Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

February 24, 1997

Ms. Judy Deel
State Historic Preservation Office
Missouri Department of
Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Ms. Deel:

CULTURAL RESOURCES EVALUATIONS OF THE WELDON SPRING SITE REMEDIAL ACTION PROJECT (WSSRAP) SOUTHEAST DRAINAGE

The Department of Energy at the WSSRAP is planning to remediate radioactively contaminated portions within and adjacent to the area known as the Southeast Drainage. See the highlighted areas of enclosed Engineering Drawings 3840D-VP-6084 and 3840D-VP-6085 for the area of potential effect (APE).

In July of 1990, a Phase I survey and evaluation of the channel part of the Southeast Drainage was conducted by Dr. Gary Rex Walters. His July 20, 1990, letter was provided to your office. In Mr. Michael Weichman's (Missouri Historic Preservation Office) August 20, 1990, letter to WSSRAP, he stated "The State has no objection to the initiation of project activities with the APE as defined." In the ensuing years we have clearly defined the APE and are thus providing you copies of the Engineering Drawings showing areas where radioactively contaminated materials will be excavated.

During recent sampling efforts to determine the quantities to be excavated, some additional areas of contamination adjacent to the channel were discovered. As expressed by Dr. Michael Weichman in a 1986 letter to the WSSRAP, Phase I archeological surveys are "not warranted based on the potential health risks associated with conducting archaeological investigations in radioactively contaminated areas."

Based on the above information, the Department of Energy submits a "No Effect" determination in accordance with the procedures in 36 CRF 800.5. If we do not receive written objection to our determination of no effect within 15 calendar days of receipt of this letter, we will presume concurrence and will proceed with the proposed undertaking, subject to the provisions of 36 CFR 800.11, for treating historic properties discovered during implementation of an undertaking.

If you have any questions or comments, please contact Karen Reed, DOE at (314)441-8978 or Yvonne Deyo, PAI at (314)926-7034.

Sincerely,

Jerry S. Van Fossen

Jerry S. Van Fossen
Deputy Project Manager
Weldon Spring Site
Remedial Action Project

Enclosure:
As stated

cc w/enclosure:
Walter Anderson, PMC
Larry Erickson, MDNR
Martha Windsor, MDNR
Mary Picel, ANL

UNITED STATES
DEPARTMENT OF ENERGY

WSSRAP

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI

CONSTRUCTION DRAWINGS

SOUTHEAST DRAINAGE AND VICINITY PROPERTY MDC NO.5 REMEDIATION WORK PACKAGE 470

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. ____

QUALITY LEVEL 2
MKES DOCUMENT NO. 3840-VIGN-U-01-0453-4

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION & VICINITY PROPERTY MDC NO. 5

TITLE SHEET

CIVIL

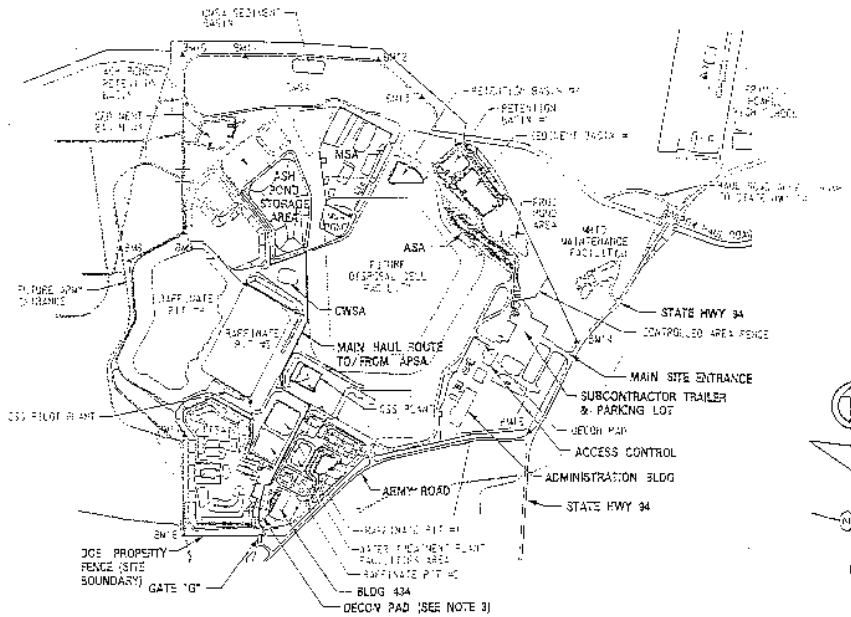
WP 470

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
THE MARKET STEWART TOWER

PROJECT NO. DE-AC05-86OR21548

DRAWING NO.

NO.	DATE	REVISION	BY	CK	DES ENGR	DR	ENGR MGR	QA
△								
△								
△								
△								
△		ISSUED FOR REVIEW (60% SUBMITTAL)						



CHEMICAL PLANT SITE MAP

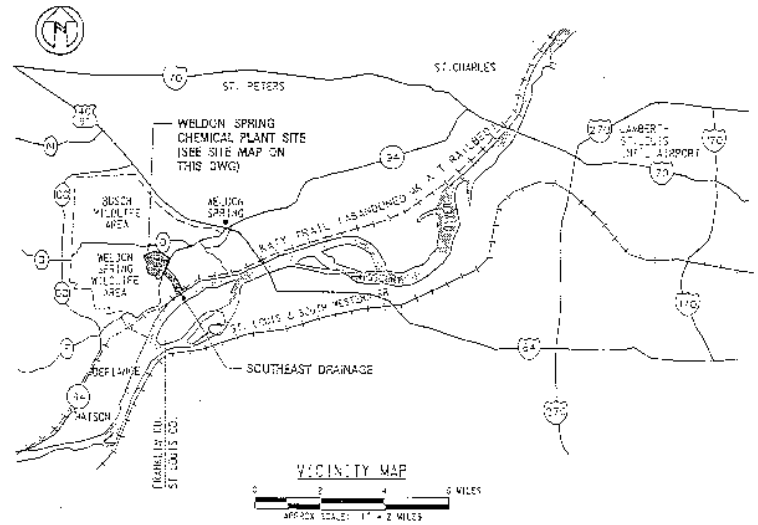
SCALE: 1" = 500'

LIST OF DRAWINGS

DRAWING NO.	DRAWING DESCRIPTION
38400-VP-6082	TITLE SHEET
38400-VP-6083	CHEMICAL PLANT SITE MAP, VICINITY MAP, LIST OF DRAWINGS AND GENERAL NOTES
38400-VP-6084	SOUTHEAST DRAINAGE SITE PLAN, ABBREVIATIONS AND GENERAL LEGEND
38400-VP-6085	HAUL ROUTES, HAMBURG QUARRY ROAD IMPROVEMENTS AND MDC NO. 5 REMEDIATION
38400-VP-6086	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
38400-VP-6087	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 3)
38400-VP-6088	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)
38400-VP-6089	OPERATIONAL DETAILS
38400-VP-6090	CONTAMINATED SOIL EXCAVATION AND RESTORATION DETAILS (SHEET 1 OF 2)
38400-VP-6091	CONTAMINATED SOIL EXCAVATION AND RESTORATION DETAILS (SHEET 2 OF 2)
38400-VP-6092	HIGHWAY 94/HAMBURG QUARRY ROAD INTERSECTION
38400-VP-6093	MISCELLANEOUS SECTIONS AND DETAILS (SHEET 1 OF 2)
38400-VP-6094	MISCELLANEOUS SECTIONS AND DETAILS (SHEET 2 OF 2)

GENERAL NOTES

1. PRIMARY COORDINATE GRID SYSTEM IS THE MISSOURI STATE PLANE (MSP) SYSTEM, NORTH AMERICAN DATUM (NAD) 83.
2. ELEVATIONS RELATIVE TO THE NORTH AMERICAN DATUM (NAD) 1983. ALL ELEVATIONS AND COORDINATES ARE IN FEET.
3. DEPTHING AND UNPACKING OF TRUCKS AT CHEMICAL PLANT SITE MAP SHALL OCCUR AT EXISTING DECON PAD.



VICINITY MAP

0 2 4 6 MILES

AREA SCALE: 1" = 2 MILES

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. _____

QUALITY LEVEL 2
MMES DOCUMENT NO. 1810-VISM 0-0454-1

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

DESIGNED | DRAWN | CHECKED | INSPECTED | RECOMMENDED | APPROVED | DATE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE & VICINITY PROPERTY MDC NO. 5 REMEDIATION

CHEMICAL PLANT SITE MAP, VICINITY MAP, LIST OF DRAWINGS AND GENERAL NOTES

CIVIL

ENGR APPL'D MGR. | DATE | PMC ENGG. MGR. | DATE | PMC DA MGR. | DATE

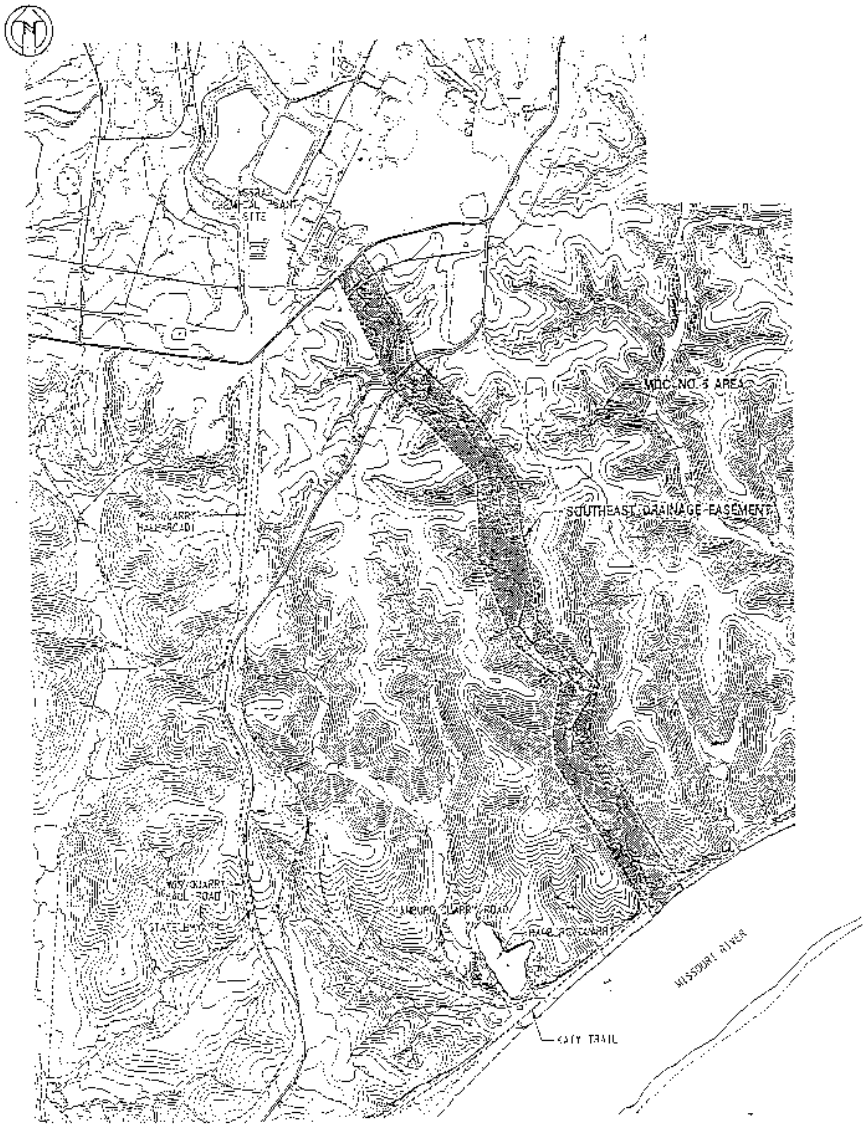
MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548

DRAWING NO. 38400-VP-6083 | REV. A

NO.	DATE	REVISION	BY	CK	DES ENGG MGR	QA	ENGG MGR	QA
A	1/27/95	ISSUED FOR REVIEW (60% SUBMITTAL)						

MMES | PMC



SOUTHEAST DRAINAGE AND MDC NO. 5 SITE PLAN

0FT 700 1400 2100 2800FT
SCALE

ABBREVIATIONS

APPROX	APPROXIMATE
BM	BENCHMARK
CL OR ℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CWSA	CHIPPED WOOD STORAGE AREA
DWG	DRAWING
E	EAST
EA	EACH
EL	ELEVATION
EXIST	EXISTING
FL	FLOWLINE
FT	FEET OR FOOT
HWY	HIGHWAY
MDC	MISSOURI DEPARTMENT OF CONSERVATION
MHTD	MISSOURI HIGHWAY TRANSPORTATION DEPARTMENT
MSA	MATERIAL STAGING AREA
MW	MONITORING WELL
NO. or #	NUMBER
NTS	NOT TO SCALE
R	RADIUS
REQ'D	REQUIRED
REV	REVISION
SE	SOUTHEAST
TSA	TEMPORARY STORAGE AREA
TYP	TYPICAL
VP	VICINITY PROPERTY
W	WEST OR WATER
WV	WITH
WSS	WELDON SPRING SITE
WSSRAP	WELDON SPRING SITE REMEDIAL ACTION PROJECT

GENERAL LEGEND

N 1041500 E 96000	CONSTRUCTION GRID COORDINATE
▲	BENCHMARK
◆	MONITORING WELL
	CONTAMINATED AREA
TOP / BOTTOM	EXCAVATION EMBANKMENT
TOP / TOE	FILL EMBANKMENT
104	REMEDIATION AREA DESIGNATION
216	COORDINATE REFERENCE POINT
	COMPACTED FILL
	AGGREGATE
	EXISTING GROUND

NOTES

REFERENCE DRAWINGS

38400-VP-6083 CHEMICAL PLANT & TE MAP, VICINITY MAP, LIST OF DRAWINGS AND GENERAL NOTES

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. _____

QUALITY LEVEL 2
MKES DOCUMENT NO. 3840-V-EN-0455-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION & VICINITY PROPERTY MDC NO. 5

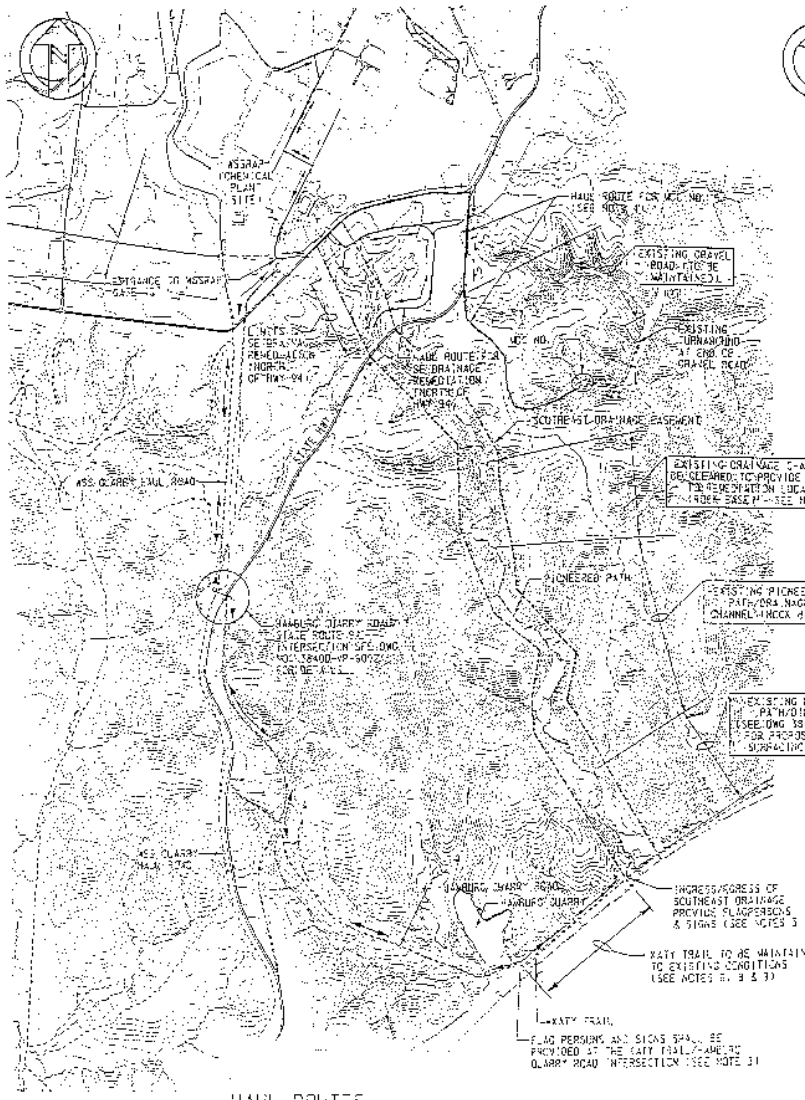
SOUTHEAST DRAINAGE SITE PLAN, ABBREVIATIONS AND GENERAL LEGEND

DESIGNED | DRAWN | CHECKED | INSPECTED | RECOMMENDED | APPROVED | DATE | ENGR MGR/DA MGR | DATE | PMC ENGR MGR | DATE | PMC DA MGR | DATE

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET STEWART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6084 REV A

NO	DATE	REVISION	BY	CH	DES MGR	ENG'G MGR	DA	ENG'G MGR	DA
△	1-24-97	ISSUED FOR REVIEW (60% SUBMITTAL)							

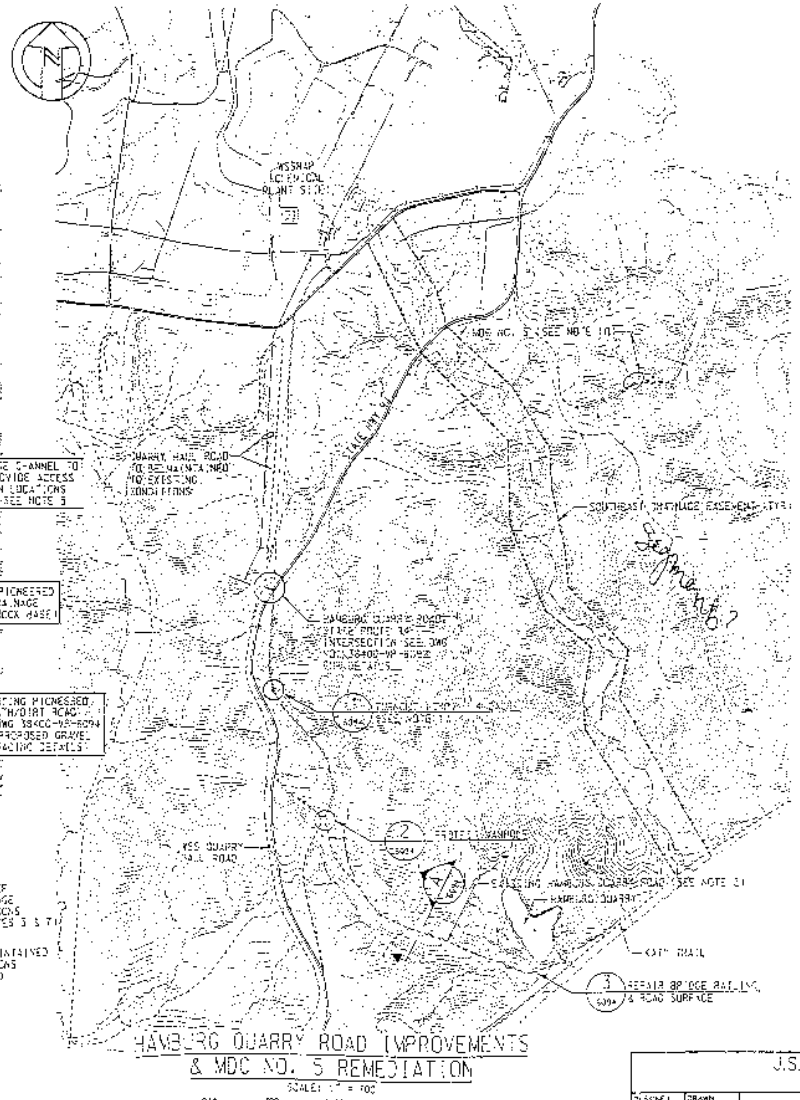


HAUL ROUTES

SCALE: 1" = 700'

0FT 700 1400 2100 2800FT

SCALE



HAMBURG QUARRY ROAD IMPROVEMENTS & MDC NO. 5 REMEDIATION

SCALE: 1" = 700'

0FT 700 1400 2100 2800FT

SCALE

NOTES

1. TURNOUT LOCATIONS TO BE FIELD DETERMINED WITH CONTRACTOR APPROVAL.
2. SEE DRAWING 38400-VP-6094 FOR HAMBURG QUARRY IMPROVEMENTS CONSISTING OF TURNOUTS, DRAINAGE CROSS-OVERS, MANHOLE PROTECTION AND BRIDGE REPAIRS. HAMBURG QUARRY ROAD TO BE MAINTAINED TO EXISTING CONDITIONS.
3. FLAGPERSONS AND SIGNS SHALL BE PROVIDED BY THE SUBCONTRACTOR. SUBCONTRACTOR TO CONTACT DON MARSHALL OF THE WHTD TO PROVIDE APPROPRIATE SIGNAGE REQUIRED BY PERMIT. (CONTRACTOR PROVIDES PERMIT).
4. HAUL TRUCKS SHALL BE ESCORTED ALONG HIGHWAY 94. ESCORT VEHICLES SHALL BE WITH FLASHING LIGHTS SHALL BE IN FRONT AND REAR OF HAUL TRUCKS.
5. CLEANED PATH SHALL CONSIST OF VEGETATION REMOVAL, TRIMMING TREES, REMOVING FALLEN TREES AND BLADING EXISTING DRAINAGE BOTTOM (15' WIDE) FOR HAUL TRUCK ACCESSABILITY.
6. AT ALL TIMES KATY TRAIL SHALL BE GRADED TO ITS EXISTING CONDITION. PEDESTRIANS ON KATY TRAIL HAVE THE RIGHT-OF-WAY. NO BARRIERS SHALL BE PLT ON KATY TRAIL.
7. PROVIDE RIGHT BARRIER AT PIONEERED PATH ENTRANCE TO PREVENT VEHICULAR ACCESS AT THE END OF EACH WORK DAY.
8. KEEP ALL EXISTING CULVERTS ALONG KATY TRAIL CLEAN OF SOIL AND DEBRIS.
9. NO VEHICULAR TRAVEL ON KATY TRAIL EXCEPT WHERE SHOWN.
10. SEE DRAWING 38400-VP-6035 FOR REMEDIATION DETAILS.

REFERENCE DRAWINGS

38400-VP-6050 CONTAMINATED SOIL EXCAVATION AND RESTORATION DETAILS (SHEET 1 OF 2)

38400-VP-6092 HIGHWAY 94/HAMBURG QUARRY ROAD INTERSECTION

38400-VP-6094 MISCELLANEOUS SECTIONS AND DETAILS (SHEET 2 OF 2)

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SHEET 3

QUALITY LEVEL 2
WASS DOCUMENT NO. 3840-VWEN-G-01 0456-1

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE & VICINITY PROPERTY MDC NO. 5 REMEDIATION

HAUL ROUTES, HAMBURG QUARRY ROAD IMPROVEMENTS AND MDC NO. 5 REMEDIATION

CIVIL

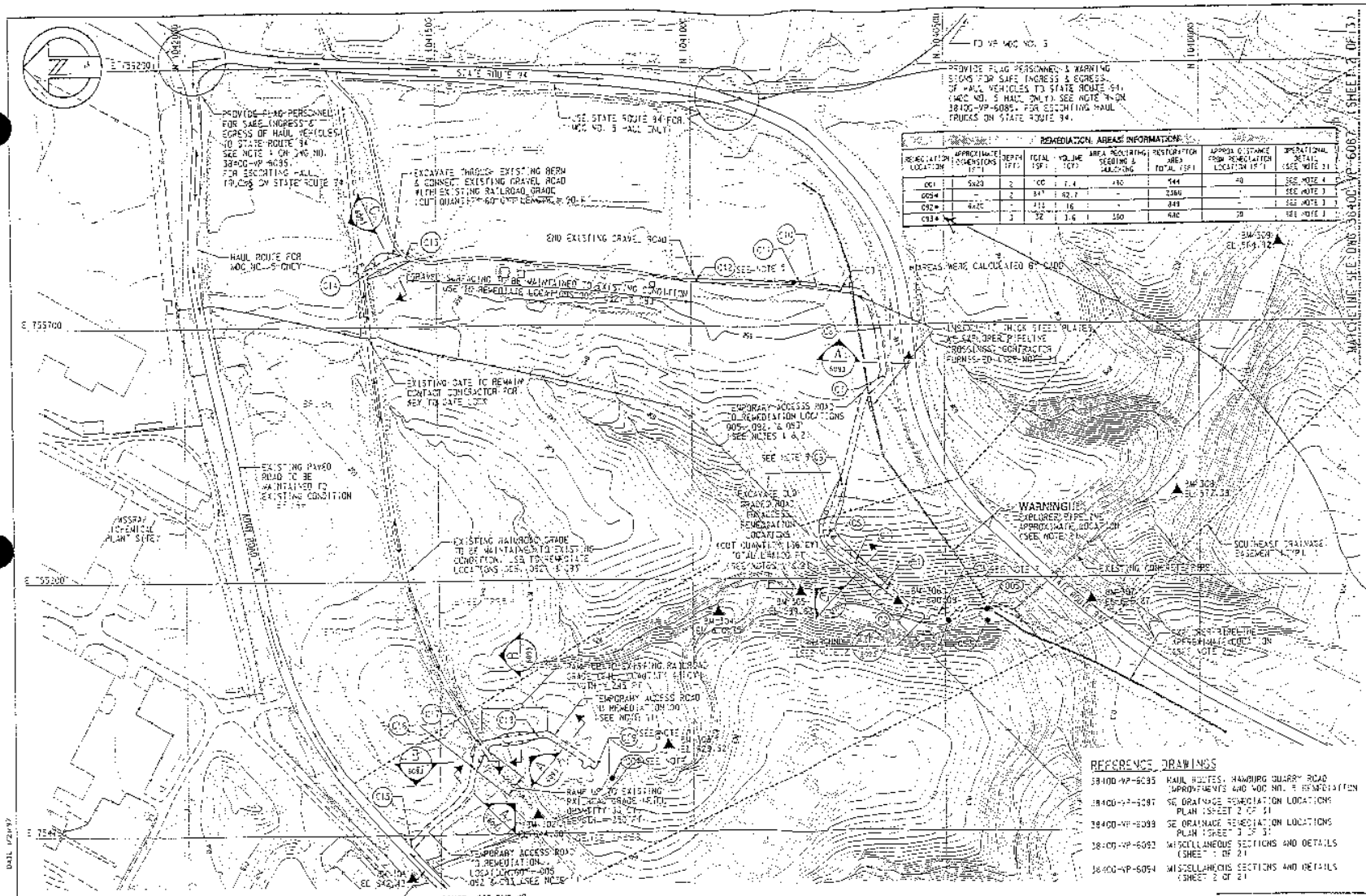
MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO CA 94105

PROJECT NO. DE-AC05-86OR21548

DRAWING NO. 38400-VP-6085 REV. A

NO	DATE	REVISION	BY	CK	DES ENGR	CHIEF ENGR	CA	ENGR MGR	CA
A		ISSUED FOR PRELIM 60% SUBMITTAL							

MKS MMC



REMEDIATION LOCATION	APPROXIMATE DIMENSIONS (FT)	DEPTH (FT)	TOTAL VOLUME (CY)	AREA REQUIRING SEEDING & MULCHING	RESTORATION AREA TOTAL (SF)	APPROX DISTANCE FROM REMEDIATION LOCATION (FT)	OPERATIONAL DETAIL (SEE NOTE 2)
001	5x20	2	100	74	440	40	SEE NOTE 4
0094	-	2	347	82.7	2360	-	SEE NOTE 3
092*	4x20	-	111	16	849	-	SEE NOTE 3
093*	-	3	32	3.6	160	60	SEE NOTE 3

NOTES

1. TEMPORARY ACCESS ROAD ALIGNMENT SHALL BE FIELD DETERMINED WITH CONTRACTOR APPROVAL TO MINIMIZE CLEARING OF TREES AND BRUSH.
2. WARNING!!! EXPLORER PETROLEUM'S 24 INCH HIGH PRESSURE PETROLEUM PRODUCTS PIPELINE. CONTACT LAYTON WILSON AT 618-254-4003, 48 HOURS PRIOR TO ANY CONSTRUCTION WITHIN 50 FEET OF PIPELINE.
3. REMEDIATE LOCATIONS 092, 093 AND 005 AS ONE AREA. SUBCONTRACTOR SHALL FOLLOW STEP BELOW UNLESS OTHERWISE APPROVED BY CONTRACTOR.
   A. REMEDIATED PORTIONS OF AREAS OUTSIDE EXISTING DRAINAGE CHANNEL. DIVERT WATER AWAY FROM THESE OUTSIDE AREAS AND INTO THE DRAINAGE CHANNEL.
   B. DIVERT DRAINAGE USING EARTHBERM OPTION. RUN DISCHARGE PIPE INTO EXISTING CONCRETE PIPE.
   C. REMEDIATE INSIDE DRAINAGE CHANNEL BY STAMPING AT UPSTREAM AND TRANSPORTING MATERIAL TO HAUL TRUCK AT THE END OF THE ACCESS ROAD. KEEP HAUL TRUCKS OUTSIDE OF CONTAMINATED AREAS.
   D. SEED, MULCH AND PROVIDE EROSION CONTROL BLANKET ON ALL DISTURBED AREAS.
4. HAUL TRUCKS SHALL STAMPDY ON ACCESS HAUL ROAD WHILE BACKHOE TRANSPORTS LOADS FROM REMEDIATION LOCATION.
5. END SECTION (C2) AND BEGIN SECTION (3) AT (C2).
6. END SECTION (3) AT (C2), MATCH TO EXISTING GRAVEL ROAD.
7. TARP HAUL TRUCKS AT THE END OF THE TEMPORARY HAUL ROAD. SEE DETAIL 2 ON 38400-VP-6094.
8. SEE OPERATIONAL DETAILS ON DRAWING 38400-VP-6093 FOR APPROXIMATE SCENARIOS DEPICTING REMEDIATION.

ROAD ALIGNMENT COORDINATES TABLE			
ID #	NORTH	EAST	TOP OF ROAD SURFACE EL
C1	N 1040514	E 755123	594
C2	N 1040576	E 755141	599
C3	N 1040616	E 755170	604
C4	N 1040677	E 755225	616
C5	N 1040721	E 755286	628
*C6	N 1040701	E 755367	641
C7	N 1040622	E 755597	644
C8	N 1040633	E 755697	644
C9	N 1040702	E 755763	651
C10	N 1040752	E 755775	652
C11	N 1040792	E 755777	654
C12	N 1040860	E 755783	654
C13	N 1041561	E 755837	655*
C14	N 1041628	E 755805	6502
C15	N 1041559	E 754979	642*
C16	N 1041435	E 754833	649
C17	N 1041412	E 754879	6482
C18	N 1041512	E 754894	654
C19	N 1041181	E 754832	631.52

* SEE NOTE 5

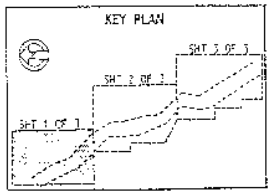
REFERENCE DRAWINGS

38400-VP-6085 HAUL ROUTES, HAMBURG QUARRY ROAD IMPROVEMENTS AND WOC NO. 5 REMEDIATION
38400-VP-6086 SE DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 2)
38400-VP-6093 SE DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)
38400-VP-6092 MISCELLANEOUS SECTIONS AND DETAILS (SHEET 1 OF 2)
38400-VP-6094 MISCELLANEOUS SECTIONS AND DETAILS (SHEET 2 OF 2)

SET I.D. _____

QUALITY LEVEL 2
WASS DOCUMENT NO. 3042-VIEN-P-07-0457-A

KEY PLAN



PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

NO.	DATE	REVISION	BY	CK	DES ENGR	PROJ ENGR	QA	PROJ ENGR	QA
1	12-4-97	ISSUED FOR REVIEW 60% SUBMITTAL							

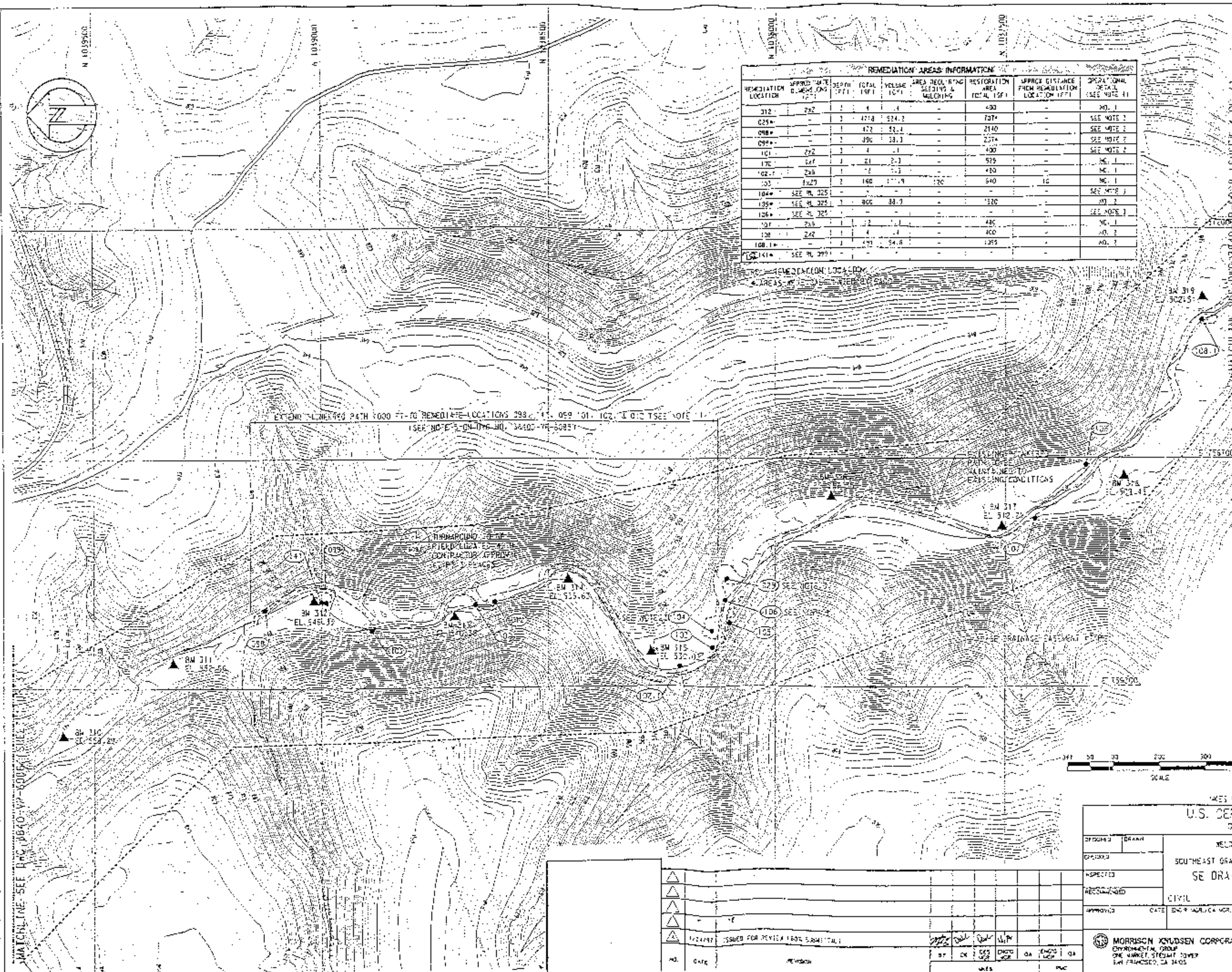
U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE & VICINITY PROPERTY WOC NO. 5 REMEDIATION
SE DRAINAGE REMEDIATION LOCATIONS PLAN
SHEET 1 OF 3

DESIGNED | DRAWN | CHECKED | INSPECTED | RECOMMENDED | CIVIL | APPROVED | DATE | PROJ ENGR. MGR. | DATE | PROJ QA MGR. | DATE

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
240 MARKET STREET TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-860R21548
DRAWING NO. 38400-VP-6086
REV. 1



REMEDIATION AREAS INFORMATION

REMEDIATION LOCATION	APPROXIMATE DIMENSIONS (FT)	DEPTH (FT)	TOTAL (SF)	VOLUME (CY)	AREA REQUIRING SEEDING & MULCHING	RESTORATION AREA TOTAL (SF)	APPROX DISTANCE FROM REMEDIATION LOCATION (FT)	OPERATIONAL DETAIL (SEE NOTE 4)
312	2x2	1	4	.1	-	400	-	NO. 1
025*	-	3	4718	524.2	-	7074	-	SEE NOTE 3
098*	-	1	472	52.4	-	2140	-	SEE NOTE 2
099*	-	1	300	33.3	-	2274	-	SEE NOTE 2
101	2x2	1	4	.1	-	400	-	SEE NOTE 2
170	3x7	1	21	2.3	-	525	-	NO. 1
102.1	2x6	1	12	1.3	-	430	-	NO. 1
103	8x20	2	160	11.9	120	540	10	NO. 1
104*	SEE RL 025	-	-	-	-	-	-	SEE NOTE 3
105*	SEE RL 025	1	800	88.9	-	1320	-	NO. 2
106*	SEE RL 025	-	-	-	-	-	-	SEE NOTE 3
107	2x6	1	12	1.3	-	480	-	NO. 1
108	2x2	1	4	.1	-	400	-	NO. 2
108.1*	-	1	491	54.6	-	1095	-	NO. 2
141*	SEE RL 099	-	-	-	-	-	-	

(O) = REMEDIATION LOCATION
* AREAS ... [illegible]

NOTES

1. EXTENDED PIONEERED PATH SHALL BE FIELD DETERMINED WITH CONTRACTOR APPROVAL TO MINIMIZE CLEARING OF TREES AND BRUSH. EXISTING FLOWLINE OF DRAINAGE CHANNEL SHOULD BE FOLLOWED TO MINIMIZE DISTURBANCE OF AREA.
2. HAUL TRUCK SHALL STANDBY ON PIONEERED PATH WHILE BACKHOE TRANSPORTS LOADS FROM REMEDIATION LOCATION.
3. REMEDIATE LOCATIONS 104, 106 AND 025 AS ONE AREA. SUBCONTRACTOR SHALL FOLLOW STEPS BELOW UNLESS OTHERWISE APPROVED BY CONTRACTOR.
   A. REMEDIATE PORTIONS OF AREAS OUTSIDE EXISTING DRAINAGE CHANNEL.
   B. ONCE OUTSIDE AREAS ARE REMEDIATED, CONSTRUCT DIVERSION DITCH AROUND AREA AS SHOWN (ACTUAL LOCATION TO BE APPROVED BY CONTRACTOR).
   C. REMEDIATE INSIDE DRAINAGE CHANNEL BY STARTING AT UPSTREAM END AND TRANSPORTING MATERIAL TO HAUL TRUCKS AT THE DOWNSTREAM END. KEEP HAUL TRUCKS OUTSIDE OF CONTAMINATED AREAS.
   D. SEED, MULCH & PROVIDE EROSION CONTROL BLANKET ON ALL DISTURBED AREAS INCLUDING AREAS USED AS STOCKPILE AREAS.
4. SEE OPERATIONAL DETAILS ON DRAWING 3840-VP-6089 FOR APPROXIMATE SCENARIOS DEPICTING REMEDIATION.

REFERENCE DRAWINGS

3840-VP-6085	HAUL ROUTES, HAMBURG QUARRY ROAD IMPROVEMENTS AND MCC NO. 5 REMEDIATION
3840-VP-6086	SE DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
3840-VP-6088	SE DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)
3840-VP-6093	MISCELLANEOUS SECTIONS AND DETAILS (SHEET 1 OF 2)

KEY PLAN

SHT 1 OF 3 — SHT 2 OF 3 — SHT 3 OF 3

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. ____

QUALITY LEVEL 2
WBS DOCUMENT NO. 3840-...-0456-A

NO.	DATE	REVISION	BY	CK	CES	ENGR	QA	PMC
A	1/24/97	ISSUED FOR REVIEW (60% SUBMITTAL)						

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE & VICINITY PROPERTY MCC NO. 5 REMEDIATION

SE DRAINAGE REMEDIATION LOCATIONS PLAN
SHEET 2 OF 3

CIVIL — WP 470

DESIGNED / DRAWN / CHECKED / INSPECTED / RECOMMENDED / APPROVED / DATE / ENGR MGR./CA MGR. / DATE / PMC ENGR. MGR. / DATE / PMC CA MGR. / DATE

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 3840-VP-6087 REV. A

FILENAME: VP/SFURANIZ/VP6087.DGN DATE: 1/21/97

REMEDIATION AREAS INFORMATION

REMEDIATION LOCATION	APPROXIMATE DIMENSIONS (FT)	DEPTH (FT)	TOTAL (SF)	VOLUME (CY)	AREA REQUIRING SEEDING & MULCHING	RESTORATION AREA TOTAL (SF)	APPROX DISTANCE FROM REMEDIATION LOCATION (FT)	OPERATIONAL DETAIL (SEE NOTE 3)
027	15x25	2	375	27.8	0	559	0	NO. 1
029	5x5	2	25	1.9	50	556	5	NO. 2
028	2x2	2	4	.3	5300	195	250	SEE NOTE 6
059	1x20	3	30	2.2	150	122	20	SEE NOTE 6
061*	–	3.5	254	12.9	–	1201	–	NO. 3
062	2x2	2	4	.3	120	196	10	NO. 2
063	15x40	1.5	600	11.1	–	774	–	NO. 1
064*	–	2	1987	147.2	–	1270	–	NO. 3
065*	–	2	153	5.6	–	1589	–	NO. 3
066	4x4	2	16	1.2	140	256	15	SEE NOTE 6
067*	–	1	1157	42.1	–	1844	–	NO. 3
068	3x3	1	9	.3	50	91	5	SEE NOTE 6
072*	–	1.5	1625	29.7	–	1989	–	NO. 3
110	3x25	1	106	11.7	–	1173	–	NO. 1
110.1	12x100	1	1200	111.1	–	1204	–	NO. 1
111	12x10	2	120	11.1	240	384	20	SEE NOTE 6
112	6x6	1	36	4	120	576	15	SEE NOTE 6
113	3x5	1	15	1.5	120	214	10	NO. 2
114*	–	1	1345	150.0	–	4868	–	NO. 3
115*	6x20	1	180	6.7	–	432	–	NO. 3
115*	–	1	1470	108.9	–	2032	–	NO. 3
117*	(see 061)	–	–	–	–	–	–	–
115	3x15	1	45	1.3	240	198	20	SEE NOTE 6
116*	–	3	435	45.1	–	1510	–	NO. 3
120*	–	1	115	19.4	–	592	–	NO. 1
121	3x7	3	28	3.1	540	550	15	SEE NOTE 6
122	–	.5	–	–	–	0	–	NO. 1
123	3x25	1.5	75	4.2	540	409	5	NO. 2
124	8x20	3	120	11.1	1440	912	120	SEE NOTE 5
149	3x5	1	15	1.7	120	483	15	SEE NOTE 6
153	3x5	1	15	1.7	50	183	5	NO. 2
154	3x5	1	15	1.7	120	483	15	SEE NOTE 5

* AREAS WERE CALCULATED BY CADD

NOTES

1. REGRADE EXISTING PIONEERED PATH IN THIS AREA TO 10% MAXIMUM GRADES. TOP OF ROAD CENTERLINE SPOT ELEVATIONS SHOWN ARE APPROXIMATE. ACTUAL ALIGNMENT TO BE FIELD DETERMINED WITH APPROVAL BY CONTRACTOR TO MINIMIZE LARGE TREE REMOVAL (12" DIAMETER AND LARGER) AND VEGETATION DISTURBANCE.
2. EXISTING PIONEERED PATH MAY NEED TO BE REALIGNED IN THIS AREA TO PROVIDE ACCEPTABLE GRADE AND BALANCE CUT AND FILL QUANTITIES.
3. LOADING AREA PROVIDED ALONG PIONEERED PATH FOR HAUL TRUCKS TO STANDBY WHILE BACKHOE TRANSPORTS LOADS FROM REMEDIATION LOCATIONS. LOADS SHALL BE COVERED IF TRAVEL DISTANCE IS OVER 200 FEET. LOADING AREA LOCATION TO BE DETERMINED IN FIELD.
4. TURNAROUND LOCATIONS TO BE FIELD DETERMINED.
5. SEE OPERATIONAL DETAILS DRAWING 38400-VP-6089 FOR APPROXIMATE SCENARIOS DEPICTING REMEDIATION.
6. HAUL TRUCK SHALL STANDBY ON PIONEERED PATH WHILE BACKHOE TRANSPORTS LOADS FROM REMEDIATION LOCATIONS.
7. PROVIDE 12 INCH CMP CULVERT UNDER PIONEERED PATH ALONG EXISTING PLOWLINE.

REFERENCE DRAWINGS

38400-VP-6086 SOUTHEAST REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
38400-VP-6087 SOUTHEAST REMEDIATION LOCATIONS PLAN (SHEET 2 OF 3)
38400-VP-6089 OPERATIONAL DETAILS
38400-VP-6092 MISCELLANEOUS SECTIONS & DETAILS (SHEET 1 OF 2)
38400-VP-6094 MISCELLANEOUS SECTIONS & DETAILS (SHEET 2 OF 2)

KEY PLAN

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. ____

QUALITY LEVEL 2
MMES DOCUMENT NO. 3040-VTEN 0-0459-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE & WICHITA PROPERTY MDC NO. 5 REMEDIATION

SOUTHEAST REMEDIATION LOCATIONS PLAN
SHEET 3 OF 3

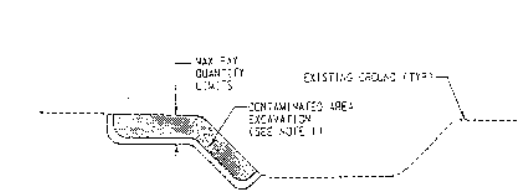
MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6088 REV. A

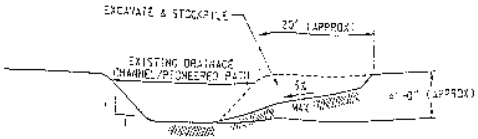
NO.	DATE	REVISION	BY	CK	DES ENGR	ENGR MGR	QA	ENGR MGR	QA
1	7/24/91	ISSUED FOR REVIEW (60% SUBMITTAL)							

MMES MMC

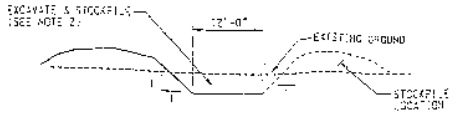
MATCHLINE SEE DWG 3040-VP-6087 (SHEET 2 OF 3)



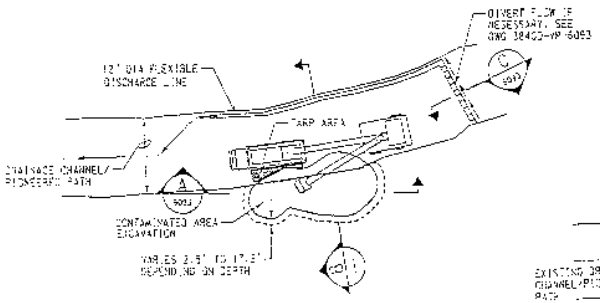
SECTION B
NTS



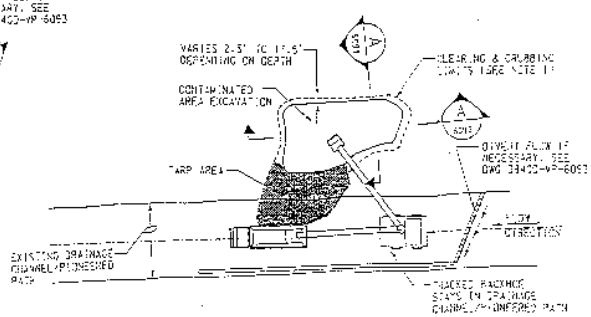
SECTION D
NTS



SECTION E
NTS

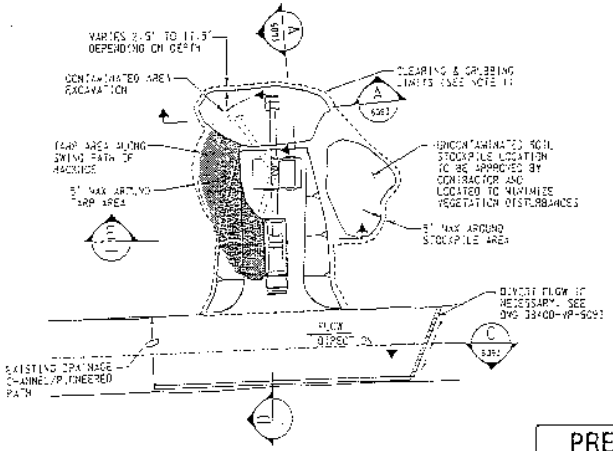


OPERATIONAL DETAIL 1
NTS



PLAN

OPERATIONAL DETAIL 2
NTS



PLAN

OPERATIONAL DETAIL 3
NTS

NOTES

1. VERTICAL EXCAVATION FOR 3.5 FEET OR LESS SEE "REMEDIATION AREAS INFORMATION TABLE" ON DRAWINGS 38400-VP-6086, -6087 AND -6088.

REFERENCE DRAWINGS

38400-VP-6086 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 2)

38400-VP-6087 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 2)

38400-VP-6088 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)

38400-VP-6093 MISCELLANEOUS SECTIONS & DETAILS (SHEET 1 OF 2)

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D.

QUALITY LEVEL 2
MKCS DOCUMENT NO. 38400-VP-EN-0-01-2490-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

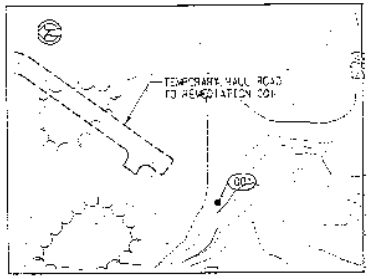
WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION

OPERATIONAL DETAILS

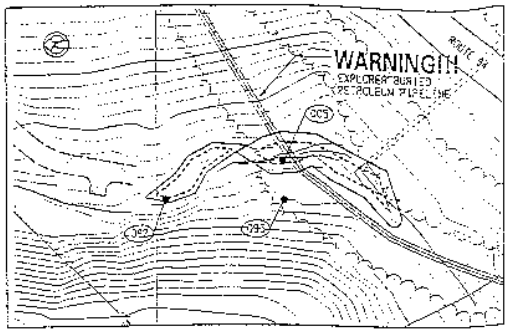
NO.	DATE	REVISION	BY	CK	DES MGR	ENG'G MGR	QA	ENG'G MGR	QA
A	7/24/93	ISSUED FOR REVIEW (60% SUBMITTAL)							

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
THE MARKET STEWART TOWER
SAN FRANCISCO, CA 94105

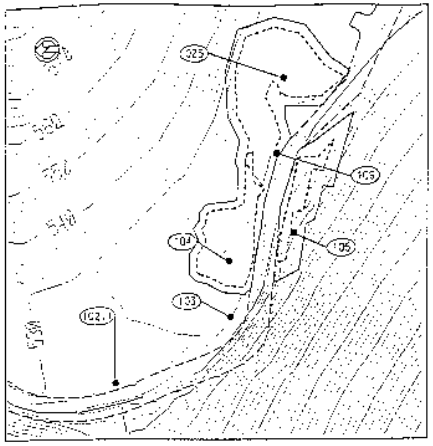
PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6089 REV. A



DETAIL 1 / 6086
SCALE: 1" = 40'



DETAIL 2 / 6086
SCALE: 1" = 40'



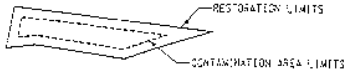
DETAIL 4 / 6087
SCALE: 1" = 40'

NOTES

REFERENCE DRAWINGS

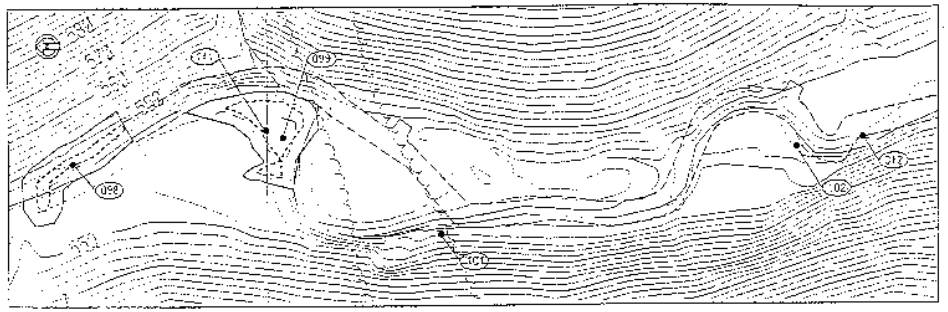
38400-VP-6086 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
38400-VP-6087 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 3)
38400-VP-6088 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)

LEGEND

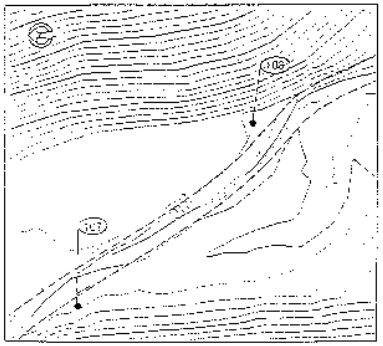


NOTE TO REVIEWERS:

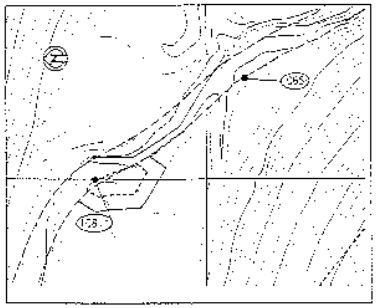
1. EXCAVATION COORDINATES TO BE ADDED WITH NEXT SUBMITTAL.



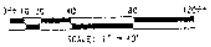
DETAIL 3 / 6087
SCALE: 1" = 40'



DETAIL 5 / 6087
SCALE: 1" = 40'



DETAIL 6 / 6087 / 6088
SCALE: 1" = 40'



PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET NO.

QUALITY LEVEL 3
MKCS DOCUMENT NO. 3840-VIEN-D-0567-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

DESIGNED | DRAWN
CHECKED
INSPECTED
RECOMMENDED
APPROVED | DATE | CHIEF, MGR./DIA MGR. | DATE | PMC ENGRG MGR. | DATE | PMC DA MGR. | DATE

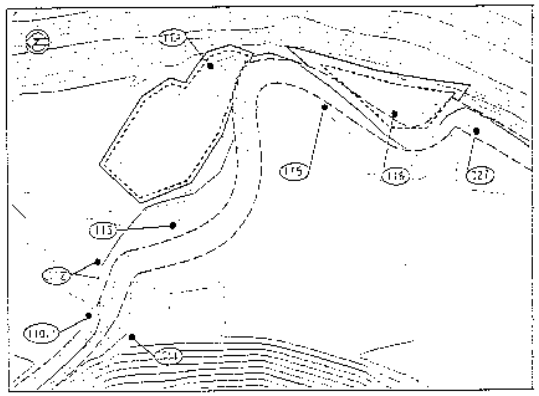
YELDON SPRING SITE REMEDIAL ACTION PROJECT
YELDON SPRING, MISSOURI
SOUTH-EAST DRAINAGE REMEDIATION
CONTAMINATED SOIL EXCAVATION AND RESTORATION DETAILS
SHEET 1 OF 2
CIVIL
AP 470

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
345 MARKET STREET TOWER
SAN FRANCISCO, CA 94105

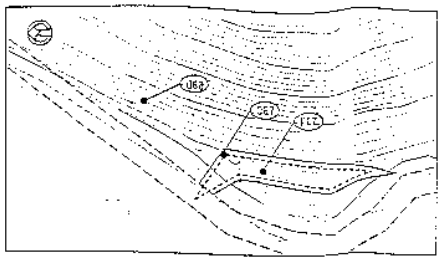
PROJECT NO. DE-AC05-86OR21948
DRAWING NO. 38400-VP-6090
REV. A

NO.	DATE	REVISION	BY	CK	DES MGR	CHIEF MGR	DA	ENGRG MGR	DA
1	12/4/97	ISSUED FOR REVIEW (60% SUBMITTAL)							

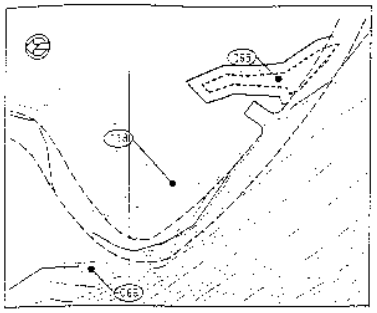
MKCS | PMC



DETAIL 7 (SCAB)
SCALE: 1" = 40'



DETAIL 8 (SCAB)
SCALE: 1" = 40'



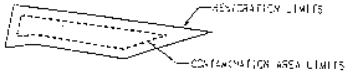
DETAIL 9 (SCAB)
SCALE: 1" = 40'

NOTES

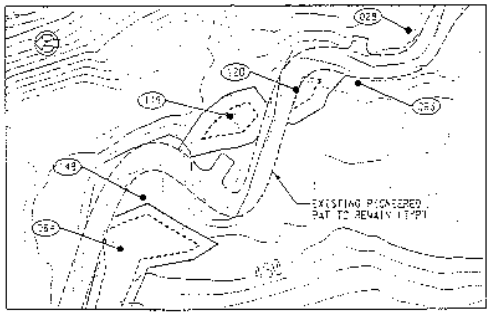
REFERENCE DRAWINGS

38400-VP-6036 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
38400-VP-6037 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 3)
38400-VP-6038 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)

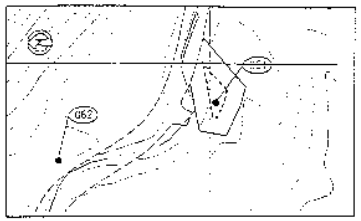
LEGEND



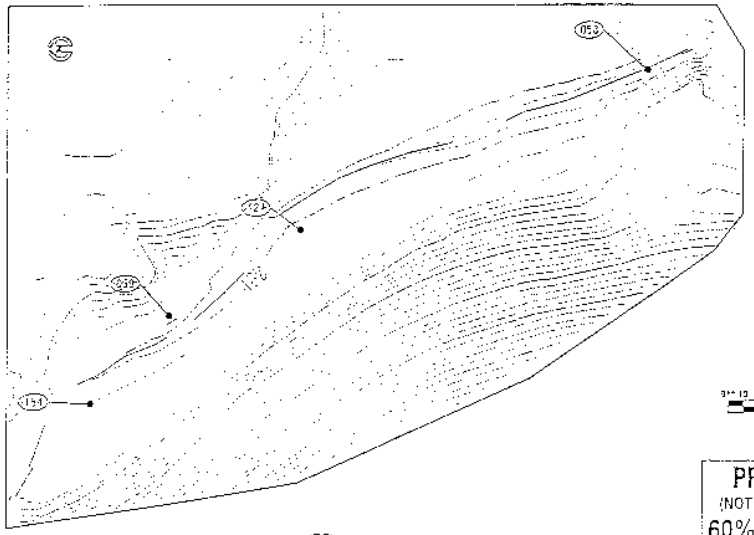
NOTE TO REVIEWER:
1. EXCAVATION COORDINATES TO BE ADDED WITH NEXT SUBMITTAL.



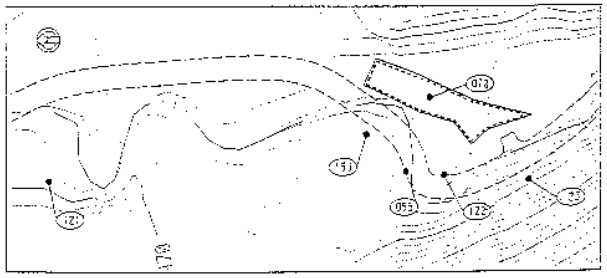
DETAIL 10 (SCAB)
SCALE: 1" = 40'



DETAIL 11 (SCAB)
SCALE: 1" = 40'



DETAIL 13 (SCAB)
SCALE: 1" = 40'



DETAIL 12 (SCAB)
SCALE: 1" = 40'

SCALE: 1" = 10'

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET I.D. _____

QUALITY LEVEL 2
MKES DOCUMENT NO. 3840-YEEN-D-0162-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

DESIGNED / DRAWN
CHECKED
INSPECTED
RECOMMENDED
APPROVED — DATE: CHIEF ARCHITECT — DATE: PROJ ENGR. MGR. — DATE: PROJ QA MGR. — DATE

YELDON SPRING SITE REMEDIAL ACTION PROJECT
YELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION
CONTAMINATED SOIL EXCAVATION
AND RESTORATION DETAILS
CIVIL — SHEET 2 OF 2 — VP 470

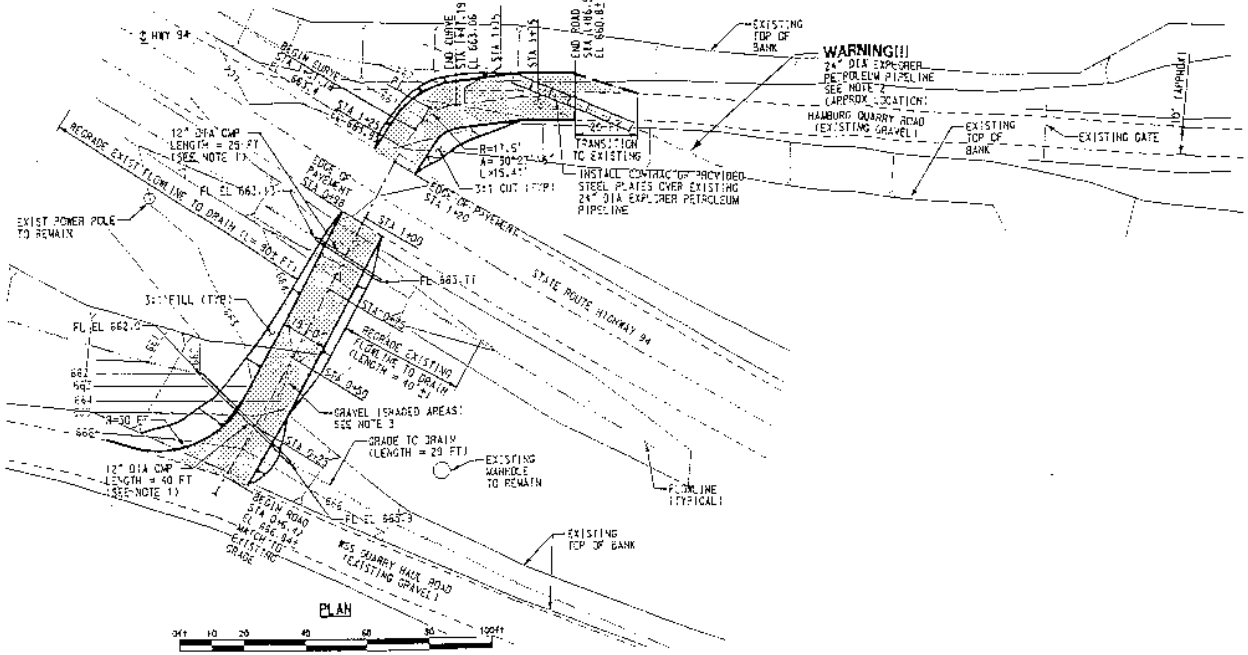
MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6091 — REV. A

NO	DATE	REVISION	BY	CK	DES MGR	PROJ MGR	QA	ENGRG MGR	QA
1		ISSUED FOR REVIEW - 60% SUBMITTAL							

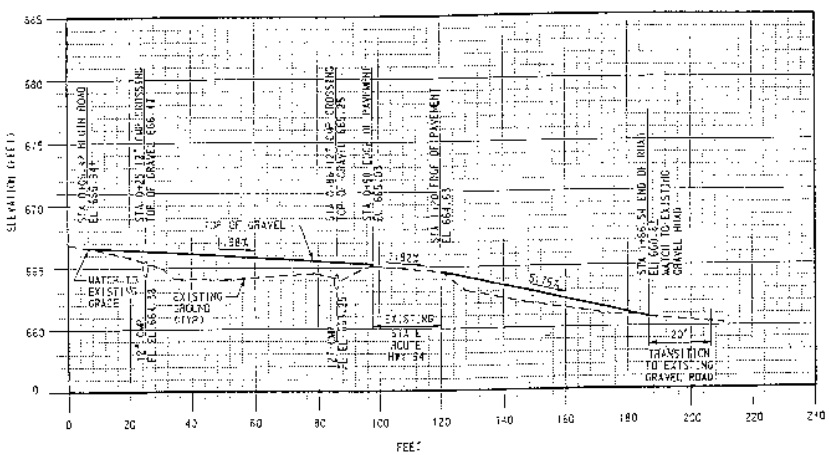
MKES — MMK

FILENAME: 38400-VP-6091.DGN UNIT: 11-23-97



PLAN

HORIZONTAL SCALE: 1" = 20'



PROFILE

HORIZONTAL SCALE: 1" = 20'

VERTICAL SCALE: 1" = 5'

NOTES

1. INSTALL CONTRACTOR PROVIDED STEEL PLATES OVER 12 INCH CMP AS NECESSARY TO PREVENT DAMAGE TO PIPE.
2. WARNING!!! EXPLORER PETROLEUM'S 24 INCH PRESSURE PETROLEUM PRODUCTS PIPELINE. CONTRACT LAYTON WILSON 618-254-4003. 48 HOURS PRIOR TO ANY CONSTRUCTION WITHIN 50 FEET OF PIPELINE.
3. AFTER REMEDIATION OF SOUTHEAST DRAINAGE REMOVE GRAVEL SURFACE AND RESTORE TO EXISTING CONDITIONS. SEED AND MULCH.

REFERENCE DRAWINGS

38400-VP-6085 HALL ROUTES, HAMBURG QUARRY ROAD IMPROVEMENTS AND MDC NO. 5 REMEDIATION

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET NO. _____

QUALITY LEVEL 2
UKES DOCUMENT NO. 38400-V-EM-D-01-0463-A

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION

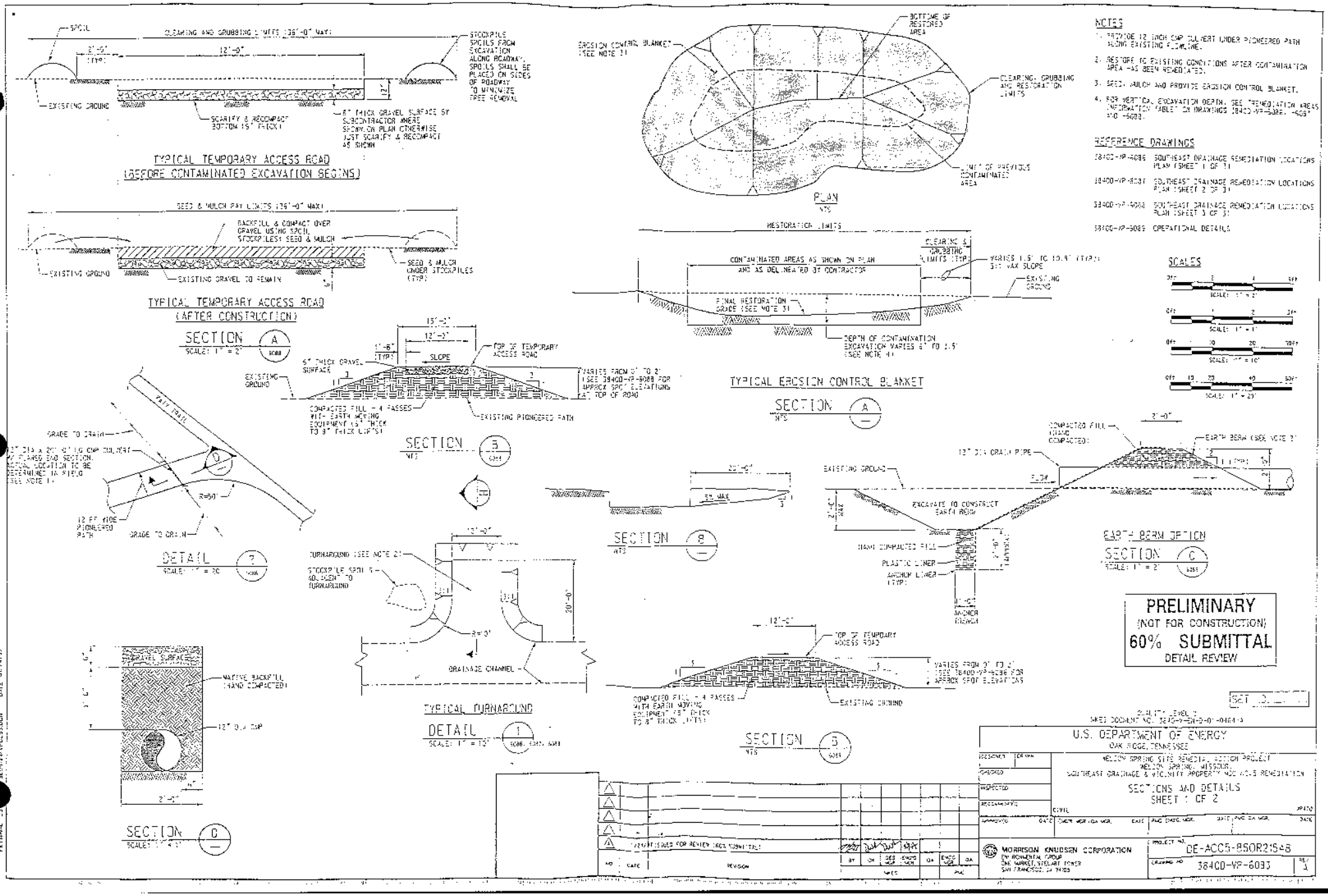
HIGHWAY 94/HAMBURG QUARRY ROAD INTERSECTION

CIVIL

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6092
REV. A

NO.	DATE	REVISION	BY	CK	DES MGR	ENG'G MGR	DA	ENG'G MGR	DA
1	1/29/97	ISSUED FOR REVIEW (60% SUBMITTAL)							



NOTES

1. PROVIDE 12 INCH CMP CULVERT UNDER PIONEERED PATH ALONG EXISTING FLOWLINE.
2. RESTORE TO EXISTING CONDITIONS AFTER CONTAMINATION AREA HAS BEEN REMEDIATED.
3. SEED, MULCH AND PROVIDE EROSION CONTROL BLANKET.
4. FOR VERTICAL EXCAVATION DEPTH, SEE TREATMENT AREAS INFORMATION TABLE ON DRAWINGS 38400-VP-6086, -6087 AND -6088.

REFERENCE DRAWINGS

38400-VP-6086	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)
38400-VP-6087	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 2 OF 3)
38400-VP-6088	SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)
38400-VP-6089	OPERATIONAL DETAILS

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET 2 OF 2

QUALITY LEVEL 2
WBS DOCUMENT NO. 38400-V-EN-D-01-0464-3

NO.	DATE	REVISION	BY	CK	DES ENGR MGR	CHIEF ENGR	QA	ENGR MGR	QA
4									
3									
2									
1									
0		60% ISSUED FOR REVIEW (NOT SUBMITTAL)							

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

DESIGNED | DRAWN | CHECKED | INSPECTED | RECOMMENDED | APPROVED | DATE | CHIEF ENGR MGR | QA MGR | DATE | PJ ENGR MGR | DATE | PJ QA MGR | DATE

MELTON SPRING SITE REMEDIAL ACTION PROJECT
MELTON SPRING, MISSOURI
SOUTHEAST DRAINAGE & VICINITY PROPERTY NOD AOIS REMEDIATION

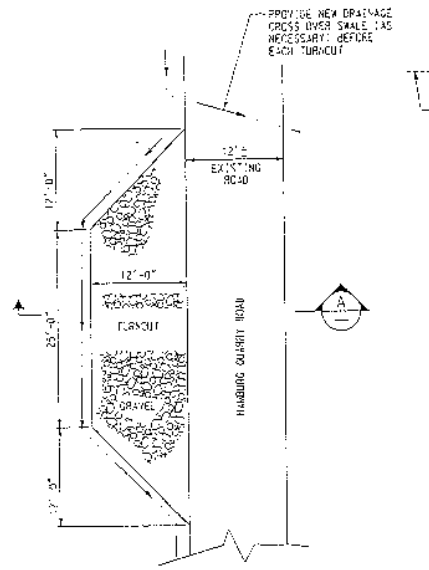
SECTIONS AND DETAILS
SHEET 1 OF 2

CIVIL

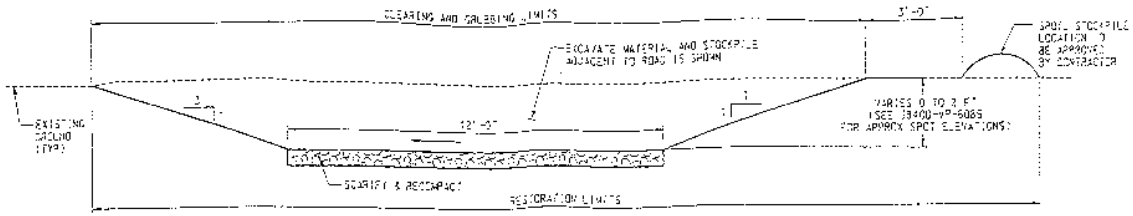
MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET, STEUART TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-89OR21948

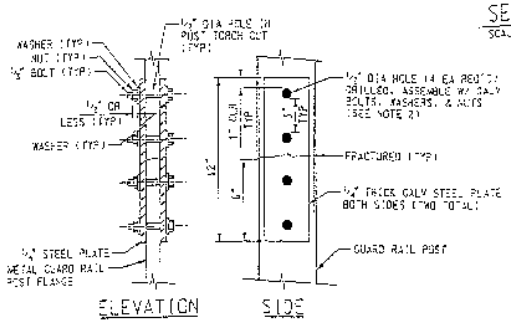
DRAWING NO. 38400-VP-6093 | REV. 4



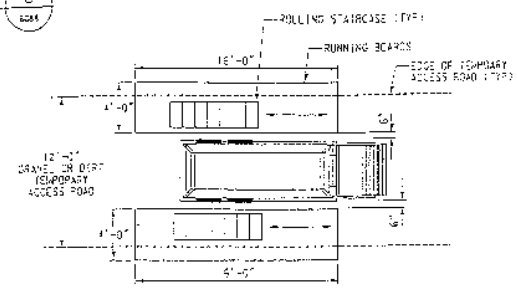
TYPICAL TURNOUT PLAN DETAIL 1
NOT TO SCALE



SECTION C
SCALE: 1" = 2'



ELEVATION SIDE
DETAIL 2
NOT TO SCALE



TARP AREA DETAIL 2
SCALE: 1" = 2'

NOTES

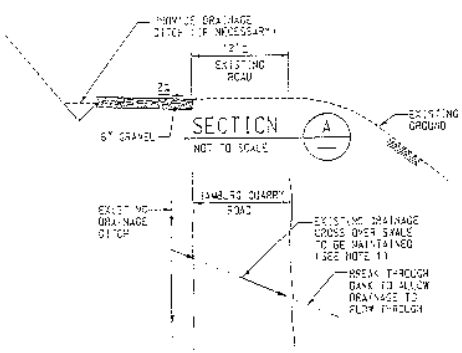
1. EXISTING ROAD HAS 11 DRAINAGE CROSS OVER SWALES THAT MUST REMAIN & BE MAINTAINED.
2. ALL BRIDGE POST REPAIR STEEL COMPONENTS SHALL BE SHOP FABRICATED AND HOT-DIP GALVANIZED.

REFERENCE DRAWINGS

38400-VP-6085 HAUL ROUTE AND HAMBURG QUARRY ROAD IMPROVEMENT PLANS

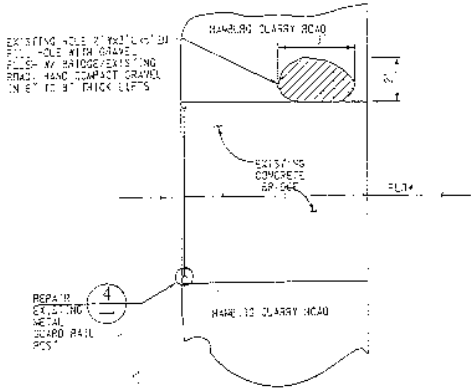
38400-VP-6086 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 1 OF 3)

38400-VP-6084 SOUTHEAST DRAINAGE REMEDIATION LOCATIONS PLAN (SHEET 3 OF 3)

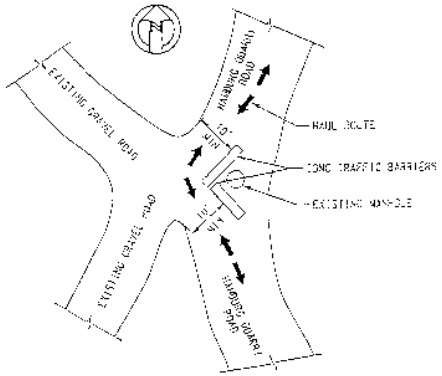


SECTION A
NOT TO SCALE

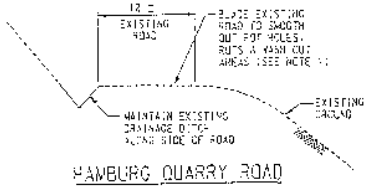
PLAN VIEW



RAILING REPAIR PLAN
DETAIL 3
NOT TO SCALE



PROTECT MANHOLE DETAIL 2
NOT TO SCALE



HAMBURG QUARRY ROAD
SECTION A
NOT TO SCALE

PRELIMINARY
(NOT FOR CONSTRUCTION)
60% SUBMITTAL
DETAIL REVIEW

SET ID. ___

QUALITY LEVEL 2
(SEE DOCUMENT NO. 38400-VSEN-D-01-0491-A)

U.S. DEPARTMENT OF ENERGY
OAK RIDGE, TENNESSEE

WELDON SPRING SITE REMEDIAL ACTION PROJECT
WELDON SPRING, MISSOURI
SOUTHEAST DRAINAGE REMEDIATION

MISCELLANEOUS SECTIONS AND DETAILS
SHEET 2 OF 2

DESIGNED | DRAWN | CHECKED | INSPECTED | RECOMMENDED | APPROVED | DATE | CIVIL | ENGR WORK MGR | DATE | PLC ENGRG MGR | DATE | PLC SA MGR | DATE

NO.	DATE	REVISION	BY	CK	DES GROP	ENGRG MGR	QA	ENGRG MGR	QA
1	11/24/97	ISSUED FOR REVIEW (60% SUBMITTAL)							

AMES | PMC

MORRISON KNUDSEN CORPORATION
ENVIRONMENTAL GROUP
ONE MARKET STREET TOWER
SAN FRANCISCO, CA 94105

PROJECT NO. DE-AC05-86OR21548
DRAWING NO. 38400-VP-6094 REV. 1