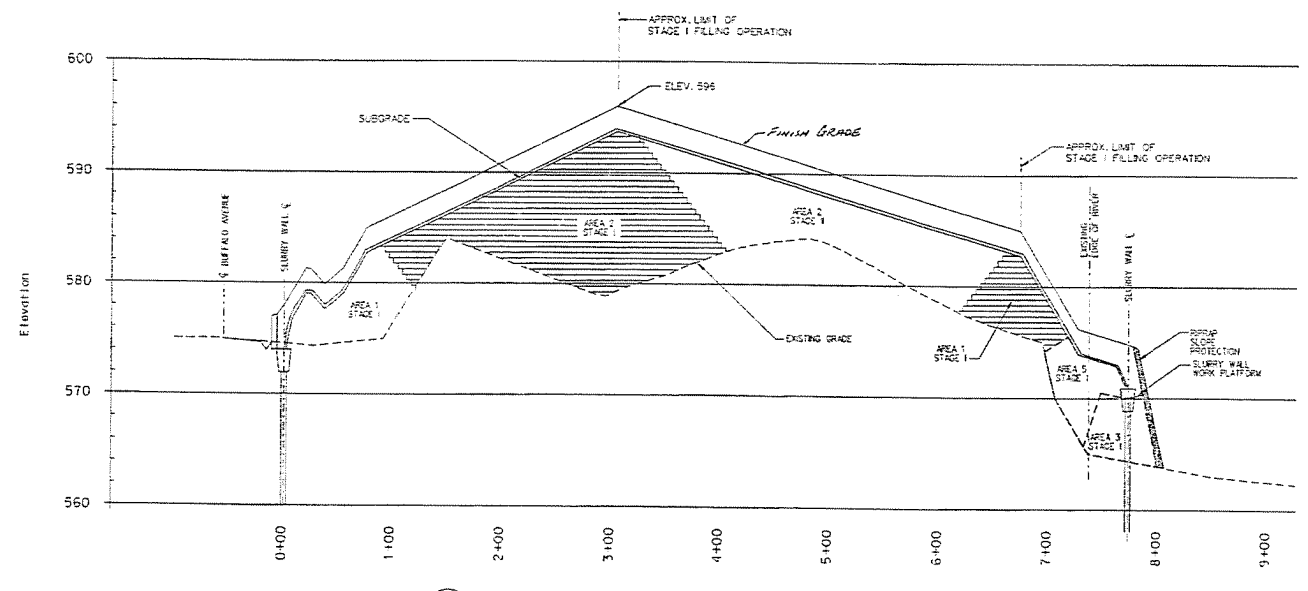
SITE DETAILS

DRAWING NUMBER
594000-105-01



SECTION 1
 SCALE
 HORIZ. 1" = 50'
 VERT. 1" = 5'

NOTE: VERTICAL DIMENSIONS EXAGGERATED 10 TIMES.

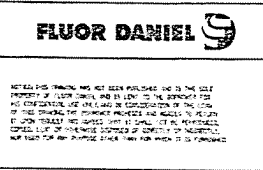


SECTION 2
 SCALE
 HORIZ. 1" = 50'
 VERT. 1" = 5'

NOTE: VERTICAL DIMENSIONS EXAGGERATED 10 TIMES.

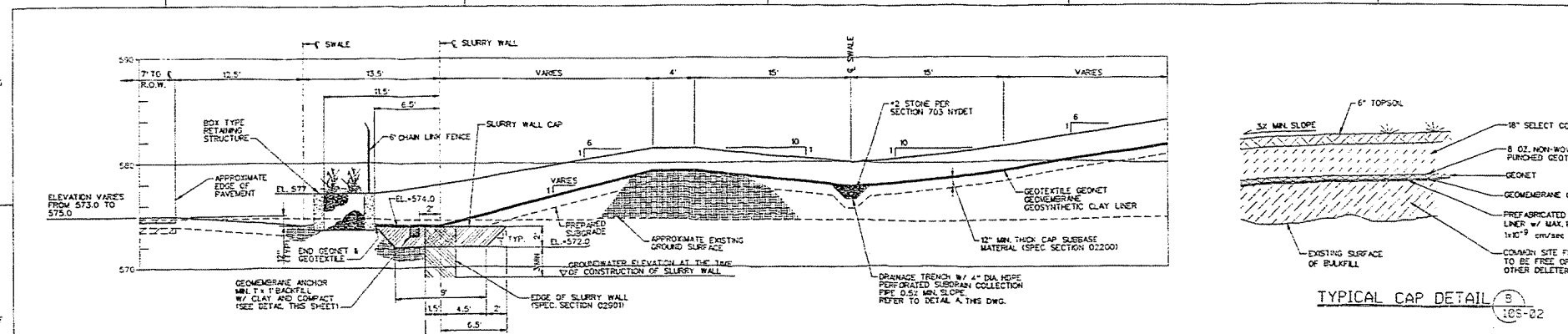
- NOTES:
- EXISTING GRADE BASED ON TOPOGRAPHICAL INFORMATION PROVIDED BY MARITON & MONTGOMERY P.C. ON MAY 11, 1993. THEREFORE, FILL PLACED AFTER THIS DATE IS NOT SHOWN.
 - REFER TO DWGS. 594000-100-01 & 02 FOR SEQUENCING OF CONSTRUCTION ACTIVITIES.
 - REFER TO DWG. 594000-100-01 FOR FINAL GRADING PLAN.
 - REFER TO DWG. 594000-105-01 AND -02 FOR DETAILS OF CAPPING SYSTEM AND BULKHEAD.
 - REFER TO DWG. 594000-300-09 FOR LAYOUT OF SLURRY WALL.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	ENCL.	REFERENCE DRAWINGS	ENCL.	REFERENCE DRAWINGS
A	12/2/93	ENGINEERING SUBMITTAL REPORT (PRELIMINARY/INTERMEDIATE)											
B	5/9/95	FINAL ENGINEERING REPORT (FINAL SUBMITTAL)											

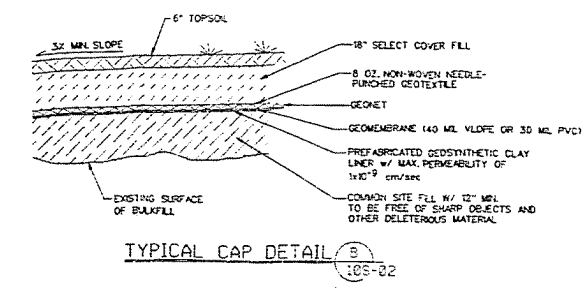


DESIGNED BY
 T. L. MOORE
 CHECKED BY
 J. L. VAREAS
 APPROVED BY
 J. L. VAREAS
 DATE
 5/9/95

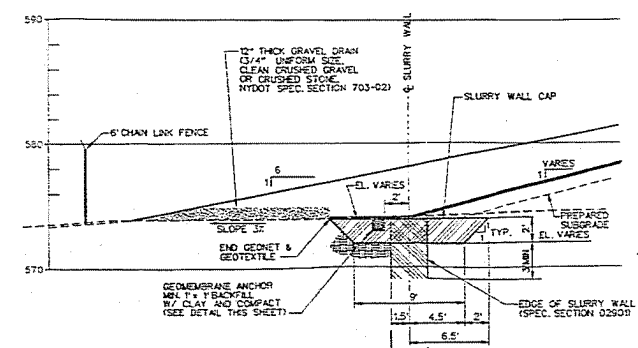
OXYCHEM / OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK
 SITE GRADING CROSS SECTIONS
 DRAWN BY
 J. L. VAREAS
 DATE
 5/9/95
 594000-105-03



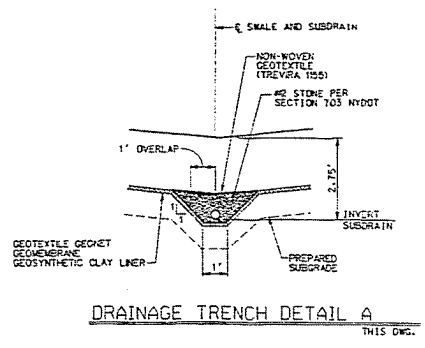
TYPICAL LANDFILL/ SLURRY WALL DETAIL TOE AT BUFFALO AVENUE



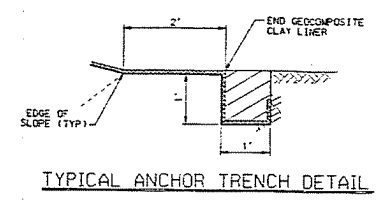
TYPICAL CAP DETAIL 105-02



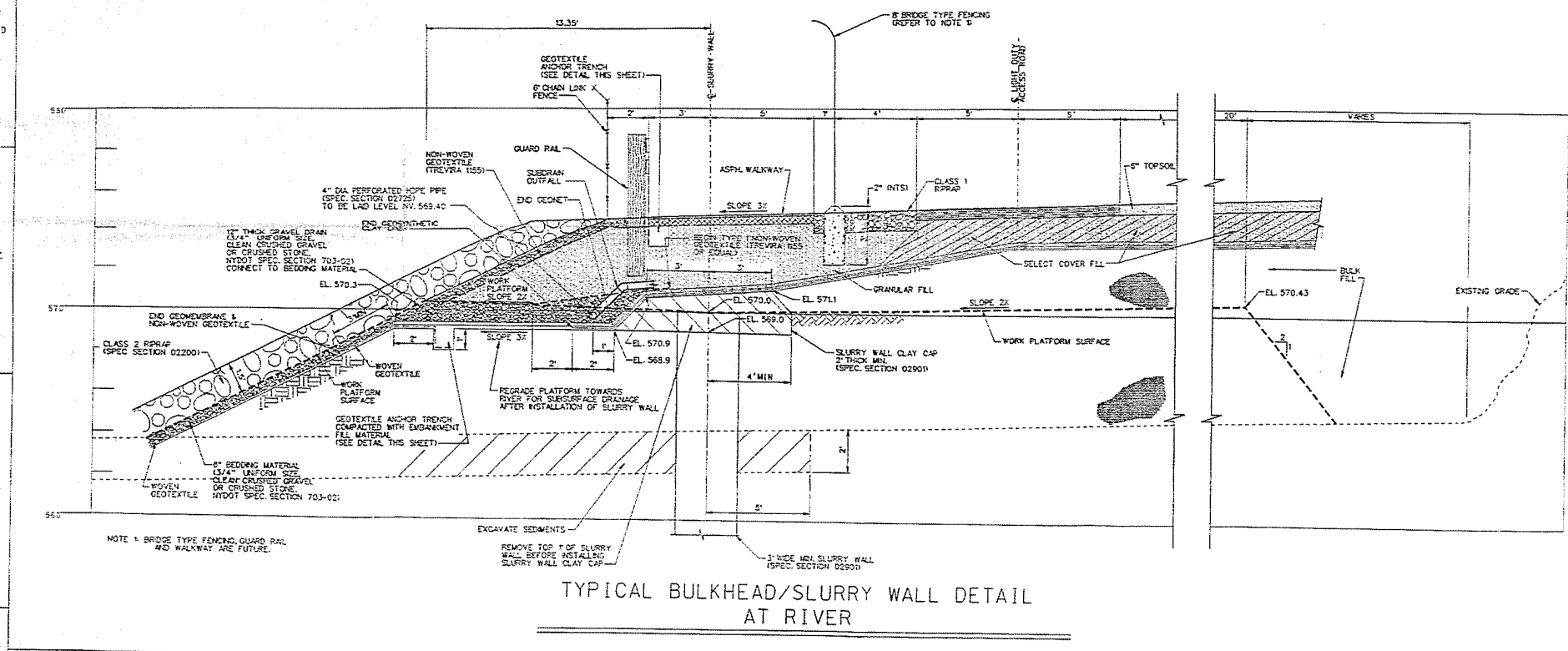
TYPICAL LANDFILL/ SLURRY WALL DETAIL-EAST WEST



DRAINAGE TRENCH DETAIL A THIS DWG.



TYPICAL ANCHOR TRENCH DETAIL



TYPICAL BULKHEAD/SLURRY WALL DETAIL AT RIVER

- GENERAL NOTES:
- FIELD INSTALLATION AND TESTING OF GEOSYNTHETIC LAYERS SHALL BE AS RECOMMENDED BY THEIR RESPECTIVE MANUFACTURERS AND APPROVED BY THE CONSTRUCTION MANAGER. THE GEOSYNTHETIC LAYERS SHALL BE INSTALLED BY AN EXPERIENCED INSTALLER. ALL SUBMITTALS AND RESULTS OF TESTING DATA SHALL BE APPROVED BY THE CONSTRUCTION MANAGER PRIOR TO ANY MATERIALS ARRIVING ON THE SITE.
 - THE CONTRACTOR SHALL SUBMIT A QUALITY CONTROL AND FIELD TESTING PLAN INCLUDING APPROPRIATE ASTM STANDARD METHODS AS RECOMMENDED BY THE GEOSYNTHETIC MANUFACTURERS FOR THE CONSTRUCTION MANAGER'S APPROVAL.
 - THE WOVEN GEOTEXTILE SHALL BE M8071 700Z, OR EXXON GTF-400Z, OR EQUIVALENT.
 - THE NON-WOVEN GEOTEXTILE SHALL BE TREVIRA SPUNBOND 1025, OR POLYFELT 1750Z, OR EQUIVALENT, UNLESS SHOWN OTHERWISE IN THE DETAIL.
 - THE GEONET SHALL BE GUNBLE GRANDET XL-14, OR NATIONAL SEAL COMPANY POLY-NET 2000, OR EQUIVALENT HAVING A MINIMUM TRANSMISSIVITY OF 0.001x10^-9 SQUARE METERS PER SECOND FOR EACH FOOT OF WIDTH FOR ALL SLOPES.
 - THE GEOMEMBRANE SHALL BE A MINIMUM 40 ML THICK LOPE. THE GEOMEMBRANE SHALL BE GUNBLE GRANDET XL-14, OR NATIONAL SEAL COMPANY VLDPE, OR EQUIVALENT.
 - THE GEOSYNTHETIC CLAY LINER SHALL BE CLAYMAX 200R, OR CETCO BENTOMAT CS, OR EQUIVALENT.
 - THE PROPOSED MATERIALS FOR THE CAP SLOPE ALONG BUFFALO AVENUE SHOULD BE SUBMITTED BY THE CONTRACTOR FOR DIRECT SHEAR TESTING. A MINIMUM FRICTION ANGLE OF 11 DEGREES MUST BE OBTAINED USING THE PROPOSED GEOSYNTHETIC MATERIALS AND SITE SPECIFIC SOILS. TESTING BY AN INDEPENDENT LAB, MANUFACTURER'S TEST DATA IS NOT SUFFICIENT. SHALL MEET THE FOLLOWING REQUIREMENTS:
 - A BLEND & COMPOSITE OF THE PROPOSED COMPONENTS OF THE CAP SYSTEM INCLUDING SELECT COVER FILL, GEOTEXTILE/GEONET/GEOTEXTILE DRAINAGE COMPOSITE, 40 ML GEOMEMBRANE, HYDRATED GEOSYNTHETIC CLAY LINER, AND SUBBASE MATERIAL FOR DIRECT SHEAR TESTING.
 - FOLLOW THE PROCEDURES FOR DIRECT SHEAR TESTING FOR GEOSYNTHETIC SYSTEMS AS DESCRIBED IN ASTM STANDARD TEST METHOD D5209. DETERMINING THE COEFFICIENT OF SOIL AND GEOSYNTHETIC FRICTION BY THE DIRECT SHEAR METHOD. USE A MINIMUM 12" X 12" SHEAR BOX.
 - THREE POINTS ON THE MOISTURE-COLLAPSED ENVELOPE ARE REQUIRED. USE NORMAL STRESSES OF 150, 300, AND 600 P.S.F.
 - HYDRATE THE GEOSYNTHETIC CLAY LINER UNDER THE THREE PREVIOUSLY SPECIFIED NORMAL STRESSES, TRANSFER THE GCL TO THE DIRECT SHEAR BOX, REESTABLISH THE NORMAL STRESS, AND THEN PERFORM THE SHEAR.
 - THE TEXTURED GEOMEMBRANE SHALL BE PLACED ON SLOPES GREATER THAN 20% AND SHALL BE A MINIMUM 40 ML THICK. THE TEXTURED GEOMEMBRANE SHALL BE BY GUNBLE GRANDET VLT, OR NATIONAL SEAL COMPANY FRICTION SEAL VL, OR EQUIVALENT. IF THE TEXTURED GEOMEMBRANE IS A DIFFERENT MATERIAL THAN THE NON-TEXTURED GEOMEMBRANE, THE INSTALLER IS RESPONSIBLE FOR DEVELOPING AND DEMONSTRATING AN EFFECTIVE MECHANISM TO CREATE A WATER TIGHT SEAL BETWEEN THE TWO MATERIALS.
 - THE GEOSYNTHETIC CLAY LINER ON SLOPES GREATER THAN 10% SHALL BE CLAYMAX SHEAR PRO 500SP OR EQUIVALENT.

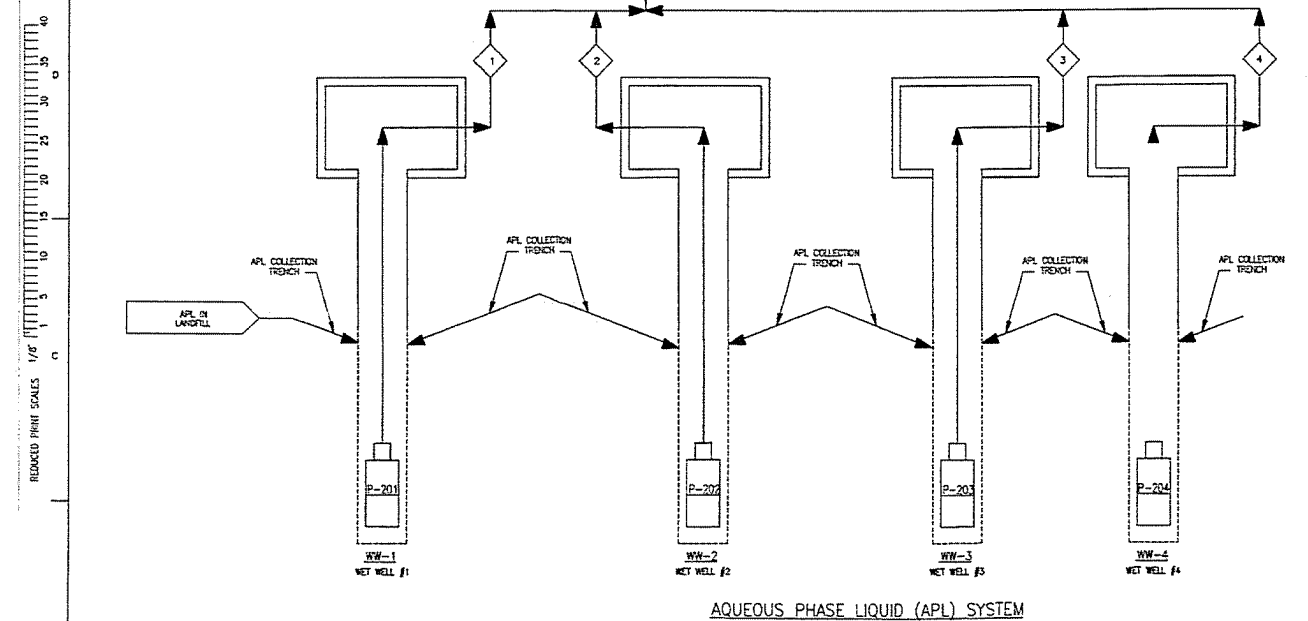
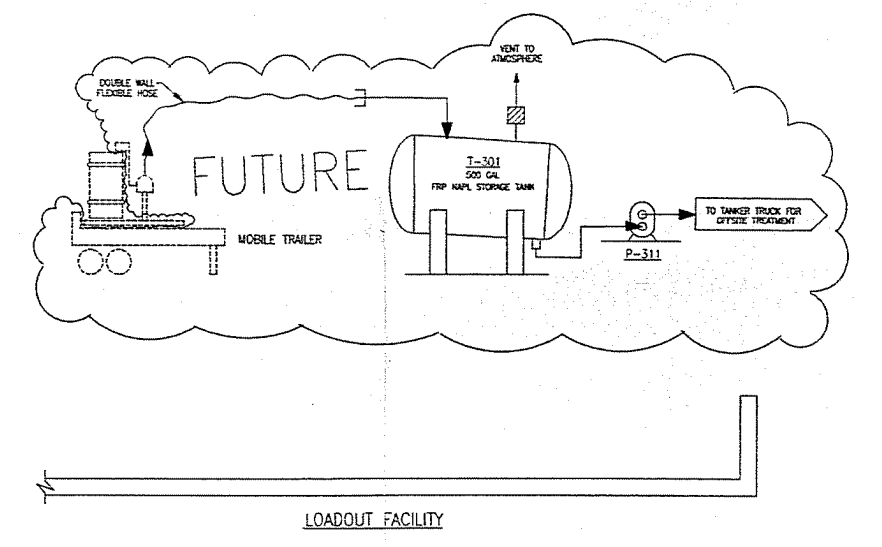
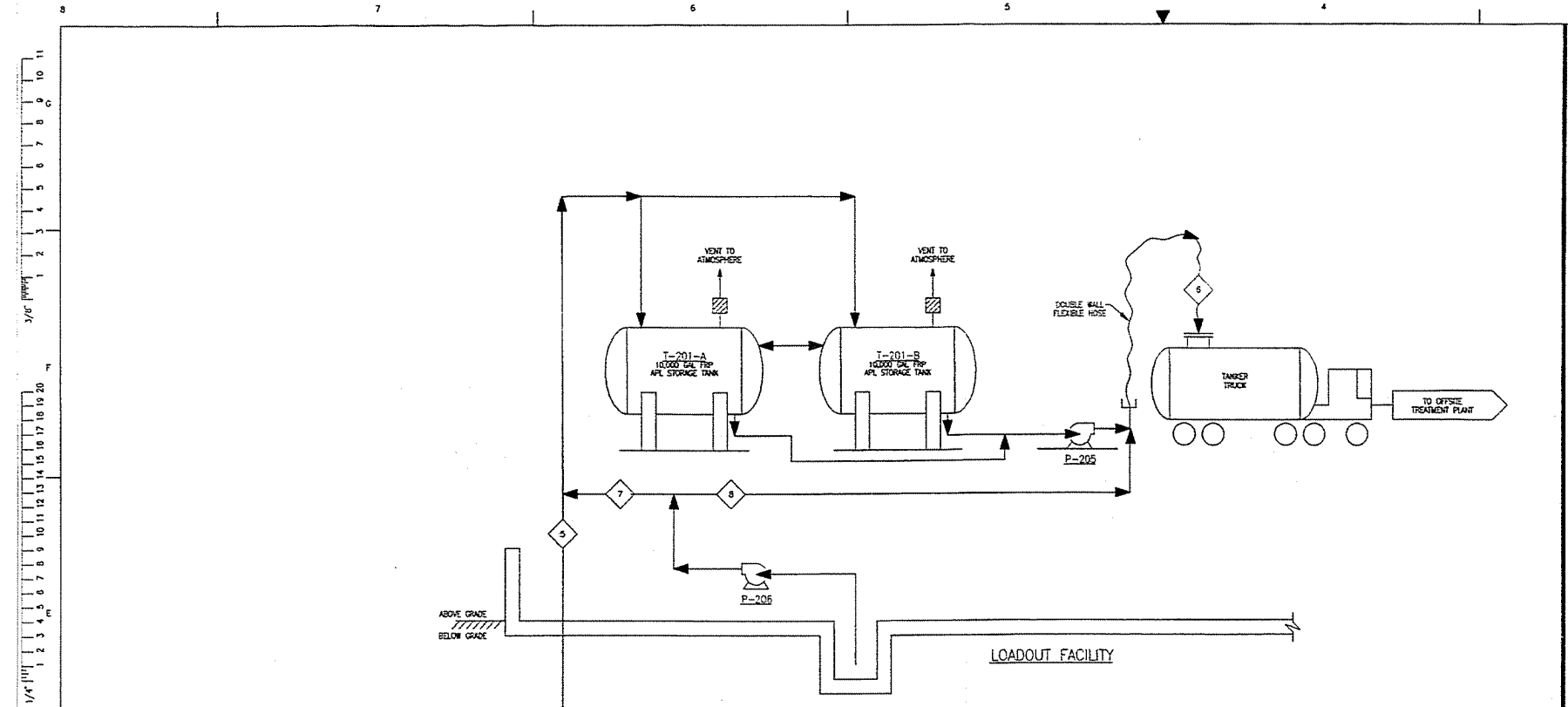
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REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	ENG'G.	REFERENCE DRAWINGS	ENG'G.	REFERENCE DRAWINGS
A	10/29/10	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JTG	JTG									
B	10/29/10	REVISED TITLE	JTG	JTG									
C	11/16/10	FINAL ENGINEERING REPORT (CRAFT SUBMITTAL)	JTG	JTG									

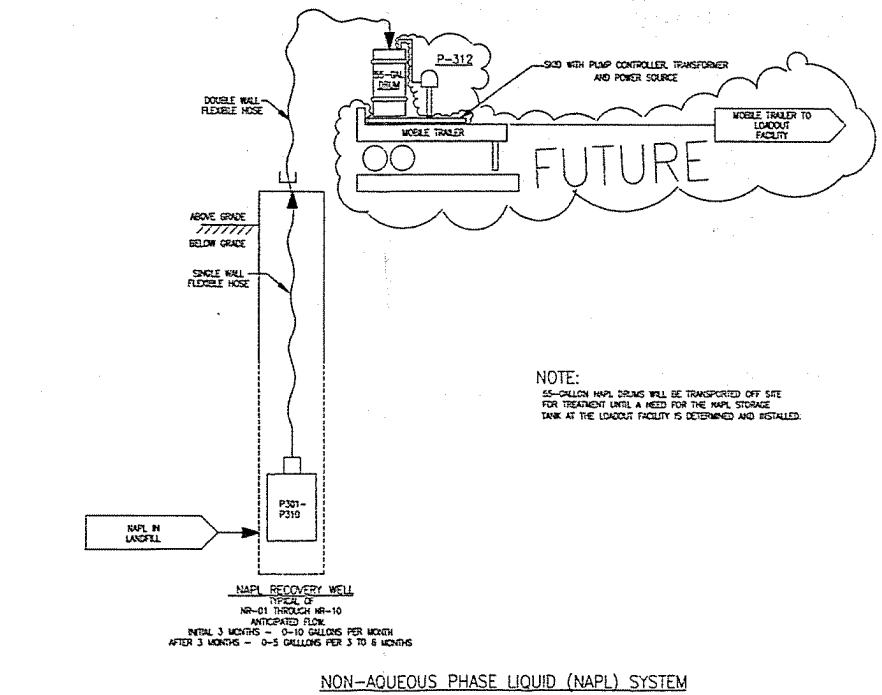


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DESIGNED BY J. GERVAISE CHECKED BY J. GERVAISE DATE 10/29/10	OXYCHEM / OLIN REMEDIAL DESIGN 102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK CAPPING SYSTEM AND BULKHEAD SECTION AND DETAILS
DRAWING NUMBER 594000-105-02	DATE 10/29/10



NOMINAL DAILY FLOWS			
STREAM NO	DESCRIPTION	INITIAL FLOW (GPD)	STEADY STATE FLOW (GPD)
1	APL FROM WW-1	8000 MAX	125 AVG
2	APL FROM WW-2	8000 MAX	125 AVG
3	APL FROM WW-3	8000 MAX	75 AVG
4	APL FROM WW-4	8000 MAX	75 AVG
5	TOTAL APL RECOVERY	20,000 AVG	400 AVG
6	APL TO TREATMENT	20,000 AVG	AS NEEDED
7	SLIMP LIQUID TO TANKS	ONLY USED FOR SPILLS/RYM-OFF	ONLY USED FOR SPILLS/RYM-OFF
8	SLIMP LIQUID TO TANKER TRUCK	ONLY USED FOR SPILLS/RYM-OFF WHEN TANKS ARE OUT OF SERVICE	ONLY USED FOR SPILLS/RYM-OFF WHEN TANKS ARE OUT OF SERVICE



NOTE:
55-GALLON NAPL DRUMS WILL BE TRANSPORTED OFF SITE FOR TREATMENT UNTIL A NEED FOR THE NAPL STORAGE TANK AT THE LOADOUT FACILITY IS DETERMINED AND INSTALLED.

REV.	DATE	REVISION DESCRIPTION	DES.	APP'D	REV.	DATE	REVISION DESCRIPTION	DES.	APP'D	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	8/15/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ASB	CSK									
B	8/15/95	FINAL ENGINEERING REPORT (DRYNT SUBMITTAL)	ASB	CSK									

FLUOR DANIEL
GPS-CENTER

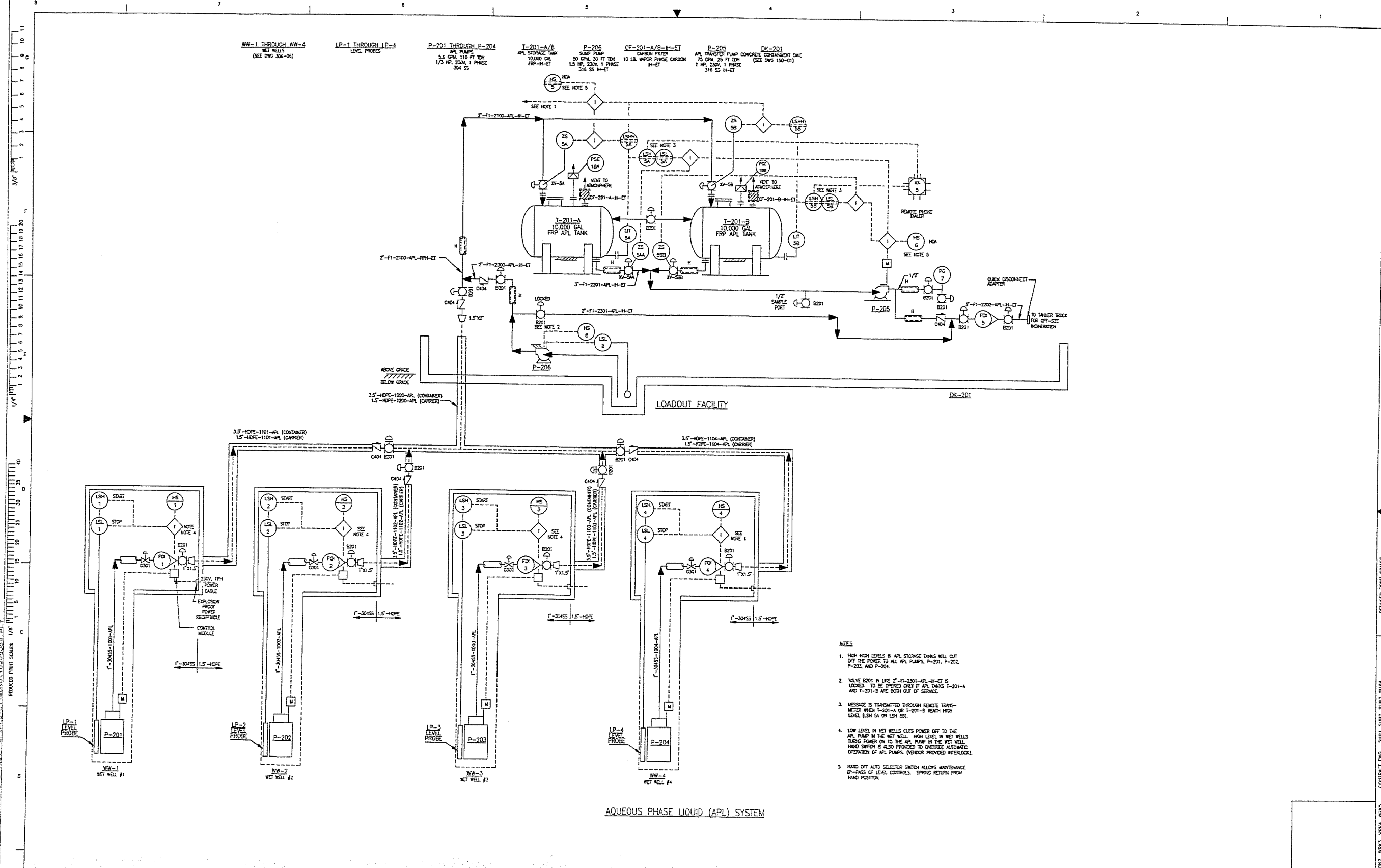
DESIGNED BY: ABOBE/MACNELS
CHECKED BY: ALGERIAS
APPROVED: ALGERIAS
DATE: 8/15/95

PROJECT: NIAGARAFALLS
CLIENT: OXYCHEM/OLIN

OXICHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

APL AND NAPL SYSTEMS
FLOW DIAGRAM

DATE: 8/15/95
DRAWING NUMBER: 594000-25J-01



- NOTES:
1. HIGH LEVELS IN APL STORAGE TANKS WILL CUT OFF THE POWER TO ALL PUMPS, P-201, P-202, P-203, AND P-204.
 2. VALVE E201 IN LINE T-FI-2301-APL-HH-ET IS LOCKED. TO BE OPERATED ONLY IF APL TANKS T-201-A AND T-201-B ARE BOTH OUT OF SERVICE.
 3. MESSAGE IS TRANSMITTED THROUGH REMOTE TRANSMITTER WHEN T-201-A OR T-201-B REACH HIGH LEVEL (LSH SA OR LSH SB).
 4. LOW LEVEL IN NET WELLS CUTS POWER OFF TO THE APL PUMP IN THE NET WELL. HIGH LEVEL IN NET WELLS TURNS POWER ON TO THE APL PUMP IN THE NET WELL. HAND SWITCH IS ALSO PROVIDED TO OVERRIDE AUTOMATIC OPERATION OF APL PUMPS. (VENDOR PROVIDED INTERLOCK).
 5. HAND OFF AUTO SELECTOR SWITCH ALLOWS MAINTENANCE BY-PASS OF LEVEL CONTROLS. SPRING RETURN FROM HAND POSITION.

AQUEOUS PHASE LIQUID (APL) SYSTEM

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	DATE	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	11-29-93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ALB	ALB									
B	01/26/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	ALB	ALB									

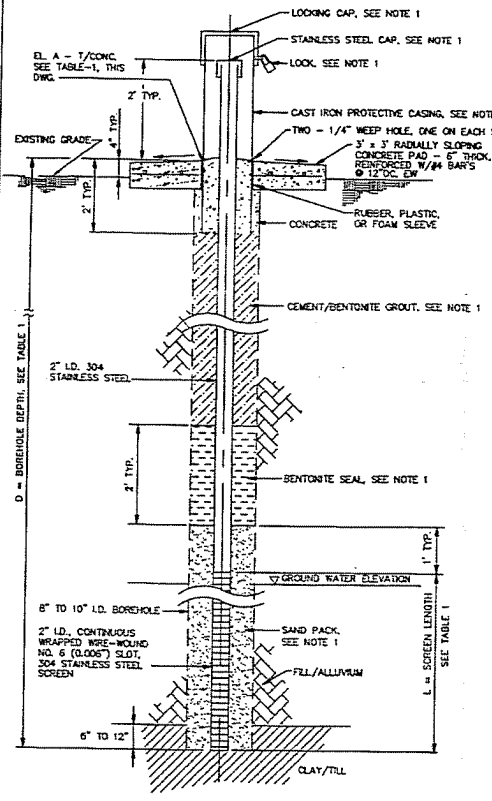
FLUOR DANIEL
OPS-CENTER

ISSUED BY: ALB/MS/LOTHBEN
 CHECKED BY: JLD/MS
 APPROVED BY: JLD/MS
 PROJECT: 594000-25J-02
 DATE: 11/15/95
 DRAWN BY: ALB/MS
 SCALE: NONE
 SHEET NO: 3

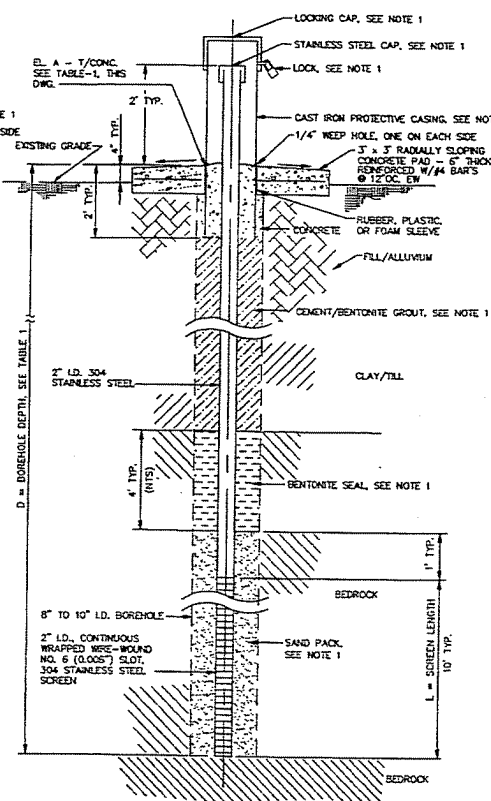
OXYCHEM/OLIN
 REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

PIPING & INSTRUMENTATION DIAGRAM
 APL SYSTEM

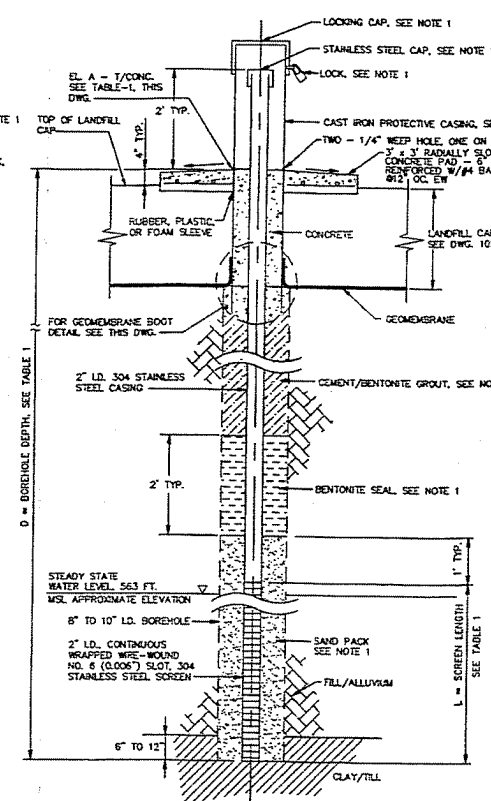
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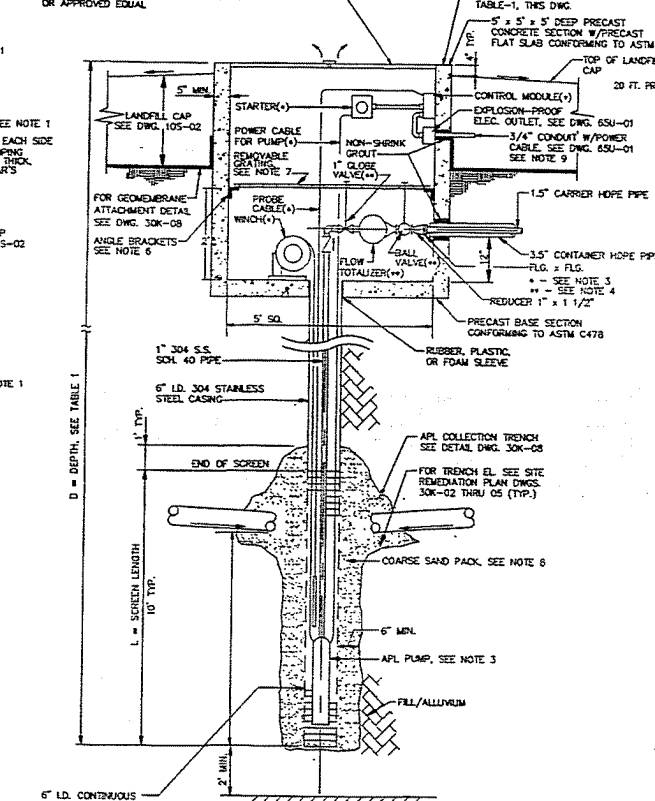
SEE NOTE 10
POST CLOSURE MONITORING WELL (PCM) DETAIL
 PCM-01 THROUGH PCM-08
 N.T.S.



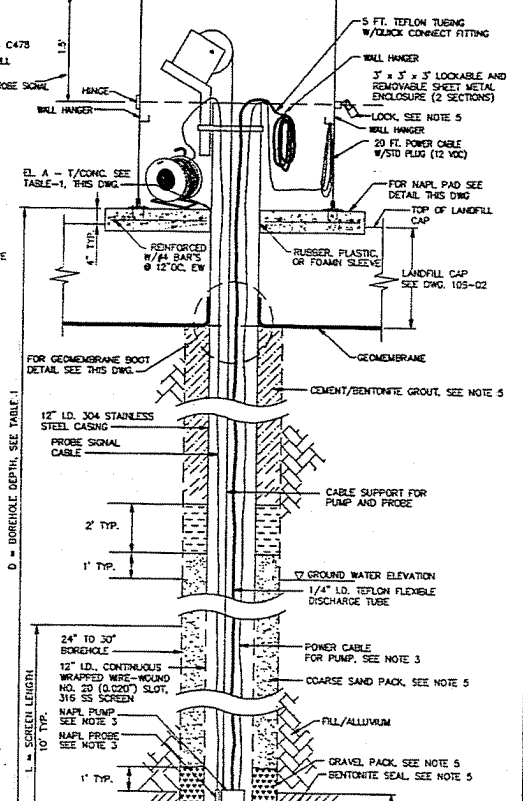
SEE NOTE 10
POST CLOSURE BEDROCK MONITORING WELL (PCBM) DETAIL
 PCBM-01 THROUGH PCBM-03
 N.T.S.



SEE NOTE 10
PIEZOMETER (PZ) DETAIL
 PZ-01 THROUGH PZ-08
 N.T.S.

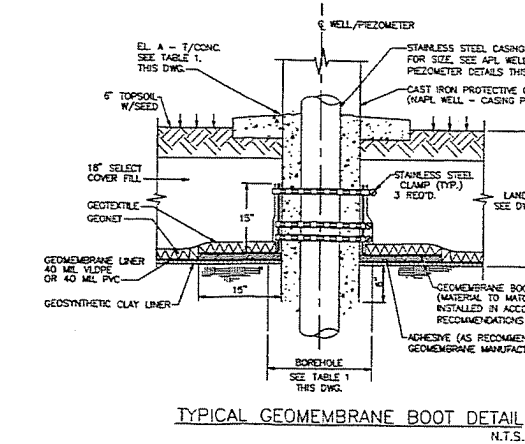
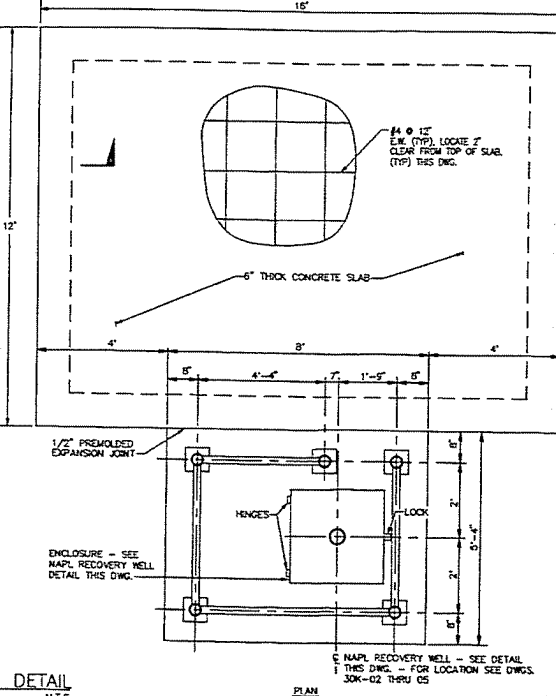
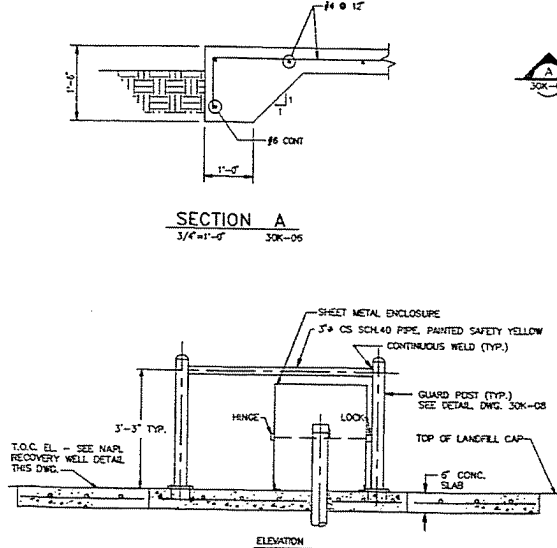


SEE NOTE 10
TYPICAL WET WELL DETAIL
 WET WELL WW-1 THROUGH WW-4
 N.T.S.



SEE NOTE 10
TYPICAL NAPL RECOVERY WELL (NR) DETAIL
 NR-01 THRU NR-04 & NR-06 THRU NR-10
 N.T.S.

TABLE 1 WELLS *					
WELL NO./PIEZOMETER NO.	TOP OF BOREHOLE CONCRETE (EL. A)	BOREHOLE DIAMETER (IN)	BOREHOLE DEPTH (FT)	SCREEN LENGTH (L) (FT)	
NR-01	594.4	24	10	44	10
NR-02	578.5	24	10	39	10
NR-03	588.4	24	10	39	10
NR-04	559.0	24	10	39	10
NR-05	575.5	24	10	39	10
NR-06	578.5	24	10	39	10
NR-07	581.1	24	10	39	10
NR-08	588.4	24	10	39	10
NR-09	583.3	24	10	39	10
NR-10	572.2	24	10	39	10
PCBM-01	575.0	8	10	10	10
PCBM-02	575.0	8	10	10	10
PCBM-03	577.5	8	10	10	10
PCM-01	579.3	8	10	10	10
PCM-02	578.4	8	10	10	10
PCM-03	578.5	8	10	10	10
PCM-04	578.7	8	10	10	10
PCM-05	578.1	8	10	10	10
PCM-06	578.1	8	10	10	10
PCM-07	577.5	8	10	10	10
PCM-08	577.5	8	10	10	10
PZ-01	580.8	8	10	10	10
PZ-02	577.4	8	10	10	10
PZ-03	575.5	8	10	10	10
PZ-04	575.3	8	10	10	10
PZ-05	575.5	8	10	10	10
PZ-06	575.5	8	10	10	10
PZ-07	578.9	8	10	10	10
PZ-08	579.1	8	10	10	10
WW-1	575.2	18	10	10	10
WW-2	575.2	18	10	10	10
WW-3	575.2	18	10	10	10
WW-4	575.2	18	10	10	10



SEE NOTE 10
TYPICAL GEOMEMBRANE BOOT DETAIL
 N.T.S.

- GENERAL NOTES:**
1. FOR SITE REMEDIATION PLANS SEE DWGS. 30K-02 THRU -05.
 2. FOR SITE GRADING PLANS SEE DWGS. 100-02 THRU -05.
 3. ALL CONCRETE SURFACES TO BE BROOM FINISHED.
 4. FOR OTHER NOTES, SEE DWG. 594000-150-01.
- NOTES - WELL INSTALLATION**
1. MATERIALS AND INSTALLATION FOR POST CLOSURE MONITORING WELLS AND PIEZOMETERS SHALL BE AS SPECIFIED IN SECTION 02011.
 2. FOR LOCATION OF POST CLOSURE MONITORING WELLS, WET WELLS, NAPL RECOVERY WELLS AND PIEZOMETERS SEE SITE REMEDIATION PLAN DWGS. 30K-02 THRU 30K-05.
 3. FOR APL AND NAPL PUMP AND ACCESSORIES AND CONTROLS, SEE EQUIPMENT DATA SHEETS.
 4. FOR VALVES AND FLOW TOTALIZER SEE INSTRUMENT SPECIFICATIONS. VALVES WILL HAVE 18 INCH STEM EXTENSIONS.
 5. MATERIALS AND INSTALLATION FOR NAPL RECOVERY WELLS SHALL BE AS SPECIFIED IN SECTION 02012.
 6. 3\"/>
 7. PROVIDE 1 1/2\"/>
 8. THE COARSE SAND SHALL CONSIST OF CLEAN, WELL ROUNDED SILICA SAND FREE OF LOAM, DUST AND OTHER FOREIGN PARTICLES. THE GRADATION SHALL BE NO. 200\"/>
 9. 3/4\"/>
 10. SEE DWG. NO. 594000-30K-08 FOR MONITORING WELLS AND PIEZOMETER PROTECTION AND GUARD POST DETAIL.

REV.	DATE	REGION DESCRIPTION	DESIGNED	APPROVED	REV.	DATE	REGION DESCRIPTION	DESIGNED	APPROVED	ORIGINAL	REFERENCE DRAWINGS	ENCL.	REFERENCE DRAWINGS
A	01/26/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ASB	JK									
B	01/26/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	ASB	JK									

FLUOR DANIEL

DESIGNED BY: A. DEBAIL, M. MONTENAR
 CHECKED BY: J. GERVIS
 APPROVED BY: J. GERVIS
 DATE: 01/26/95

OXYCHEM / OLIN REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

APL, NAPL AND MONITORING WELLS AND MISC. DETAILS
 594000-30K-06

DATE: 01/26/95
 SCALE: AS SHOWN

REDUCED PRINT SCALES: 1/4" = 1'-0" (VERTICAL); 1/4" = 1'-0" (HORIZONTAL)

T-301
NAPL STORAGE TANK
500 GAL
FRP 8'-0" ET

CF-301
CARBON FILTER
10 LB. WATER PHASE CARBON
8'-0" ET

P-311
NAPL TRANSFER PUMP
33 GPM, 30 FT. TDH
2 HP, 230V, 1 PHASE
316SS 8'-0" ET

DK-201
CONCRETE CONTAINMENT DKE
(SEE DWG 150-01)

NR-01 THROUGH NR-10
NAPL RECOVERY WELLS

P-301 THROUGH P-310
NAPL PUMPS
0.2 GPM, 25 FT. TDH
1/2 HP
NICKEL ALLOY GEARS

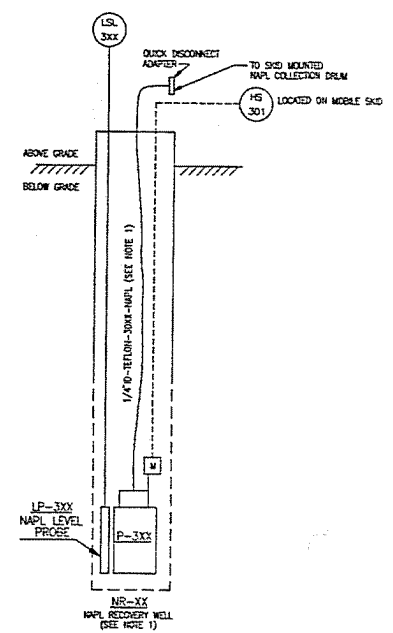
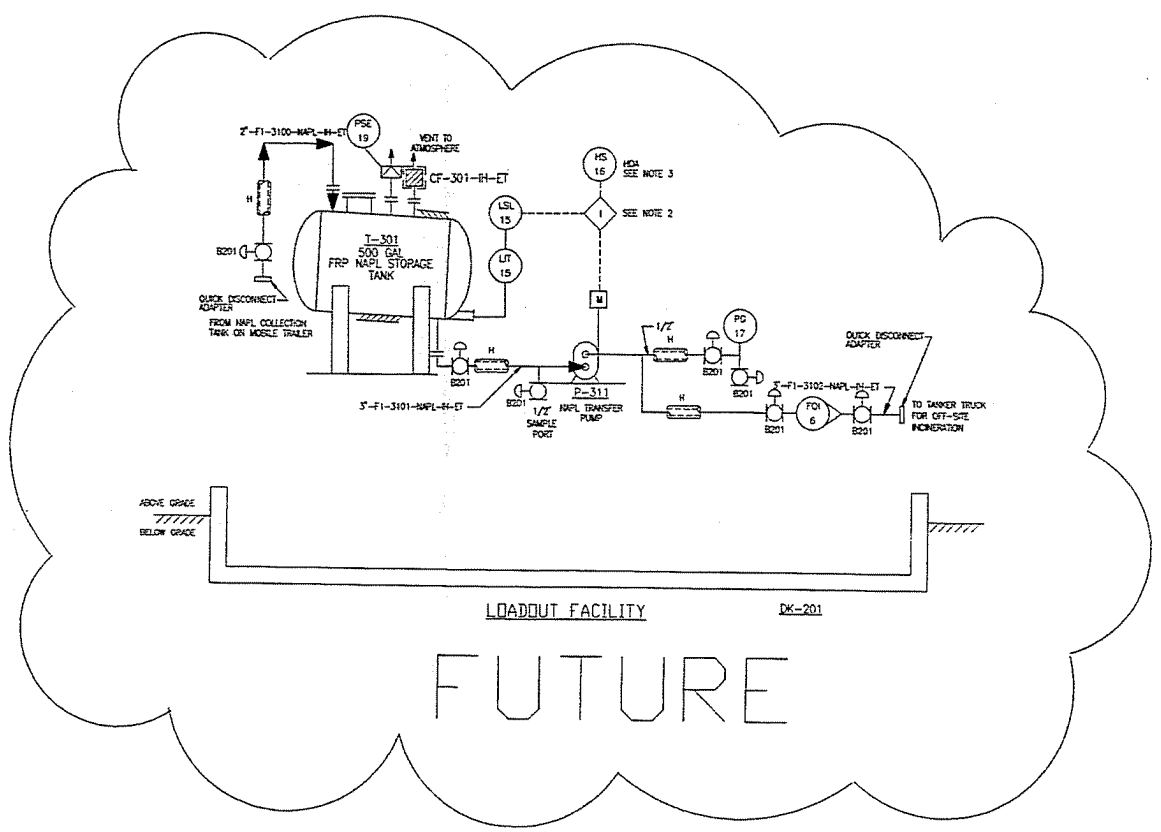
LP-301 THROUGH LP-310
NAPL LEVEL PROBES

NOTES

1. XX REPRESENTS NAPL RECOVERY WELL NUMBERS 01 THROUGH 10.

2. LOW LEVEL IN THE NAPL STORAGE TANK WILL TURN POWER OFF TO THE NAPL TRANSFER PUMP, P-311.

3. HAND OFF AUTO SELECTOR SWITCH ALLOWS MAINTENANCE BY-PASS OF LEVEL CONTROLS. SPRING RETURN FROM HAND POSITION.



REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV. DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG.	REFERENCE DRAWINGS	DWG.	REFERENCE DRAWINGS
A	7-29-93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	ASB	JK								
B	8-25-93	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	ASB	JK								

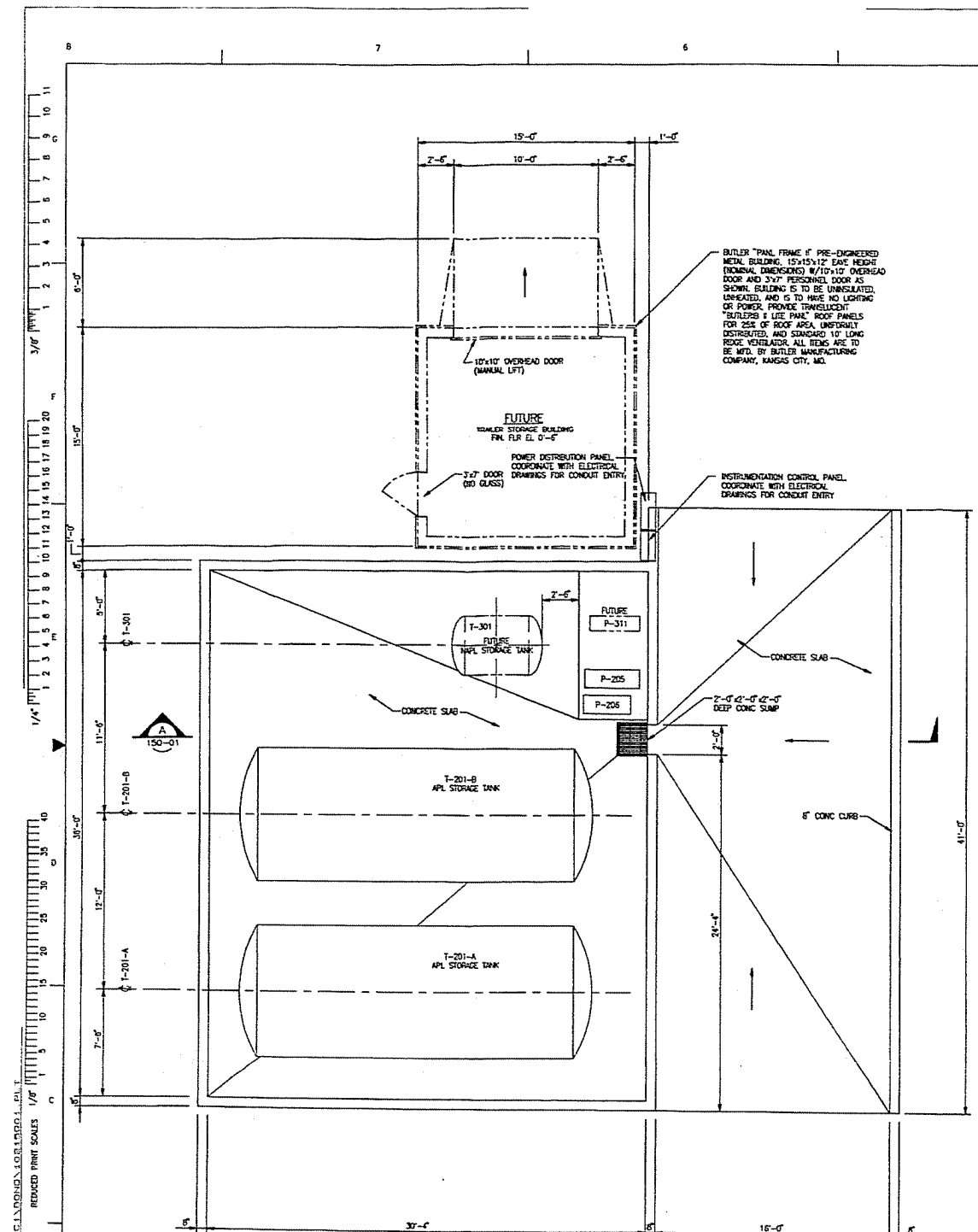
FLUOR DANIEL

OPS-CENTER

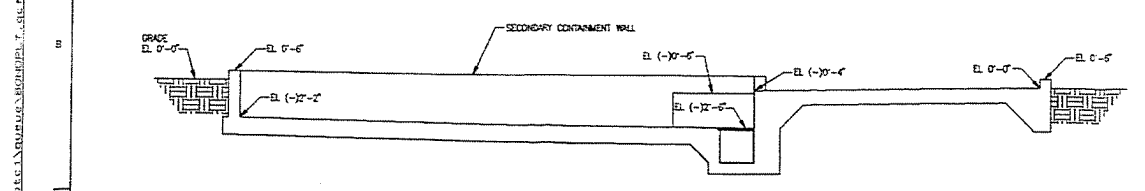
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 CHECKED BY: JSEVENS
 SUPERVISOR: JSEVENS
 PROJECT: R174/1345
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK
 PIPING & INSTRUMENTATION DIAGRAM
 NAPL SYSTEM

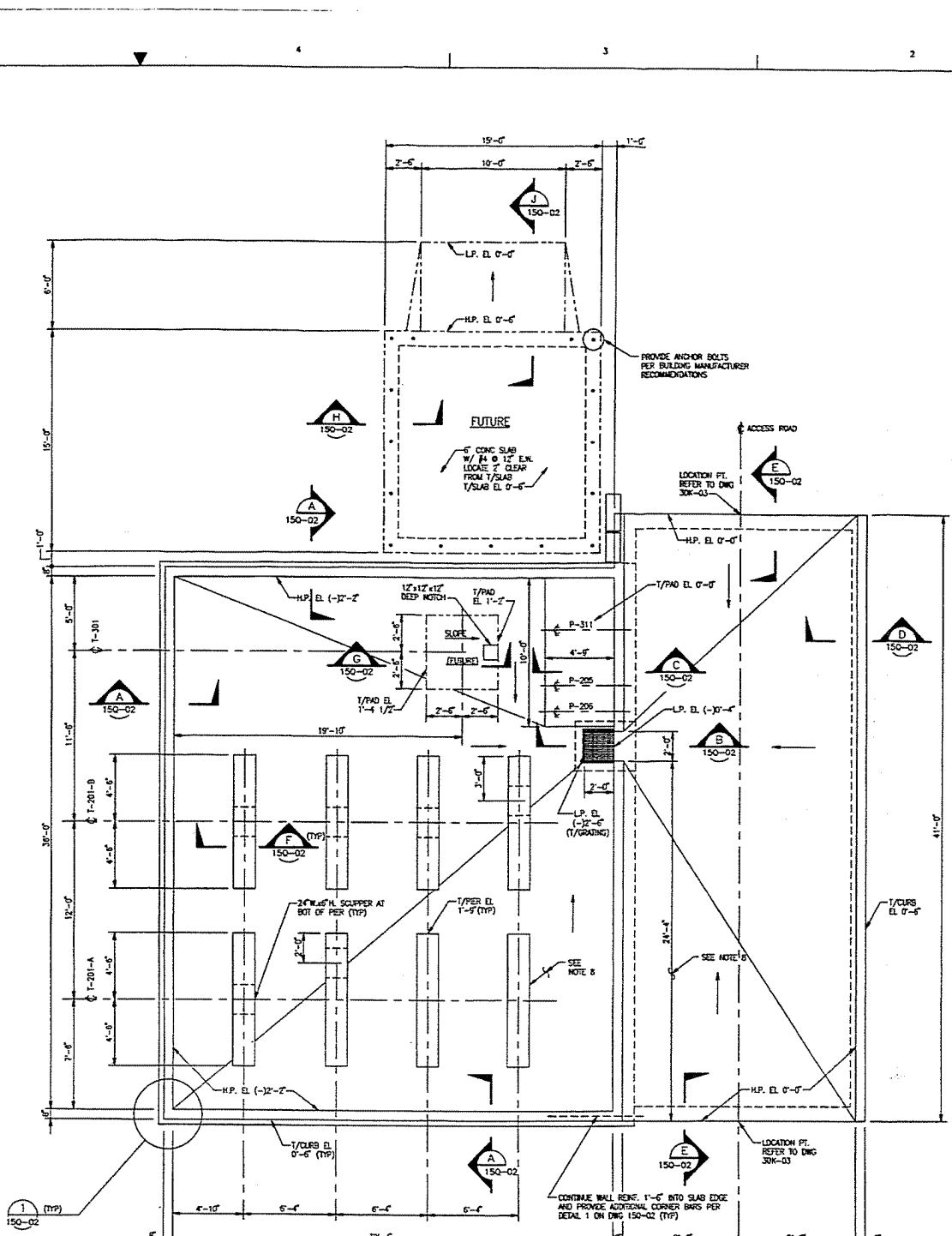
DATE: 7/29/93
 P&ID: 1022503.DWG
 SCALE: AS SHOWN
 DRAWING NO: 594000-25-J-03
 CAD DRAWING No. 1022503



GENERAL ARRANGEMENT PLAN
1/8" = 1'-0"



SECTION A
1/8" = 1'-0"



FOUNDATION PLAN
1/8" = 1'-0"
(FINISH GRADE REF. EL. 0'-0" = EL. 584.5')

- GENERAL NOTES / DESIGN CRITERIA**
- ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE 1993 BOCA NATIONAL BUILDING CODE, INCLUDING REVISIONS, AS IT APPLIES TO THE PROJECT LOCATION (NIAGARA FALLS, NEW YORK).
 - STRUCTURAL DESIGN LOADS SHALL BE IN ACCORDANCE WITH ASCE 7-93 (FORMERLY AND 901) UNLESS STATED OTHERWISE ON THE DRAWINGS. SPECIFIC LOADS ARE AS FOLLOWS:
 WIND SPEED: 70 MPH
 SEISMIC ZONE: 2
 ROOF LIVE LOAD: 40 PSF (SHOW)
 TRUCK ACCESS SLAB: ASHED 15-20 (32 KIP AXLE)
 - ALL STRUCTURES SHOWN SHALL BE CONSTRUCTED OVER A FREE-DRAINING SUB-BASE COMPOSED OF ASTM C33 NO. 57 STONE, PLACED TO A MINIMUM DEPTH OF 30 INCHES BELOW THE SURROUNDING GRADE ELEVATION OR 30 INCHES BELOW LOWEST POINT OF THE STRUCTURE SURFACE EXPOSED TO SUB-FREEZING TEMPERATURES, WHICHEVER IS DEEPER.
- MATERIALS CRITERIA**
- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301-89 & ACI 302.1R-89. ALL CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI, AND MAXIMUM SLUMP OF 4 INCHES. SLABS ARE TO HAVE A LIGHT BROOM FINISH. ALL CONCRETE SHALL BE ASTM C150A TYPE I. MAXIMUM WATER-CEMENT RATIO TO BE 0.43.
 - STEEL REINFORCING FOR CONCRETE SHALL CONFORM TO ASTM A615, GRADE 60. ALL LAP SPICES SHALL BE MINIMUM 36 BAR DIAMETERS UNLESS NOTED OTHERWISE.
 - ALL CONCRETE CONSTRUCTION JOINTS ARE TO HAVE CONTINUOUS WATERSTOPS CONSISTING OF A HIGH-DENSITY POLYURETHANE (HDP) STRIP, 6" WIDE & 0.25" THICK, WITH 2" EMBEDMENT ON EACH SIDE OF THE JOINT AND 3" CONCRETE COVER, MEASURED FROM THE INTERIOR FACE OF THE CONCRETE.
 - SLUMP GRATING COVER AND SUPPORT FRAME SHALL BE CONSTRUCTED OF FIBER REINFORCED PLASTIC (FRP), AS SUPPLIED BY THE INDICATED MANUFACTURERS.
 - TANKER STORAGE BUILDING SHALL BE DESIGNED FOR THE LOADS SPECIFIED ON THIS DRAWING, IN ACCORDANCE WITH SPECIFIED CODES.
 - ANCHOR BOLTS SHALL BE ASTM A307 GALVANNEZED STEEL, OR HELIX TANK ADHESIVE STAINLESS STEEL ANCHORS, AS MANUFACTURED BY THE HELIX CORPORATION, OR ENGINEER APPROVED EQUAL.
 - ALL GROUT SHALL BE HIGH-STRENGTH, NON-METALLIC, NON-SHRINK, CEMENTITIOUS GROUT, EITHER "TWO STAR GROUT", MFD. BY U.S. GROUT CORP., OR "MACRODOL" 71.1, MFD. BY MASTROBUILDERS, INC.
 - WET CURE ALL EXPOSED CONCRETE FLOOR SURFACES WITH A MOISTURE RETAINING FABRIC FOR A MINIMUM OF 14 DAYS. AT ALL EXPOSED CONCRETE SURFACES, PROVIDE ELCO DAWNING HARD LIQUID ENDOSEALER AND SEALER IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AS MANUFACTURED BY THE ELCO CHEMICAL COMPANY, PH (516) 531-9222.
- NOTE:**
ALL EQUIPMENT SUPPORT DIMENSIONS ARE TO BE VERIFIED WITH CERTIFIED EQUIPMENT VENDOR DRAWINGS PRIOR TO CONSTRUCTION.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	ENCL.	REFERENCE DRAWING	REFERENCE DRAWING
A	8/15/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	JAC	DK								
B	8/16/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	JAC	DK								

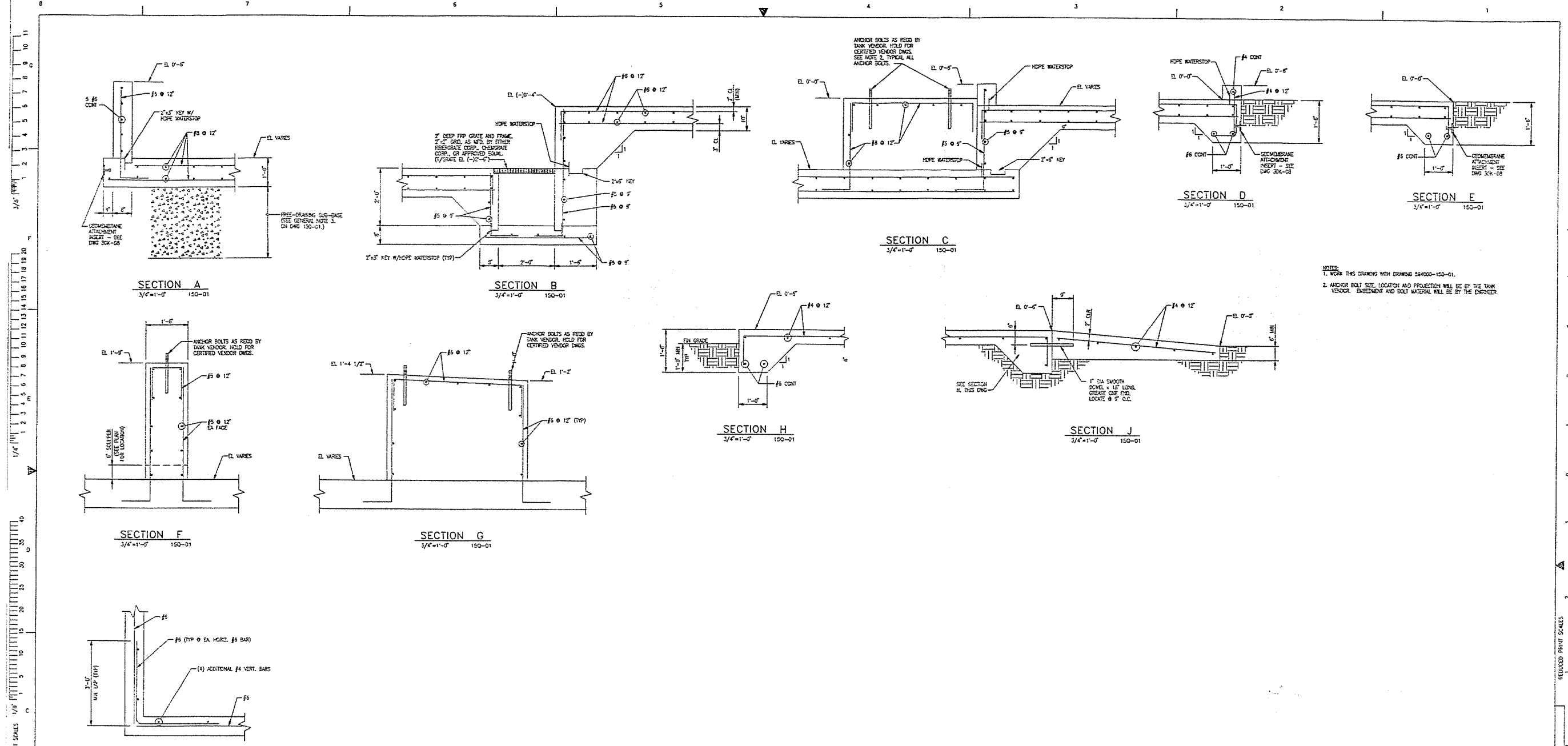
FLUOR DANIEL
OPS-CENTER

DESIGNED BY: J. GEMINI/A. BLUM
 CHECKED BY: J. GEMINI
 PROJECT: OXYCHEM/OLIN
 DATE: 8/15/95

OXYCHEM/OLIN REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
 GENERAL ARRANGEMENT PLAN
 AND FOUNDATION PLAN

PROJECT NO: 594000-150-01
 DATE: 11/17/92



NOTES:
 1. WORK THIS DRAWING WITH DRAWING 594000-150-01.
 2. ANCHOR BOLT SIZE, LOCATION AND PROJECTION WILL BE BY THE TANK VENDOR. EMBEDMENT AND BOLT MATERIAL WILL BE BY THE ENGINEER.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWING	DWG. NO.	REFERENCE DRAWING
A	10/23/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERIM)	JTS	DRU									
B	10/23/93	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	JTS	JTS									

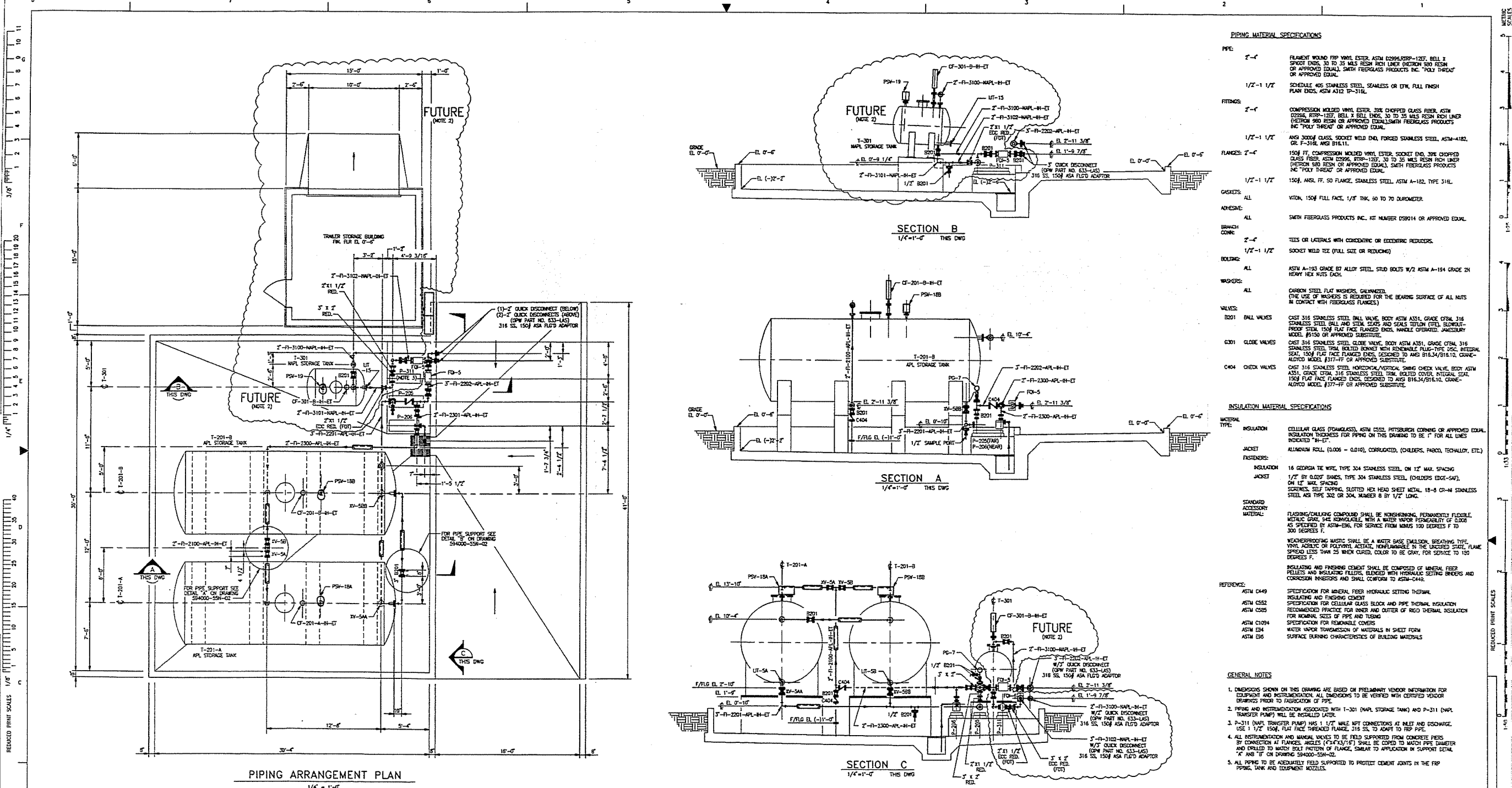


FLUOR DANIEL
 CPS-CENTER

DESIGNED BY	H.G. CALDWELL
CHECKED BY	J. GIBSON
APPROVED BY	H.G. CALDWELL
PROJECT	1/22/93
DATE	1/22/93
SCALE	AS NOTED
DRAWN BY	JTS
CHECKED BY	JTS
DATE	1/22/93
SCALE	AS NOTED

OXYCHEM/OLIN REMEDIAL DESIGN
 102ND STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK
 LAYOUT FACILITY
 CONCRETE SECTIONS AND DETAILS

594000-150-02



PIPING MATERIAL SPECIFICATIONS

PIPE	2"	FLAMENT WOUND FRP VINYL ESTER, ASTM D2951/FRP-12ET, BELL & SPROUT ENDS, 30 TO 35 MILS RESIN RICH LINER (DIETRON 980 RESIN OR APPROVED EQUAL) WITH FIBERGLASS PRODUCTS INC. "POLY THROAT" OR APPROVED EQUAL.
	1/2"-1 1/2"	SCHEDULE 40S STAINLESS STEEL, SEAMLESS OR DW, FULL FINISH FLAN ENDS, ASTM A312 TP-316L.
FITINGS	2"	COMPRESSION MOLDED VINYL ESTER, 20% CHOPPED GLASS FIBER, ASTM D2951, BELL & SPROUT ENDS, 30 TO 35 MILS RESIN RICH LINER (DIETRON 980 RESIN OR APPROVED EQUAL) WITH FIBERGLASS PRODUCTS INC. "POLY THROAT" OR APPROVED EQUAL.
	1/2"-1 1/2"	ANSI 300# CLASS, SOCKET WELD ENL, FORGED STAINLESS STEEL, ASTM-A182, OR TP-316 AND 316L11.
FLANGES	2"	150# FT. COMPRESSION MOLDED VINYL ESTER, SOCKET ENDS, 30% CHOPPED GLASS FIBER, ASTM D2951, FRP-12ET, 30 TO 35 MILS RESIN RICH LINER (DIETRON 980 RESIN OR APPROVED EQUAL), WITH FIBERGLASS PRODUCTS INC. "POLY THROAT" OR APPROVED EQUAL.
	1/2"-1 1/2"	150#, ANSI, FT. 50 FLANGE, STAINLESS STEEL, ASTM A-182, TYPE 316L.
GASKETS	ALL	WTKN, 150# FULL FACE, 1/8" THK, 50 TO 70 DIAMETER.
ADHESIVE	ALL	SMITH FIBERGLASS PRODUCTS INC., KIT NUMBER D29014 OR APPROVED EQUAL.
BRANCH CONNECTION	2"	TEES OR LATERALS WITH CONCENTRIC OR REDUCING REDUCERS.
	1/2"-1 1/2"	SOCKET WELD TEE (FULL SIZE OR REDUCING)
BOLTING	ALL	ASTM A-193 GRADE B7 ALLOY STEEL, STUD BOLTS 1/2" ASTM A-194 GRADE 2H HEAVY HEX NUTS EACH.
WASHERS	ALL	CARBON STEEL FLAT WASHERS, GALVANNEAL. (THE USE OF WASHERS IS REQUIRED FOR THE BEARING SURFACE OF ALL NUTS IN CONTACT WITH FIBERGLASS FLANGES)
VALVES	B201	BALL VALVES
	C301	GLOBE VALVES
	C404	CHECK VALVES
	C404	CHECK VALVES

INSULATION MATERIAL SPECIFICATIONS

MATERIAL TYPE	INSULATION	CELLULAR GLASS (PIRAGLASS), ASTM SPEC, FITTED/SHOWN OR APPROVED EQUAL. INSULATION THICKNESS FOR PIPING ON THIS DRAWING TO BE 1" FOR ALL LINES INDICATED "IN-ET".
JACKET	JACKET	ALUMINUM ROLL, (0.006 - 0.010), CORRUGATED, (CHLDERS, PAROL, TESHALLY, ETC.)
FASTENERS	INSULATION	16 GEORGIA TIE WIRE, TYPE 304 STAINLESS STEEL, ON 12" MAX. SPACING
	JACKET	1/2" BY 0.007" GAUGES, TYPE 304 STAINLESS STEEL, (CHLDERS EDGE-SAF), ON 12" MAX. SPACING
STANDARD ACCESSORY MATERIAL		SCREWS, SELF TAPPING, SLOTTED HEX HEAD SHEET METAL, 18-8 CR-NI STAINLESS STEEL, AS TYPE 302 OR 304, NUMBER 8 BY 1/2" LONG.
		FLASING/CALMING COMPOUND SHALL BE NONSHRINKING, PERMANENTLY FLEXIBLE, METALIC SEAL, 54% IRON/ALUMINA, WITH A WATER VAPOR PERMEABILITY OF 0.002 AS SPECIFIED BY ASTM-D691, FOR SERVICE FROM MINUS 100 DEGREES F TO 300 DEGREES F.
		WEATHERPROOFING MASTIC SHALL BE A WATER BASE EMULSION, BREATHING TYPE, VINYL ACRYLIC OR POLYURETHANE, ACTIC, NONFLAMMABLE IN THE UNCURED STATE, FLAME SPREAD LESS THAN 25 WHEN CURED, COLOR TO BE GRAY, FOR SERVICE TO 150 DEGREES F.
		INSULATING AND FINISHING CEMENT SHALL BE COMPOSED OF MINERAL FIBER PELLETS AND INSULATING FILLERS, BLENDING WITH HYDRAULIC SETTING SANDS AND CORROSION INHIBITORS AND SHALL CONFORM TO ASTM-C449.

- REFERENCE:**
- ASTM C449 SPECIFICATION FOR MINERAL FIBER HYDRAULIC SETTING THERMAL INSULATING AND FINISHING CEMENT
 - ASTM C552 SPECIFICATION FOR CELLULAR GLASS BLOCK AND PIPE THERMAL INSULATION
 - ASTM C585 RECOMMENDED PRACTICE FOR INNER AND OUTER OF RIGID THERMAL INSULATION FOR NOMINAL SIZES OF PIPE AND TUBING
 - ASTM C1394 SPECIFICATION FOR REMOVABLE COVERS
 - ASTM E34 WATER VAPOR TRANSMISSION OF MATERIALS IN SHEET FORM
 - ASTM E86 SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS
- GENERAL NOTES:**
- DIMENSIONS SHOWN ON THIS DRAWING ARE BASED ON PRELIMINARY VENDOR INFORMATION FOR EQUIPMENT AND INSTRUMENTATION. ALL DIMENSIONS TO BE VERIFIED WITH CERTIFIED VENDOR DIMENSIONS PRIOR TO FABRICATION OF PIPE.
 - PIPE AND INSTRUMENTATION ASSOCIATED WITH T-201 (WATER STORAGE TANK) AND P-201 (WATER TRANSFER PUMP) WILL BE INSTALLED LATER.
 - P-201 (WATER TRANSFER PUMP) HAS 1 1/2" MALE NPT CONNECTIONS AT INLET AND DISCHARGE. USE 1 1/2" 150# FLAT FACE THREADED FLANGE, 316 SS, TO ADAPT TO FRP PIPE.
 - ALL INSTRUMENTATION AND MANUAL VALVES TO BE FIELD SUPPORTED FROM CONCRETE PISTS BY CONNECTION AT FLANGES. ANGLES (75°/45°/15°) SHALL BE COPIED TO MATCH PIPE DIAMETER AND ENDED TO MATCH BALL PATTERN OF FLANGE, SIMILAR TO APPLICATION IN SUPPORT DETAIL "A" AND "B" ON DRAWING 594000-55N-02.
 - ALL PIPING TO BE ADEQUATELY FIELD SUPPORTED TO PROTECT JOINTS IN THE FRP PIPING, TANK AND EQUIPMENT NOZZLES.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	8/18/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	SLK	SLK									

FLUOR DANIEL
OPS-CENTER

NOTES: THIS DRAWING HAS NOT BEEN FORWARDED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF FLUOR DANIEL. IF ANY REVISIONS ARE MADE TO THIS DRAWING, THE REVISIONS SHALL BE INDICATED BY A REVISION SYMBOL AND THE DATE OF THE REVISION. THIS DRAWING IS THE PROPERTY OF FLUOR DANIEL AND IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF FLUOR DANIEL.

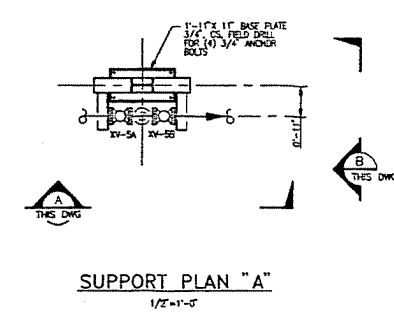
DESIGNED BY: C. CAMPBELL
CHECKED BY: A. DEAN
APPROVED BY: J. GEMINS
DATE: 8/18/95
PROJECT: OXYCHEM/OLIN
SCALE: AS NOTED
NO. OF SHEETS: 1
SHEET NO.: 1

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

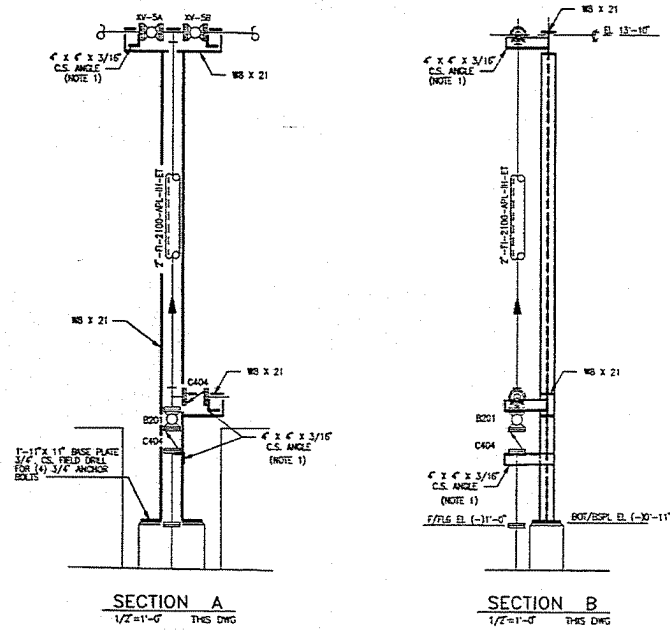
LOADOUT FACILITY
PIPING ARRANGEMENT PLAN
SECTIONS AND DETAILS

594000-55N-01

11
10
9
8
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4
3
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1/8" (1/8")
F
18
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1/4" (1/4")
E
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20
10
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1/2" (1/2")
C
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1/2" (1/2")
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1/2" (1/2")
A



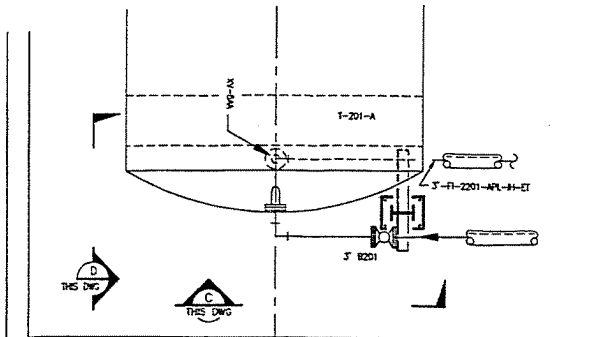
SUPPORT PLAN "A"
1/2" = 1'-0"



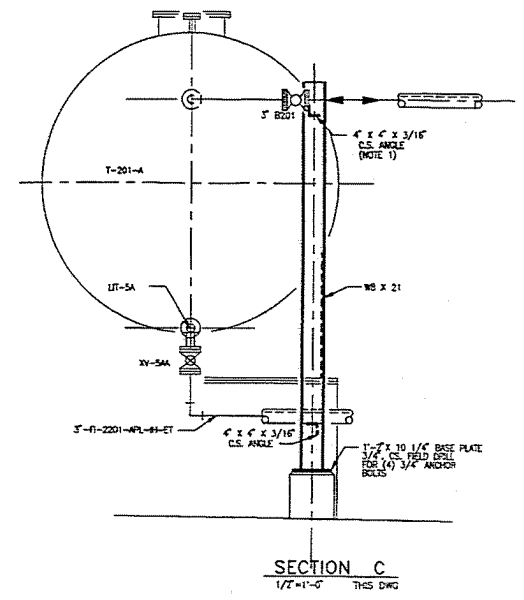
SECTION A
1/2" = 1'-0" THIS DWG

SECTION B
1/2" = 1'-0" THIS DWG

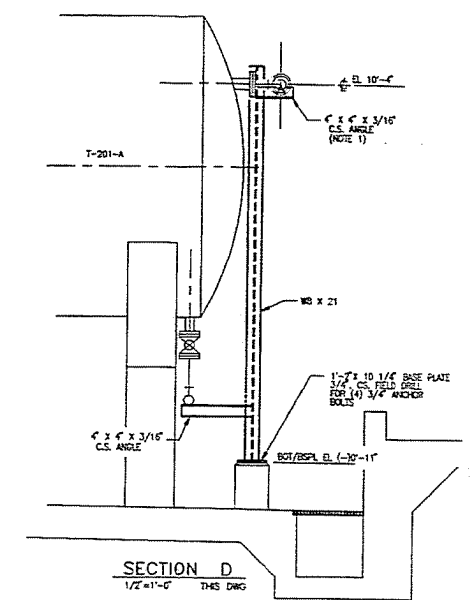
SUPPORT DETAIL "A"
1/2" = 1'-0"



SUPPORT PLAN "B"
1/2" = 1'-0"



SECTION C
1/2" = 1'-0" THIS DWG



SECTION D
1/2" = 1'-0" THIS DWG

SUPPORT DETAIL "B"
1/2" = 1'-0"

NOTES

1. ANGLES SHALL BE COPIED TO MATCH PIPE DIAMETER AND DRILLED TO MATCH BOLT PATTERN OF FLANGE.

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
A	8/29/95	FINAL ENGINEERING REPORT (DRAFT SUBMITTAL)	CS	CS									

FLUOR DANIEL

OPS-CENTER

NOTE: THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF FLUOR DANIEL AND IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED IN THE TITLE OF THIS DRAWING. THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND ACKNOWLEDGES THAT IT SHALL NOT BE REPRODUCED, COPIED, OR IN ANY MANNER DISSEMINATED OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS PROVIDED.

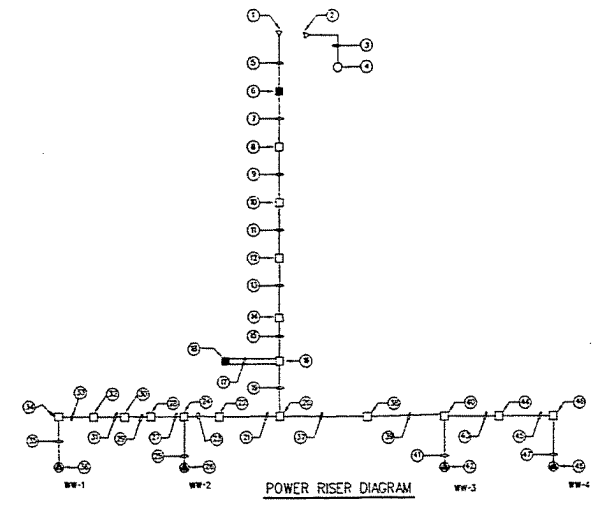
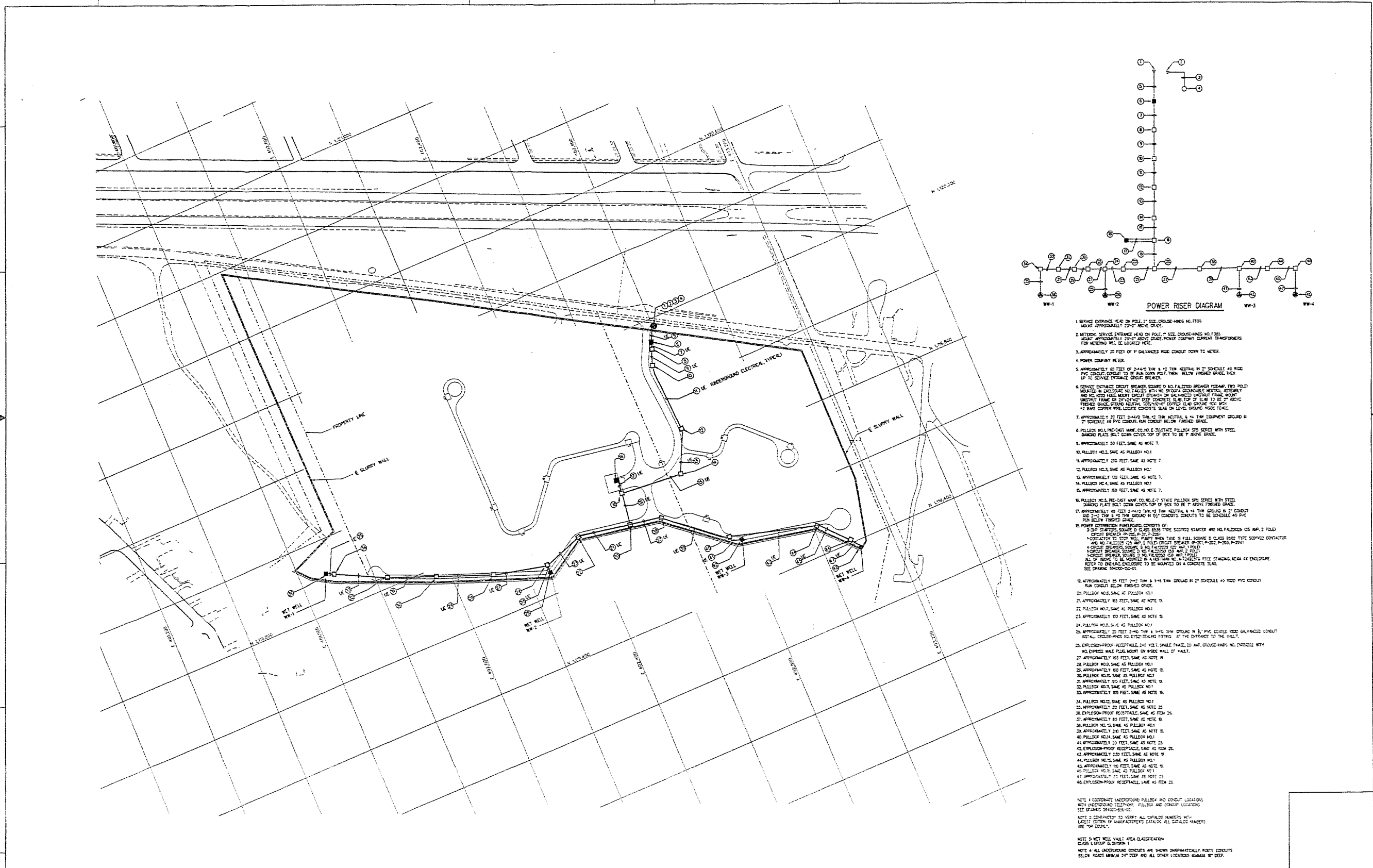
DESIGNED BY C. O'NEILL	SCALE AS NOTED	DATE 8/29/95	PROJECT OXYCHEM/OLIN
CHECKED BY A. BARR	DATE 8/29/95	PROJECT OXYCHEM/OLIN	SCALE AS NOTED
DRAWN BY J. GERRIS	DATE 8/29/95	PROJECT OXYCHEM/OLIN	SCALE AS NOTED
APPROVED BY R. MARZOLLO	DATE 8/29/95	PROJECT OXYCHEM/OLIN	SCALE AS NOTED

OXYCHEM/OLIN REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK

LOADOUT FACILITY
PIPE SUPPORT DETAILS
SECTIONS AND DETAILS

594000-55N-02
A

Mod. Date: 6-16-2010 11:40:15 AM
 File Path: C:\Users\p11111\Documents\594000\594000.dwg
 Project Name: 594000



1. SERVICE ENTRANCE HEAD ON POLE 2" SIZE CROSS-HIPS NO. FEET MOUNT APPROXIMATELY 22'-0" ABOVE GRADE.
 2. METRIC SERVICE ENTRANCE HEAD ON POLE 2" SIZE CROSS-HIPS NO. FEET MOUNT APPROXIMATELY 22'-0" ABOVE GRADE. COMPANY CURRENT TRANSFORMER FOR METERING WILL BE LOCATED HERE.
 3. APPROXIMATELY 20 FEET OF 1" GALVANIZED IRON CONDUIT DOWN TO METER.
 4. POWER COMPANY METER.
 5. APPROXIMATELY 40 FEET OF 2-1/2" DIA. 1/2" THK 1/2" SCHEDULE 40 IRON PIPE CONDUIT TO BE RUN DOWN POLE FROM BELOW POWER SERVICE HEAD UP TO SERVICE ENTRANCE CIRCUIT BREAKER.
 6. SERVICE ENTRANCE CIRCUIT BREAKER (SCHEDULE 40 IRON PIPE) BREAKER FRAME MOUNTED IN ENCLOSURE NO. 1000 WITH NO. 1000A 200 AMPERE METRIC, ROSSBY AND NO. 1000A METRIC CIRCUIT BREAKER ON GALVANIZED IRON FRAME MOUNTED UNDER FRAME OF 10' X 10' CONCRETE SLAB TOP OF SLAB TO BE 2" ABOVE FINISHED GRADE. GROUND NEUTRAL CONDUCTOR TO BE GALVANIZED IRON PIPE. 1/2" DIA. COPPER WIRE LOCATED CONDUIT SLAB ON LEVEL FINISHED GRADE.
 7. APPROXIMATELY 20 FEET 2-1/2" DIA. 1/2" THK NEUTRAL & 4" THK TIGHTENING GROUP & 2" SCHEDULE 40 IRON CONDUIT BELOW FINISHED GRADE.
 8. PULLBOX NO. 1 (PULLBOX NO. 1) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE GRADE.
 9. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 10. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 11. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 12. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 13. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 14. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 15. APPROXIMATELY 20 FEET SAME AS NOTE 7.
 16. PULLBOX NO. 2 (PULLBOX NO. 2) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 17. APPROXIMATELY 40 FEET 2-1/2" DIA. 1/2" THK NEUTRAL & 4" THK TIGHTENING GROUP & 2" SCHEDULE 40 IRON CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 18. POWER DISTRIBUTION PANELS (CONCRETE) 20' X 20' X 6" (CONCRETE) SHALL BE MOUNTED ON THE CONCRETE SLAB AND NO. 1000A 200 AMPERE METRIC, ROSSBY AND NO. 1000A METRIC CIRCUIT BREAKER ON GALVANIZED IRON FRAME MOUNTED UNDER FRAME OF 10' X 10' CONCRETE SLAB TOP OF SLAB TO BE 2" ABOVE FINISHED GRADE. GROUND NEUTRAL CONDUCTOR TO BE GALVANIZED IRON PIPE. 1/2" DIA. COPPER WIRE LOCATED CONDUIT SLAB ON LEVEL FINISHED GRADE. ALL OF ABOVE TO BE MOUNTED IN A VERTICAL POSITION FREE STANDING HEAD AT ENCLOSURE REFER TO DRAWING ENCL-1000 TO BE MOUNTED ON A CONCRETE SLAB. SEE DRAWING 594000-1000.
 19. APPROXIMATELY 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 20. PULLBOX NO. 3 (PULLBOX NO. 3) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 21. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 22. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 23. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 24. PULLBOX NO. 4 (PULLBOX NO. 4) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 25. APPROXIMATELY 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 26. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 27. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 28. PULLBOX NO. 5 (PULLBOX NO. 5) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 29. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 30. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 31. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 32. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 33. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 34. PULLBOX NO. 6 (PULLBOX NO. 6) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 35. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 36. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 37. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 38. PULLBOX NO. 7 (PULLBOX NO. 7) 20 FEET 2-1/2" DIA. 1/2" THK IRON PIPE CONDUIT TO BE RUN TO BE 2" ABOVE FINISHED GRADE.
 39. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 40. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 41. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 42. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 43. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 44. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 45. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 46. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 47. APPROXIMATELY 20 FEET SAME AS NOTE 19.
 48. APPROXIMATELY 20 FEET SAME AS NOTE 19.
- NOTE 1: CONCRETE UNDERGROUND PULLBOX AND CONDUIT LOCATIONS NEW UNDERGROUND TIE-IN ONLY. PULLBOX AND CONDUIT LOCATIONS SEE DRAWING 594000-1000.
- NOTE 2: CONTRACTOR TO VERIFY ALL CATALOG NUMBERS AT LEAST FIFTEEN (15) MANUFACTURER'S CATALOGS. ALL CATALOG NUMBERS ARE "OR EQUAL".
- NOTE 3: NET WELL VOLTAGE AREA CLASSIFICATION CLASS 1 GROUP 1 DIVISION 1.
- NOTE 4: ALL UNDERGROUND CONDUITS ARE SHOWN DIAGNOSTICALLY. CONDUIT LOCATIONS REFER TO DRAWING 594000-1000. ALL OTHER LOCATIONS SHOWN BY FIELD.

REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	REV.	DATE	REVISION DESCRIPTION	DESIGNER	APPROVED	ENG. NO.	REFERENCE DRAWINGS	ENG. NO.	REFERENCE DRAWINGS
A	1/20/10	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	T.D.	T.D.									
B	5/24/10	ENGINEERING REPORT SUBMITTAL (DRAFT FINAL)	P.P.S.	P.P.S.									

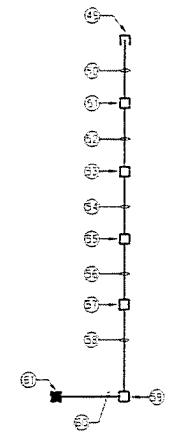
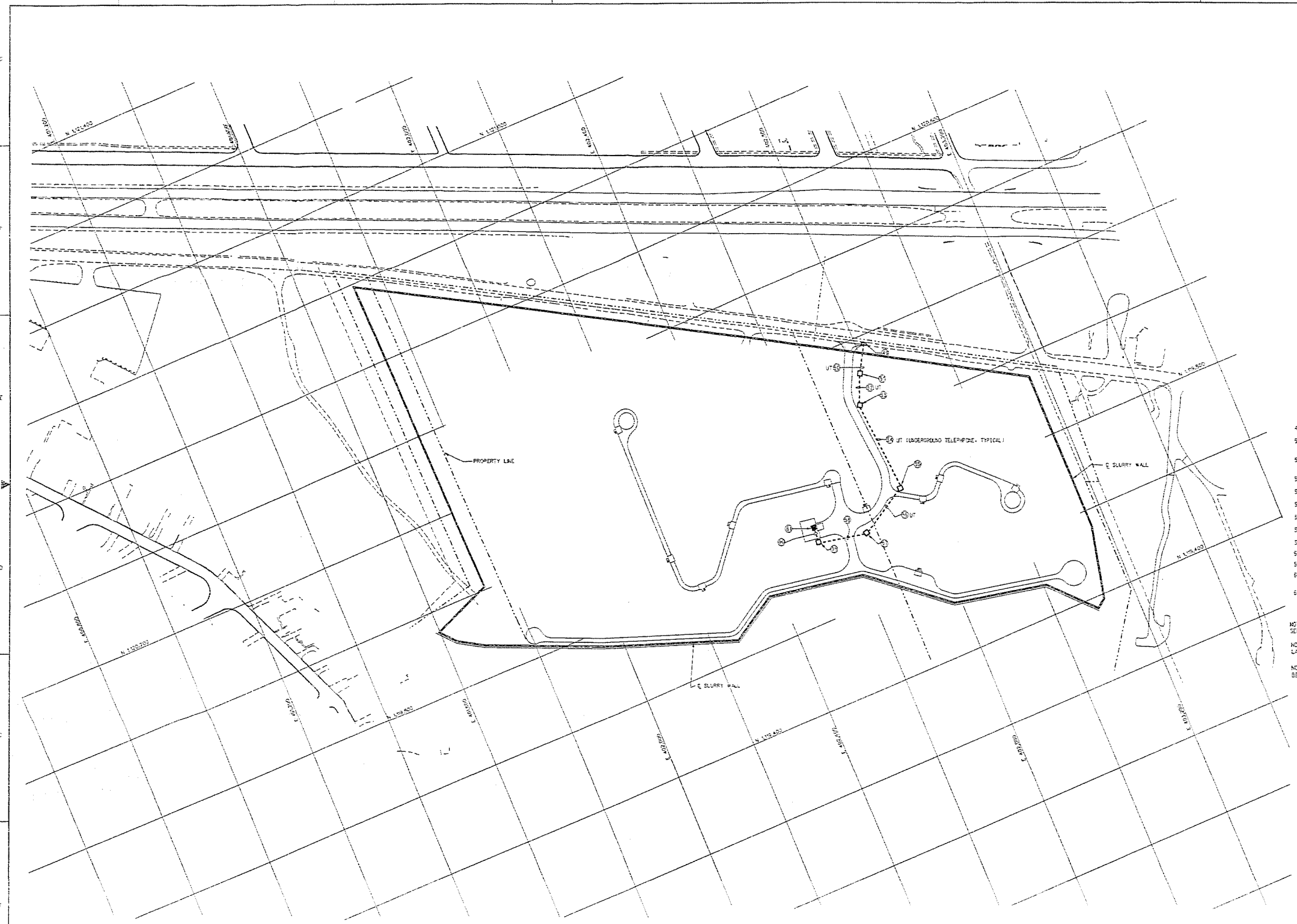


DESIGNED BY: T. DENOY/C. GARMAN
 CHECKED BY: T. DENOY/R. P. SCHMIDT
 DRAWN BY: R. P. SCHMIDT
 DATE: 5/11/10
 PROJECT: OXYCHEM/OLIN
 CLIENT: OXYCHEM/OLIN

OXYCHEM/OLIN
 REMEDIAL DESIGN
 102nd STREET LANDFILL SITE
 NIAGARA FALLS, NEW YORK

ELECTRICAL POWER PLAN

DRAWING NO.: 594000-65U-01



TELEPHONE AND INSTRUMENTATION RISER DIAGRAM

- 49. CAP ON 2" PVC CONDUIT FOR TELEPHONE.
- 50. APPROXIMATELY 75 FEET 2" SCHEDULE 40 RIGID PVC CONDUIT WITH NYLON PULL CORD FOR TELEPHONE CABLE. RUN CONDUIT BELOW FINISHED GRADE.
- 51. PULLBOX NO.17. PRE-CAST MANHOLE, CO. NO. E-3" STATE PULLBOX SPB SERIES WITH STEEL STAINLESS PLATE BOLT DOWN COVER. TOP OF BOX TO BE 1" ABOVE FINISHED GRADE.
- 52. APPROXIMATELY 75 FEET. SAME AS NOTE 50.
- 53. PULLBOX NO.18. SAME AS PULLBOX NO.17.
- 54. APPROXIMATELY 220 FEET. SAME AS NOTE 50.
- 55. PULLBOX NO.19. SAME AS PULLBOX NO.17.
- 56. APPROXIMATELY 135 FEET. SAME AS NOTE 50.
- 57. PULLBOX NO.20. SAME AS PULLBOX NO.17.
- 58. APPROXIMATELY 120 FEET. SAME AS NOTE 50.
- 59. PULLBOX NO.21. SAME AS PULLBOX NO.17.
- 60. APPROXIMATELY 40 FEET 2" CONDUIT WITH NYLON PULL CORD. RUN BELOW FINISHED GRADE.
- 61. INSTRUMENTATION CONTROL CABINET. HOFFMAN NO. A-39361000R/4 NEAR A1 ENCLOSURE. MOUNT ENCLOSURE ON GALVANIZED UNISTRUT FRAME. MOUNT UNISTRUT FRAME ON A CONCRETE SLAB. SEE DRAWING 594000-150-01.

NOTE 1: COORDINATE LOCATIONS OF UNDERGROUND ELECTRICAL PULLBOXES. SEE DRAWING 594000-65U-01 FOR LOCATIONS.
 NOTE 2: CONTRACTOR TO VERIFY ALL CATALOG PART NUMBERS WITH LATEST EDITION OF MANUFACTURER'S CATALOG.
 NOTE 3: ALL UNDERGROUND CONDUITS ARE SHOWN DIMENSIONALLY. ROUTE CONDUIT BELOW ROADS MINIMUM 24" DEEP AND ALL OTHER LOCATIONS MINIMUM 18" DEEP.

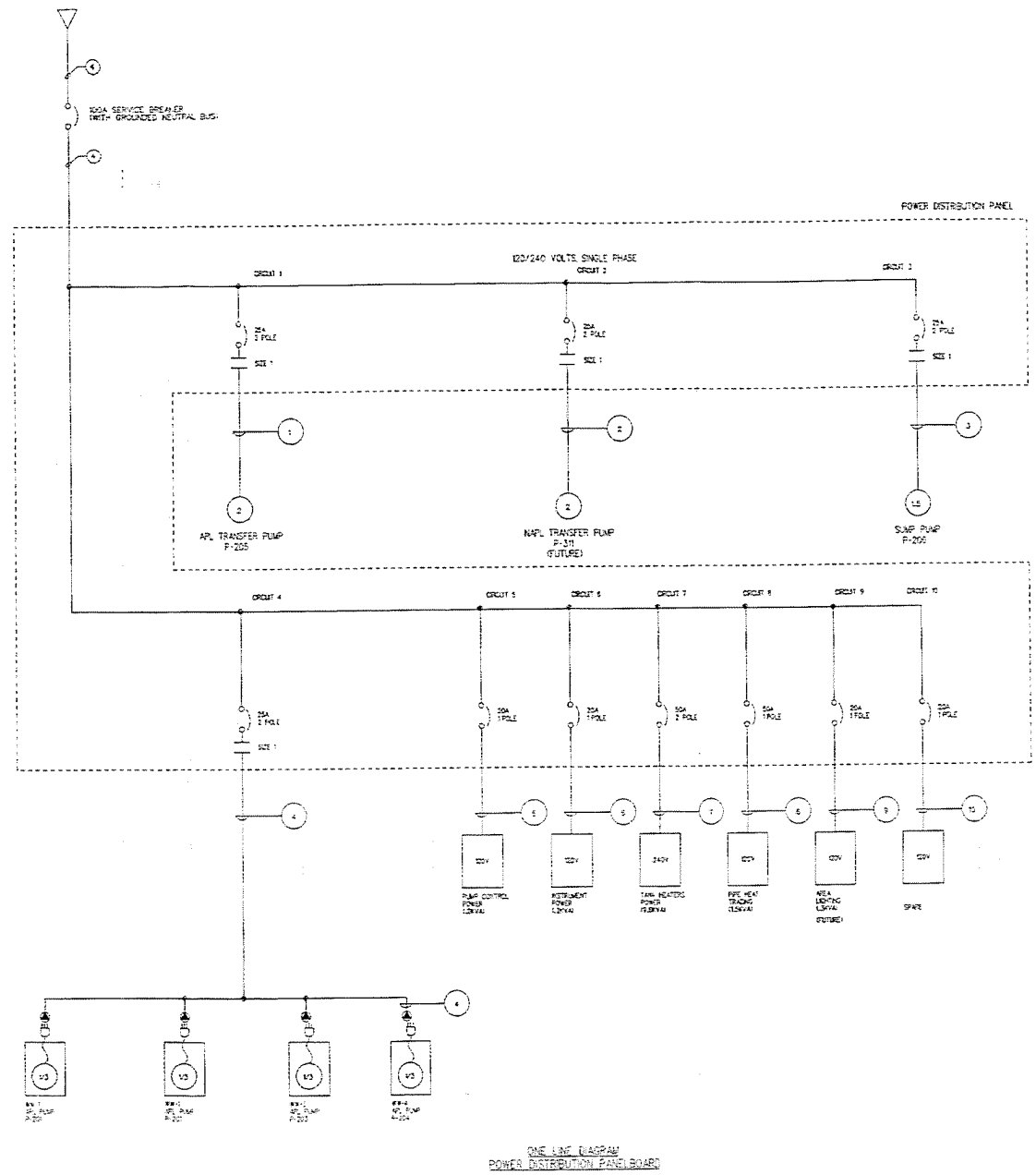
REV.	DATE	REVISION DESCRIPTION	DES. OR.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. OR.	APPROVED	ENGINEER	REFERENCE DRAWINGS	ENGINEER	REFERENCE DRAWINGS
A	1/28/95	ENGINEERING REPORT SUBMITTAL (PRELIMINARY/INTERMEDIATE)	TD	TD									
B	2/13/95	ENGINEERING REPORT SUBMITTAL (DRAFT FINAL)	TD	TD									



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DESIGNED BY T. DENNY / C. GARMAN	FLUOR DANIEL OXYCHEM/OLIN REMEDIAL DESIGN 102nd STREET LANDFILL SITE NIAGARA FALLS, NEW YORK
DRAWN BY T. DENNY / R. P. SCHMIDT	
CHECKED BY R. P. SCHMIDT	
DATE 1/28/95	
PROJECT R. MARGUCCIO	TELEPHONE AND INSTRUMENTATION PLAN
CUSTOMER OXYCHEM/OLIN	594000-65U-02

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- NOTES**
- SEE SPEC FOR 1/2 HP TANK HEATING ELEMENTS TO BE USED TO HEAT TANKS. ALL 1/2 HP TANKS TO BE GROUNDED BY CIRCUIT TO PROVIDE GROUNDING FOR PROTECTIVE CONDUCTORS TO THE GROUND. ALL GROUNDING CONDUCTORS TO BE GROUNDED TO THE SAME POINT AS THE MAIN SERVICE GROUND RETURN TO THE MAIN SERVICE GROUND. SEE SPECIFICATION.
 - SEE SPEC FOR 1/2 HP PUMP P-202.
 - SEE SPEC FOR 1/2 HP PUMP P-311.
 - ELECTRICAL POWER REQUIREMENTS FOR PUMPS AND SERVICE ELEMENTS ARE INDICATED ON THE PUMP DRAWING.
 - ELECTRICAL POWER REQUIREMENTS FOR PUMPS AND SERVICE ELEMENTS ARE INDICATED ON THE PUMP DRAWING.
 - CONNECTION CONTROL POWER LINE IS SHOWN AS 1/2 HP TANK HEATING ELEMENTS TO BE GROUNDED BY CIRCUIT TO PROVIDE GROUNDING FOR PROTECTIVE CONDUCTORS TO THE GROUND.
 - HEAT TRACING ON PIPES SHOULD BE APPROXIMATELY 200 FEET OF LENGTH. NO HEAT TRACING SHALL BE USED TO HEAT TANKS. THE HEAT TRACING SHALL BE GROUNDED BY CIRCUIT TO PROVIDE GROUNDING FOR PROTECTIVE CONDUCTORS TO THE GROUND.
 - HEAT TRACING SHALL BE GROUNDED BY CIRCUIT TO PROVIDE GROUNDING FOR PROTECTIVE CONDUCTORS TO THE GROUND.
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ONE LINE DIAGRAM
POWER DISTRIBUTION PANELBOARD

REV.	DATE	REVISION DESCRIPTION	DES.	APP'D.	REV.	DATE	REVISION DESCRIPTION	DES.	APP'D.
A	10/28/93	ENGINEERING REPORT SUBMITTAL (PRELIMINARY / INTERMEDIATE)	TDS	TDS					
B	3/24/95	ENGINEERING REPORT SUBMITTAL (DRAFT FINAL)	TDS	TDS					

DESIGN BY
T. DODDY / C. GARMAN

DESIGNED BY
R. P. SCHMIDT

DRAWN BY
R. P. SCHMIDT

CHECKED BY
R. P. SCHMIDT

DATE
2/12/95

SCALE
AS SHOWN

**OXYCHEM/OLIN
REMEDIAL DESIGN
102ND STREET LANDFILL SITE
NIAGARA FALLS, NEW YORK**

**ONE LINE DIAGRAM
POWER DISTRIBUTION PANELBOARD**

DWG NO.
594000-65U-03

SCALE
AS SHOWN